

# NovaStar 5 Part II

Operator and Administrator Manual

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## 1 NovaStar 5 Authenicated User Home Page

When you click **OK** from the login interface and begin a session with NovaStar 5 as a n authenicated user, you reach the registered user **Home** page.

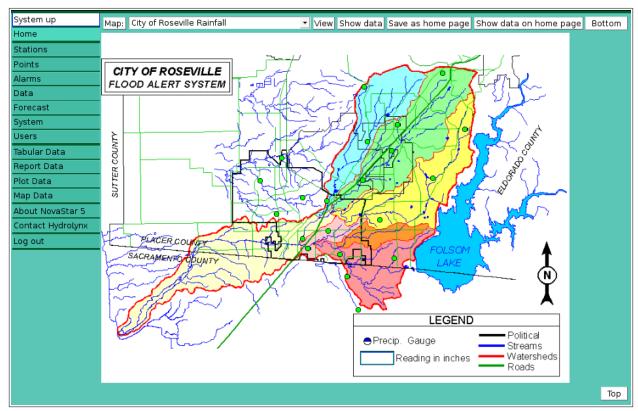


Figure 1.1.1. Registered User Home Page

The default map appears here, as it does in the guest user **Home** page. The default map is the first map defined in the system. Secondary maps are accessible using the **Map Data** command to view the **Map Data Request** page. See Part I, Section 6.3.

The basic options for accessing and viewing database information that are available to guest users are also available on the registered user **Home** page. These include the **Log In** and **Log out** commands, the **Tabular Data, Report Data, Plot Data,** and **Map Data** commands, and the final options available from the menu, **About NovaStar 5** and **Contact HydroLynx**. These commands function as described in Part I of this manual for guest users, even when they are accessed from the registered user **Home** page.

Users logged in with *guest* privileges can view information stored in the NovaStar 5 database while users logged in with *operator* and *administrator* privileges can configure aspects of the NovaStar 5 system using the expanded command menu. The expanded command menu has links to view and edit pages containing information on **Stations**, **Points**, **Alarms**, **Data**, **Forecast**, **System**, and **Users**. These pages are described in Part II of this manual.

The **Stations** and **Points** commands are used to view and configure the NovaStar 5 database to accept and organize incoming data streams. NovaStar 5 has a hierarchical structure of stations and points. Defining **Stations** specifies attributes of each remote station or location associated with data. **Points** are used to assign NovaStar 5's data calibration and data checking capabilities to data provided by station inputs and outputs.

To configure NovaStar 5 to receive data, users work through the related menu options in sequence, first creating stations and station types (useful if a system has multiple stations with

similar broadcasting equipment), next assigning points to each station and creating point types (useful if you have multiple stations with similar sensing equipment, for example, rain gages of similar manufacture). These steps are described sequentially in the next three Sections of this manual.

Before you start configuring the system, make sure at the server that data is being received. For an ALERT system this includes the installation of a receiving radio antenna, radio transceiver (tuned to the operational frequency), and ALERT decoder. Note the type of decoder and its baud rate for serial communications with the computer port. Decoders typically connect to a 9-pin serial port on the computer, but USB port connections are also available. Communications parameters for several well known decoders are shown.

Table 1.1.1 Typical ALERT Decoder Configuration Parameters

Decoder Type	<b>Baud Rate</b>	Parity	<b>Data Bits</b>	Stop Bits
HydroLynx ALERT1	300	None	8	1
Kantronics ALERT1	9600	None	8	1
HydroLynx ALERT2	9600	None	8	1

Confirm that the System configuration parameters described in Part I, Section 2.6 have been set as required for data collection.

Section 5 describes how to use the options available through the **Alarms** command to configure NovaStar 5's alarm detection and notification capabilities. Use the **Data** command to edit data reports for points. options for viewing data spatially and to organize incoming data into desired report formats. The **Forecast** section updates forecast data in the database. The **System** and **Users** commands allow *users* to control aspects of the NovaStar 5 system and manage its users.

Set up maps under the **Map Data** section, plots under the **Plot Data** section, and reports under the **Report Data** section.

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## **2** Stations and Station Types

Configuring NovaStar 5 to receive or request data is the most important part of setting up the system. A well-configured system correctly organizes a large volume of meaningful, accurate data, and allows users to quickly find the information they need. The first step is to select **Stations** from the **Home** page command menu.

A **Station** is any source which will generate data for the NovaStar 5 database. Because each station is typically associated with a location where measurements are taken, stations are defined geographically within NovaStar 5 for mapping. Information required for each station serves to identify the station and describe its location and the telemetry protocols governing NovaStar 5's contact with the station. Telemetry methods understood by NovaStar 5 include one-way ALERT data broadcasts and communications with two-way radio systems and satellite and internet data sources.

#### 2.1 Station List

When you click on the **Stations** menu list option, the **Station List** page is displayed. When you first begin to configure NovaStar 5, no stations will appear on the **Station List** page.

System up	Station L	.ist	Choose details	Back	Refre	sh	Bo	ttom
Home	Station ID		Name			Туре		Add
Stations	1724	Alpine				HydroLyı	nx 5096	Edit
Station List	1674	Ameri	can River			HydroLyi	nx 5096	Edit
Station Poll	1570	Antelo	pe at Loomis			High Sie	rra 3206	Edit
Station Type List	1621	Antelo	pe Creek			Handar 9	85	Edit
Points	1584	Antelo	pe Creek Road			HydroLyi	nx 5096	Edit
Alarms	1751	Aubur	n Airport			HydroLyi	nx 5096	Edit
Data	1756	Aubur	n Ravine			HydroLynx 5096		Edit
Forecast	1774	Aubur	n Ravine @ Joiner Par	HydroLyi		Edit		
System	1608	Bartor		Handar 9		Edit		
Users	1652	Beach	Lake			HydroLyi	nx 5096	Edit
Tabular Data	2767	Benso	ns Ferry	HydroLyi		Edit		
Report Data	2766		ns's ferry			HydroLynx 5096		Edit
Plot Data	1615		h Court		rra 3206	Edit		
Map Data	1667		h Ctr precip	HydroLy		Edit		
About NovaStar 5	1616		ton Reservoir	Handar S		Edit		
Contact HydroLynx	228	<u> </u>	gie SVRA	HydroLyi		Edit		
Log out	1766	Cavit Stalmn HydroLynx 5096						Edit

Figure 2.1.1. Station List

The **Station List** page shows all the currently defined stations and can show details about each station. Clicking on any of the column heading buttons will reorder the stations in the **Station List**, numerically or alphabetically, by that detail. This can allow you to quickly organize the **Station List** to find, for example, all stations north of a latitude or all of those utilizing a data collection unit/data transmitter of a particular manufacture. You can customize the appearance of the **Station List** using the **Choose details...** button to access the **Station List Details** page, see Section 2.1.1.

Click the **Add** button at the upper right-hand corner of the **Station List** table to define a new station using the **Station Add** page. See Section 2.1.3. You can also create a new station based on an existing template station using the **Station Copy** page. See Section 2.1.5. Click on the **Edit** button on any station's row in the **Station List** table to view or edit the defining attributes of that station on the **Station Edit** page, described in Section 2.1.4 below.

#### 2.1.1 Station List Details

Sta	Station List Details OK Cancel Bottom							
Sele	Select the details to display							
Г	Detail	Order by	Reverse	Then by	Reverse	Then by	Reverse	Move Up
✓	Station ID	<b>Y</b>						Move Down
✓	Name							Select All
✓	Туре							Reset
	Table row number							OK Cancel
	Tagname							ok carreer
	RemoteTag							
	Latitude							
	Longitude							
	Elevation							
	Last time polled							
	Poll line							
	Poll order							
	Poll interval							
	Poll base time							
	Receive lines							
	Path							
	Comm parameters							
	Connect attempts							
	Connect timeout							
	Poll command							
	Poll login							
	Sample interval							
	Sample time offset							
	Sample time limit							
	Time sync							
	Out of service							
	Group							
Select the limits for the display								
Sta	tion type: 🎱 All Stat	ion Types	•					
User Group:   All User Groups   ▼								
Out	of Service: all 🕝							
Sta	tion List Detail	s			OK Ca	ancel		Тор

Figure 2.1.2. Station List Details

The check boxes on **Station List Details** page control the items, organization, sort order, and limit the records displayed on the associated **List** page. Figure 2.1.2. Station List Details

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#### Select the details to display

Check the box to the left of a detail to display. Details are displayed in the order shown.

Check the Order by box for the detail to sort first. Check Reverse for a descending sort.

Check the Then by box for the detail to sort second. Check Reverse for a descending sort.

Check the second Then by box for the detail to sort third. Check Reverse for a descending sort.

**Button** Action

Move Up Move the selected detail up one row.

Move Down Move the selected detail down one row.

Select All Select all details.

Reset to default details.

OK Return to previous page with new details selected.

Cancel Return to previous page with no changes.

#### Select the limits for the display

**Station Type:** Limit display to stations assigned to the selected station type(s). Click **Station Type:** button to change **Station Type Pick Details** and order.

#### **Button Action**

Reset pick list to single select.

Decrease pick list length.

Increase pick list length.

Expand pick list to multiple select.

Collapse pick list to single select.

**User Group:** Limit display to stations assigned to the user group(s). Click **User Group:** button to change **User Group Pick Details** and order.

**Out of Service:** Limit display to stations with out of service state: *all* ignores out of service, *false* only displays stations in service, *true* only displays stations out of service.



Figure 2.1.3. Station Pick Details

#### 2.1.2 Station Pick Detail

The check boxes on **Station Pick Details** page control the items, organization, sort order, and limit the records displayed on the pick list.

#### Select the limits for the display

**Station Type:** Limit display to stations assigned to the selected station type(s). Click **Station Type:** button to change **Station Type Pick Details** and order.

#### **Button Action**

- Reset pick list to single select.
- Decrease pick list length.
- ♣ Increase pick list length.
- Expand pick list to multiple select.
- Collapse pick list to single select.

**Out of Service:** Limit display to stations with out of service state: *all* ignores out of service, *false* only displays stations in service, *true* only displays stations out of service.

**User Group:** Limit display to stations assigned to the user group(s). Click **User Group:** button to change **User Group Pick Details** and order.

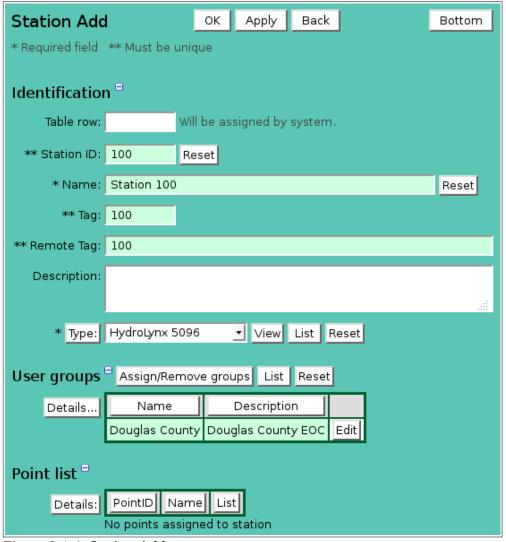


Figure 2.1.4. Station Add

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#### 2.1.3 Station Add

The **Station Add** page allows you to create a new station by entering, at a minimum, a unique station **Number**. The **Station Add** page does not allow you to assign points to the new station, however. To complete station set-up by assigning points to the new station, you must use the **Apply** button to create the new station and convert your input page to the **Station Edit** page, described in the next section. On the **Station Edit** page, an **Add** button is provided to allow you to build the **Point list** associated with the station.

The **Station Edit** page provides the same input fields as the **Station Add** page, and these are described in Section 2.1.4.

#### 2.1.4 Station Edit

When you click on the **Edit** button associated with any station in the **Station List** table, or when you click **Apply** from the **Station Add** or **Station Copy** pages to create a new station, you reach the **Station Edit** page. Click the **Poll** button to go to the **Station Poll** page, see Section 2.3.

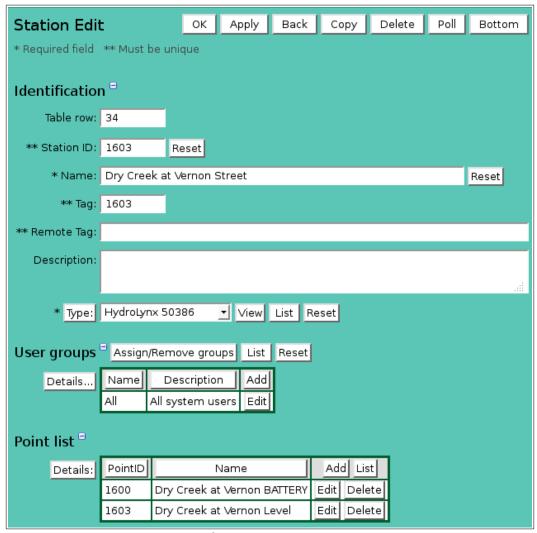


Figure 2.1.5. Station Edit Identification

#### Identification

**Table index:** Field can not be modified; it is assigned automatically when a record is added. **Station ID:** Numeric identifier must be unique for each station and can be up to 8 digits (1-

9999999). For and ALERT station, the **Number** will range from 1 to 8191. Numbering a station zero is not allowed. Typically station numbers are divisible

by ten, leaving unit numbers available to be assigned to individual points at each

station. See **Point List**, below.

**Reset** button resets Remote and Point IDs to match new Station ID.

**Name:** Station name. Max: 100 characters.

Reset button resets Point Names to match new Station Name (Click twice to

assign point type).

**Tag:** Unique alpha-numeric identifier that describes the station and is used in reports,

and data exports. Max: 100 characters.

Remote Tag: Unique alpha-numeric identifier to use in station polling. Max: 100 characters.

**Description:** Enter additional information describing station. Max: 1000 characters.

**Type:** Select station type assigned to station from the pick list. Click **Station Type:** 

button to change the **Station Type Pick Details**, see Section 2.2.2. **View** button displays the **Station Type Edit** page for the selected station type, see Section 2.2.4. **List** button displays the **Station Type List** page, see Section 2.2. **Reset** button copies the station type **Connect, Sampling,** and **Polling Parameters** into

the station parameters.

Station types define **Connect**, **Sampling**, and **Polling Parameters**. If you have multiple stations using similar data collection/transmission equipment or multiple stations requiring similar station interrogation procedures, it will be convenient to define a *station type* that can be used to automatically define these parameters for station setup. Station Types are discussed in Section 2.2. To add a new station type to the system click **List** to display the **Station Type List** then click the **Add** button. Alternately click **View** to display the **Station Type Edit** page for the selected station type then click **Copy**. Return to the **Station Edit** page and select the new station type.

#### User groups

The **User groups** table shows the user groups currently assigned to the station. Clicking on any of the column heading buttons will reorder the user groups in the **User groups List**, numerically or alphabetically, by that detail. Click **Details:** button to change the User Group List details and display order, see Section 10.3.1. Click **Assign/Remove groups** button to open **User Group Assignment** window, see Section 10.3.3. Changes made to user group assignments will update this page when the assignment window is closed. Click **List** button to show all user groups, see Section 10.3. Click **Add** button to add a user group, see Section 10.3.4. Click **Edit** button to edit the user group, see Section 10.3.5. Click **Reset** button to assign station user groups to points assigned to station.

#### **Point List**

When a station is added to the system, no points are assigned to the station. See Section 3 for complete information about configuring points and point types. Because NovaStar 5's data calibration and data checking capabilities are linked to point parameters, it may be helpful for new users to complete station setup, including the development of useful station types, if applicable, and then read Section 3 to understand how to define points before completing the **Point list** for each station.

When a station is copied, the point list is copied also. The new station point Ids, tags, and names are modified to match the new station identification. When a point is copied, the most recent point calibration and rating assignment are also copied. Data reports are not copied.

The **Point list** table shows the points currently assigned to the station and there selected details. Clicking on any of the column heading buttons will reorder the points in the **Point List**,

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numerically or alphabetically, by that detail. Click the **Details:** button to change the Station Point List details and display order, see Section 3.1.1.

**Add** Click button to add a point record to the point, see Section 3.13.

**List** Click button to show all points assigned to point over time, see Section 3.1.

**Edit** Click button to edit the point record, see Section 3.1.4. **Delete** Click button to delete the point record, see Section 3.1.6.

When a station is added to the system, no points are assigned to the station. When a station is copied, the point list is copied also. The new station point Ids, tags, and names are modified to match the new station identification. When a point is copied, the most recent point calibration and rating assignment are also copied. Data reports are not copied.

It is easier to copy an exising point record, rather than adding a new record. Click the **Edit** button to display the **Point Edit** page, click **Copy** get a new record, enter the identification for the new point, then change the point parameters. Click **Apply** to save changes.

To delete a point record, click **Edit** to display the **Point Edit** page, click **Delete** to display the **Point Delete** page, see Section 3.1.6, then click **Delete** again to confirm. The point, calibration, rating assignments, and data reports will be deleted. This may take some time if there is a lot of data on file. Deleting a point also removes it from maps, plot, reports, and other point related tables.

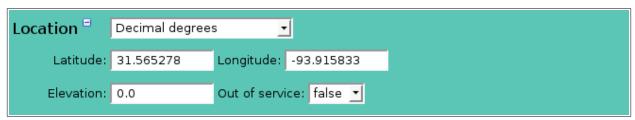


Figure 2.1.6. Station Edit Location

**Location** Select the location display format: *Decimal degrees* or *Degrees:Minutes:Seconds*.

Seconds can have decimals.

**Latitude:** Station latitude is positive in the northern hemisphere, negative in the southern. **Longitude:** Station longitude can be either positive or negative in the western hemisphere, as

long as you are consistent.

**Elevation:** Station elevation in feet or meters.

**Out of service:** Take a station out of service when t*rue* is selected. When a station is taken out of service the following conditions apply to that station:

- NovaStar 5 will not initiate automatic polling at a station that is out-of-service.
- Data reports from a station that is out of service will not appear on maps.
- •Data reports from a station that is out of service will be marked with a *maintenance* flag in the database. This includes both ALERT data automatically received from the station as well as any data reports received as a result of manual station interrogation.
- Alarm checking for data reports received from a station that is out of service is suspended.

#### **Connect parameters**

**Connect parameters** define how NovaStar 5 communicates with a remote station to obtain data.

**Poll line:** Sets the data collection line number used to establish a connection. Data

collection line numbers are assigned to serial ports or modems, see Section 9.5. For web page station type protocols, the poll line number set the source number in the data report flags.

the data report flags.

Connect para	ameters <sup>-</sup>
Poll line:	1 🔷
Receive lines:	1 2 45
Path:	http://waterdata.usgs.gov/ca/nwis/uv
Timeout:	30 seconds ▼ Attempts: 1 ◆
Remote login:	hydrodata
Password:	•••••• Show password

Figure 2.1.7. Station Edit Connect parameters

**Receive lines:** Enter up to 5 port line numbers to limit point data storage to these lines only.

Data collection systems with many ALERT receive data connections may receive data from different stations with the same Remote ID. These fields will insure that data is stored in the proper station point. If nothing is entered, then there is no port

line limitation.

**Path:** Information necessary to connect to the remote station. Its content depends on the

type of telemetry used. For a telephone dial-up it is the telephone number. For a radio connection it may be the list of repeaters to go through. For internet data sources the path is the URL of the internet server and page. For 50386 networked stations, the path is the IP address of the station. The **Path** is not needed for ALERT telemetry; nor is it required for the 50386 two-way radio telemetry. If a

station path is not defined, the station type path will be used.

**Timeout:** Station polling response timeout. Click the button to alternate between interval

selection from a pick list or from time interval fields.

**Attempts:** Maximum number of polling attempts before the effort is discontinued.

**Remote login:** Login name required to poll or control the remote station

**Password:** Password require for remote station login. The password text is hidden unless you

check the **Show password** box.

Sampling parameters -					
Interval: 5 minutes					
Time limit: 1 day					
Time offset: None	→ After →				

Figure 2.1.8. Station Edit Sampling parameters

#### **Sampling parameters**

Sampling parameters tell the NovaStar 5 data polling software how to parse returned data reports, limit the amount of data that can be downloaded, and adjust for station time differences.

**Interval:** Time interval for data sampling at the station, not the polling interval. This

parameter is used to parse multiple samples returned by a station poll. Click the button to alternate between interval selection from a pick list or from time interval

fields.

**Time limit:** Limits the period of time the station polling software will request. This will

prevents the station polling from getting stuck requesting large amounts of

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historic data. For HydroLynx 5400 station types the time limit is subtracted from the last time the station was polled to compute the starting time for the poll request. Click the button to alternate between interval selection from a pick list or from time interval fields.

Time offset:

Time interval added to the station report times before the data is filed in the NovaStar 5 database. This field is used to correct any time zone or time difference between the remote station time and base station time. Click the button to alternate between interval selection from a pick list or from time interval fields.

Po	lling parar	neters <sup>=</sup>
	Last polled:	12/03/2013 13:00:00 MM/dd/yyyy HH:mm:ss
	Interval:	5 minutes ▼ Base time: 00:00 HH:MM
	Order:	9 🔷
	Sync time:	true 💌

Figure 2.1.9. Station Edit Polling parameters

#### **Polling parameters**

Polling parameters determine when and how often the station is polled to retrieve sensor data.

**Last polled:** Date and time of the last successful station poll. Update this field to prevent the

polling program from requesting older data. The next time the station is polled, data will be requested starting one second after the last time polled. Click the

button to assign the current time.

**Interval:** Polling interval for a station. To disable polling set the frequency to zero (0).

Click the button to alternate between interval selection from a pick list or from

time interval fields.

**Base time:** First time in the day for the polling interval. Enter the time as HH:MM using a

24-hour clock

**Order:** Relative order number for polling multiple stations. When multiple stations are

polled at the same time, the station with the lowest polling order will be polled

first. The order numbers are relative, and therefore they do not have to be

sequential. If two or more stations have the same order number, the station polled first will be the one with the lowest associated table row number. One is the first

order number.

**Sync time:** If *true* is selected then the station clock will be synchronized with the base station

clock by the automatic time synchronization program. This program is run as a NovaStar 5 scheduled task, see Section 9.4. If true is selected for HydroLynx 5400 station types, then data reports filed from the station are adjusted by the time

offset for daylight savings time.

#### 2.1.5 Station Copy

The **Station Edit** page allows you to add a station with many of the same parameters as an existing defined station using the **Copy** button. When you press the **Copy** button on the **Station Edit** page you reach the **Station Copy** page. Copying an existing station is most convenient when the new station will share many parameters with the existing station that is used as a copy template. Location parameters for the new station will typically be different from those copied from the template station, but many of the other input fields may be the same. Like the **Station Add** page, the **Station Copy** page does not allow you to assign points to the station using the

**Point list**. Once you have assigned a station Number to the copied station, clicking the **Apply** button will create the copied station and access the **Station Edit** page, described in Section 2.1.4, which provides the capabilities required to **Add** points to the **Point list** for the station.

#### 2.1.6 Station Delete

To delete a station from the **Station List**, click **Edit** on that station's row in the table and then click **Delete** from the **Station Edit** screen to view the **Station Delete** page. The **Station Delete** page prompts you to click the **Delete** button again to confirm that the station should be deleted. When a station is deleted, NovaStar 5 determines if any points are assigned to the station, and warns you that deleting the station will delete all points assigned to the station, including all calibrations, all rating assignments, and all data reports associated with the station/point hierarchy. If you click **Delete** again, the station, point(s), calibration(s), rating assignments(s), and data will be deleted.

#### 2.2 Station Type List

A **station type** is a collection of parameters that are common to a piece of broadcasting equipment (or another data source) of a specific type of manufacture. Predefined station types make it easier to define new stations, particularly if several of your stations use similar data collection/transmission equipment or require similar procedures for station interrogation. The station type defines the **Connect, Sampling**, and **Polling parameters** for that equipment so that when you are creating new stations you will only need to manually enter the **Identification** and **Location** information and the point assignments for each station. Selecting the correct station type will automatically enter the **Connect parameters**, **Sampling parameters**, and **Polling parameters** that are defined for that station type.



Figure 2.2.1. Station Type List

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**Station Type List** is a subordinate command available under the **Stations** heading in the command menu available to registered users. When you click on the **Station Type List** command, the **Station Type List** page is displayed. NovaStar 5 provides pre-defined station types on the **Station Type List** page. If your equipment appears on the list, click on the **Edit** button for that station type to view or edit the defining attributes for that station type on the **Station Type Edit** page, described in Section 2.2.4 below. Confirm that the parameters are correct for your system before using that station type for station configuration.

The **Station Type List** page shows all the currently defined station types and can show details about each station type. Clicking on either column heading button will reorder the station types in the **Station Type List** by name or number. You can customize the appearance of the **Station Type List** using the **Choose details...** button to access the **Station Type List Details** page, see Section 2.2.1.

If your equipment does not appear on the **Station Type List**, use the **Add** button to define a new station type using the **Station Type Add** page. Or, click the **Edit** button associated with an existing station type to use that station type as a copy template for creating a new station type. The **Copy** button provided on the template station type's **Station Type Edit** page accesses the **Station Type Copy** page and allows you to create a new station type.

#### 2.2.1 Station Type List Details

The check boxes on **Station Type List Details** page control the items, organization, sort order, and limit the records displayed on the associated **List** page.

Sta	Station Type List Details OK Cancel Bottom								
Sel	ect the details to	o display	y						
г	Detail	Order by	Reverse	Then by	Reverse	Then by	Reverse	N	love Up
✓	Name	✓						М	ove Down
	Table row number							9	elect All
	Description								Reset
	Line							016	
	Path							ОК	Cancel
	Comm parameters								
	Connect attempts								
	Connect timeout								
	Protocol								
	Remote login								
	Sample interval								
	Sample time offset								
	Sample time limit								
	Time sync								
	Poll command								
	Control command								
	Group								
Select the limits for the display									
Us	User Group:   All User Groups   All User Groups   The state of the st								
Sta	Station Type List Details OK Cancel Top								

Figure 2.2.2. Station Type List Details

#### Select the details to display

Check the box to the left of a detail to display. Details are displayed in the order shown.

Check the Order by box for the detail to sort first. Check Reverse for a descending sort.

Check the Then by box for the detail to sort second. Check Reverse for a descending sort.

Check the second Then by box for the detail to sort third. Check Reverse for a descending sort.

**Button** Action

Move Up Move the selected detail up one row.

Move Down Move the selected detail down one row.

Select All Select all details.

Reset to default details.

OK Return to previous page with new details selected.

Cancel Return to previous page with no changes.

#### Select the limits for the display

**User Group:** Limit display to station types assigned to the user group(s). Click **User Group:** button to change **User Group Pick Details** and order.

#### **Button Action**

Reset pick list to single select.

Decrease pick list length.

Increase pick list length.

Expand pick list to multiple select.

Collapse pick list to single select.

#### 2.2.2 Station Type Pick Detail

The check boxes on **Station Type Pick Details** page control the items, organization, sort order, and limit the records displayed on the pick list.

#### Select the details to display

Check the box to the left of a detail to display. Details are displayed in the order shown. Check the Order by box for the detail to sort first. Check Reverse for a descending sort.

Check the Then by box for the detail to sort second. Check Reverse for a descending sort.

Check the second Then by box for the detail to sort third. Check Reverse for a descending sort.

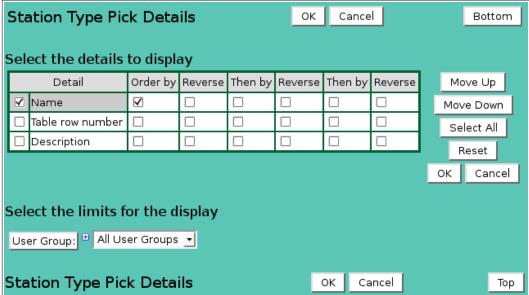


Figure 2.2.3. Station Type Pick Details

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Button	Action
--------	--------

Move Up Move the selected detail up one row.

Move Down Move the selected detail down one row.

Select All Select all details.

Reset to default details.

OK Return to previous page with new details selected.

Cancel Return to previous page with no changes.

#### Select the limits for the display

**User Group:** Limit display to station types assigned to the user group(s). Click **User Group:** button to change **User Group Pick Details** and order.

#### **Button Action**

Reset pick list to single select.

Decrease pick list length.

Increase pick list length.

Expand pick list to multiple select.
Collapse pick list to single select.

## 2.2.3 Station Type Add/Copy

The **Station Type Add** page and the **Station Type Copy** page allow users to create a new station type. They function in the same way. The **Station Type Copy** page is most convenient when the new station type will share several parameters with the template station type. To access the **Station Type Copy** page, click on the **Edit** button in the template station type's row in the **Station Type List** table. You will reach the **Station Type Edit** page. Click on the **Copy** button to reach the **Station Type Copy** page.

The **Station Type Add/Copy** page(s) prompt you to enter a new station type name in the highlighted field, and provide input boxes to define other station type parameters as required.

The **Station Type Edit** page provides the same input fields as the **Station Type Add** and the **Station Type Copy** pages, and these are described in Section 2.2.4.

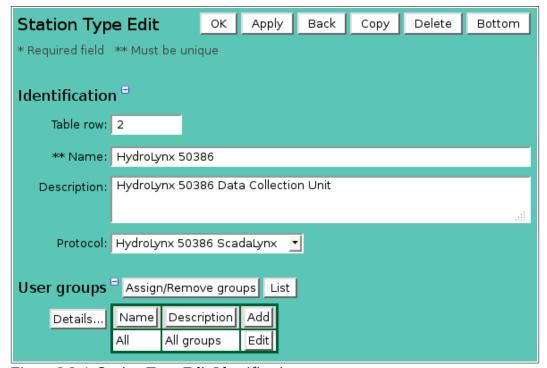


Figure 2.2.4. Station Type Edit Identification

#### 2.2.4 Station Type Edit

When you click on the **Edit** button associated with any station type defined in the **Station Type List** page, you reach the **Station Type Edit** page. The **Station Type Edit** page allows users to **Edit** the station type parameters defined for an existing station type, or to add a station type with many of the same parameters as a template station type using the **Copy** button.

#### Identification

**Table index:** Field can not be modified; it is assigned automatically when a record is added. **Name:** Station name. Give the station type you are creating a name you will recognize

when you are setting up stations, for example, HydroLynx 5096, Handar 585,

High Sierra 3206. Max: 100 characters.

**Description:** Enter additional information describing station type. Max: 1000 characters.

### User groups

The **User groups** table shows the user groups currently assigned to the station type. Clicking on any of the column heading buttons will reorder the user groups in the **User groups List**, numerically or alphabetically, by that detail. Click **Details:** button to change the User Group List details and display order, see Section 10.3.1. Click **Assign/Remove groups** button to open **User Group Assignment** window, see Section 10.3.3. Changes made to user group assignments will update this page when the assignment window is closed. Click **List** button to show all user groups, see Section 10.3. Click **Add** button to add a user group, see Section 10.3.4. Click **Edit** button to edit the user group, see Section 10.3.5.

Connect para	ımeters <sup>=</sup>
Poll line:	1 🕏
Path:	
Baud rate:	38400 Parity: None Data bits: 8 Stop bits: 1
RTS toggle:	false <u>▼</u>
Timeout:	30 seconds ▼ Attempts: 1 ◆
Remote login:	
Password:	☐ Show password

Figure 2.2.5. Station Type Edit Connect parameters

#### **Connect parameters**

For two-way communications, **Connect parameters** define how NovaStar 5 communicates with a remote station to obtain data.

**Poll line:** Sets the data collection line number used to establish a connection. Data

collection line numbers are assigned to serial ports or modems, see Section 9.5.

**Path:** Information necessary to connect to the remote station. Its content depends on the

type of telemetry used. For a telephone dial-up it is the telephone number. For a radio connection it may be the list of repeaters to go through. (This is needed for the Sierra Misco 850 and Campbell CR10 radio repeater systems.) For internet data sources the path is the URL of the internet server and page. For 50386 networked stations, the path is the IP address of the station. If the path contains the string *alert2* then station points assigned this type will show ALERT 2 data

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collection parameters on the point edit page. The Path is not needed for ALERT

telemetry; nor is it required for the 50386 two-way radio telemetry.

**Baud Rate:** 300, 1200, 2400, 4800, 9600, 19200, 38400.

**Parity:** None, Odd, Even, Mark or Space.

**Data bits:** 5, 6, 7 or 8. **Stop bits:** 1 or 2.

**RTS toggle:** Select *true* if the RTS signal is used to enable transmissions but must be off to

receive data. This feature is required by microwave modems.

**Timeout:** Station polling response timeout. Click the button to alternate between interval

selection from a pick list or from time interval fields.

**Attempts:** Maximum number of polling attempts before the effort is discontinued.

**Remote login:** Login name required to poll or control the remote station

**Password:** Password require for remote station login. The password text is hidden unless you

check the Show password box.



Figure 2.2.6. Station Type Edit Sampling parameters

#### Sampling parameters

Sampling parameters tell the NovaStar 5 data polling software how to parse returned data reports, limit the amount of data that can be downloaded, and adjust for station time differences.

**Interval:** Time interval for data sampling at the station, not the polling interval. This

parameter is used to parse multiple samples returned by a station poll. Click the button to alternate between interval selection from a pick list or from time interval

neias.

**Time limit:** Limits the period of time the station polling software will request. This will

prevents the station polling from getting stuck requesting large amounts of historic data. For HydroLynx 5400 station types the time limit is subtracted from the last time the station was polled to compute the starting time for the poll request. Click the button to alternate between interval selection from a pick list or

from time interval fields.

**Time offset:** Time interval added to the station report times before the data is filed in the

NovaStar 5 database. This field is used to correct any time zone or time difference

between the remote station time and base station time. Click the button to alternate between interval selection from a pick list or from time interval fields.

Polling parameters <sup>=</sup>					
Poll command:	nspollhydro50386				
Control command:	nsctrlhydro50386				
Sync time:	false <u>▼</u>				

Figure 2.2.7. Station Type Edit Polling parameters

#### **Polling parameters**

Polling parameters define the NovaStar 5 commands to poll and control a staion.

**Poll command:** NovaStar 5 command used to poll this station type.

**Control command:** NovaStar 5 command used to send control commands to this station type. **Sync time:** If *true* is selected then the station clock will be synchronized with the base station

clock by the automatic time synchronization program. This program is run as a NovaStar 5 scheduled task, see Section 9.4. If true is selected for HydroLynx 5400 station types, then data reports filed from the station are adjusted by the time

offset for daylight savings time.

#### 2.2.5 Station Type Delete

To delete a station type from the **Station Type List**, click **Edit** on that station type's row in the table and then click **Delete** from the **Station Type Edit** screen to view the **Station Type Delete** page. The **Station Type Delete** page prompts you to click the **Delete** button again to confirm that the station type should be deleted. You cannot delete a station type that is assigned to a station.

#### 2.3 Station Poll

The **Station Poll** page allows the user to poll a remote station for a selected time period. The data returned by the poll command is filed in the NovaStar 5 database. The poll command results are shown in the command display window.

Station Poll OK Apply Back	Bottom
* Required field ** Must be unique	
Select Station  Station: 7350985 Boggy Bayou N of Spring Ridge View	
Select Poll Time Period <sup>=</sup>	
Starting Time: November 1 2013 00:00 Reset Time	<b>₽</b>
Ending Time: December 🔻 3 🔻 2013 🔻 14:30 🔻 Current 🔻	
Poll Station =	
Quiet: false 🕶 Poll type: Current reading	Diagnostic level: 0   ◆
	.#
Station Poll OK Apply Back	Тор

Figure 2.3.1. Station Poll

#### **Select Station**

**Station:** Select station to poll from the pick list.

Click button to change **Station Pick Details** and order, see Section 1.1.2.

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**View** button displays the **Station Edit** page for the selected station, see Section 3.1.4.

#### **Select Poll Time Period**

**Starting Time:** Select the starting time for the station poll. Click **Reset Time** to set time to last

poll time for station. Note: the starting time must be before the ending time.

**Ending Time:** Select the ending time for the station poll. Select **Current** to set the ending time

to the current time.

#### **Poll Station**

Quiet: false prints the command activity in the display window; true only prints the

command start and stop messages. Use *true* for the fastest command performance.

Select the type of data polling: Poll type:

> Current reading Last sampled Last logged

Logged data since last poll

Logged data between start and stop times

**Diagnostic level**: Increase the level to print additional information during the station poll.

#### Button Action

Run command; display activity in command display window.

Stop command.

Clear display window.

**♦** Reset display window size to default.

Decrease display window height.

Increase display window height.

4 Decrease display window width.

Increase display window width.

Click the **Run command** button to poll the station for the selected time period; activity is shown in the display window.

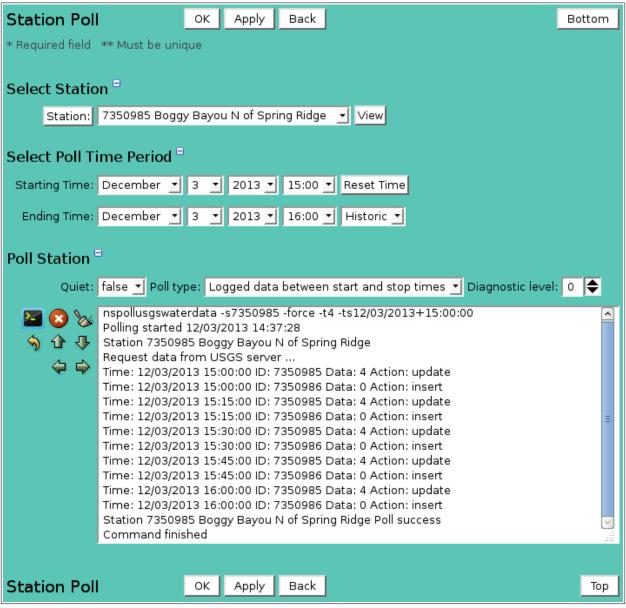


Figure 2.3.2. Station Poll Execution

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# 3 Points, Point Types, Calibrations, and Ratings

In NovaStar 5, points are real or derived sources of data for the NovaStar 5 database. Points, point types and point classes characterize data associated with specific kinds of sensors and specify the data management routines that will apply to the points. A point may be an actual sensor making physical measurement, or an output signal that controls equipment and indicators. In addition, a point can be the output from a calculation or another derived value. Each station defined in NovaStar 5 may have multiple associated points, like a battery voltage sensor, a precipitation gage and a pressure transducer measuring water level. Each of these points provides *raw data* that must be *calibrated* and *verified* differently.

Data provided by the remote sensing stations is **raw data**, which often requires some mathematical conversion so that meaningful numbers in the desired engineering units are available from the database. These numbers are **scaled data** and are displayed in reports and used for data analysis. NovaStar 5 can be configured to automatically calibrate incoming raw data as necessary.

In addition, NovaStar 5 can provide automatic **data checking** or verification procedures to improve the quality of data available for analyses and response by identifying data reports that are clearly invalid. Erroneous data points may be reported to NovaStar 5 due to corrupt radio transmissions, sensor failure or other causes.

For most raw data reports, a single corresponding point data value is defined, because transmissions from most remote sensors include only one data value. Exceptions include digital status sensors, which may report mulitple digital inputs per data value, and ALERT wind (wind run and wind direction) sensors. NovaStar 5 separates the raw data report digital input values into separate point data values. Fore ALERT wind raw data reports it extracts the wind run and direction, computes wind speed and stores wind speed and direction in separate points.

The **Point** menu command allows you to access a subordinate menu of commands used to create point definitions: **Point List**, **Calibration List**, **Point Type List**, **Rating Assign List**, and **Rating Table List**. These will be described in sequence in this Section.

## 3.1 Point List

When you click on the **Points** menu list option, the **Point List** page is displayed. When you first begin to configure NovaStar 5, no points will appear on the **Point List** page. Click the **Add** button at the upper right-hand corner of the **Point List** table to define a point using the **Point Add** page. See Section 3.1.3. You can also create a new point based on an existing template point using the **Point Copy** page. See Section 3.1.5.

It is also possible to access point commands and input pages directly from the **Station Edit** page from the **Point list,** see Section 2.1.4. A systematic approach to defining points is recommended, but NovaStar 5 allows flexibility as to the approach. Users may choose to define all of the points associated with a station at once (best accomplished using the **Station Edit** access to point commands), or to define all of the points of a particular type at once (best accomplished using the menu options to access point commands).

System up	Point L	ist	Choose details	Back	Refresh		Bot	ttom
Home	PointID			Name				Add
Stations	1724	Alpine P	pine Precipitation Gage					
Points	360	Alpine R	pine Remote Control Base					
Point List	1674	America	merican River Precipitation Gage					
AlertTalk3 List	1580	Antelop	e Creek Rd BATTERY					Edit
Calibration List	1584	Antelop	e Creek Rd Precipitat	ion Gage	;			Edit
Device Type List	1583		e Creek Rd Stream G					Edit
• Equation List	1621		e Creek Stream Gag					Edit
MapDisplay List	1570		e @ Loomis Precipita		e			Edit
• Rating Assign List	1573		ntelope @ Loomis Stream Gage PT (20.47ft)				Edit	
Rating Table List	1751		uburn Airport Precipitation Gage				Edit	
Alarms	1776		uburn Ravine @ Joiner Parkway BATTERY				Edit	
Data	1774		Auburn Ravine @ Joiner Parkway Precipitation Gage				Edit	
Forecast	1775		Ravine @ Joiner Park		<u> </u>			Edit
System	1756		Ravine Stream Gage			. (23.3.4)		Edit
Users	1608		Rd Precipitation Gage		,			Edit
Tabular Data	1606		Rd Stream Gage Floa					Edit
Report Data	1652		ake Precipitation Ga					Edit
Plot Data	2767		s Ferry Precipitation					Edit
Map Data	2766		s's Ferry Stream Ga					Edit
About NovaStar 5	1667		Ctr precip Precipitati					Edit
Contact HydroLynx	1616		ON RESERVOIR Preci		Sage			Edit
Log out	228		ie SVRA Precipitation					Edit

Figure 3.1.1. Point List

The **Point List** accessed by the **Points** menu command shows all of the points currently defined in NovaStar 5 and can show details about each point. Clicking on any of the column heading buttons will reorder the points in the **Point List**, numerically or alphabetically, by that detail. This allows you to quickly reorganize the **Point List** to find, for example, all of the points associated with a specific station or all of the points recording data streams from a particular type of sensor. You can customize the appearance of the **Point List** using the **Choose details...** button to access the **Point List Details** page, see Section 3.1.1.

Click on the **Edit** button for any point in the **Point List** table to view or edit the defining attributes of that point on the **Point Edit** page, described in Section 3.1.4 below.

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# 3.1.1 Point List Details

The check boxes on **Point List Details** page control the items, organization, sort order, and limit the records displayed on the associated **List** page.

Point List Details			ок с	Cancel			Во	ttom
Select the details to	display							
Detail	Order by	Reverse	Then by	Reverse	Then by	Reverse	Move U	р
Point ID	<b>V</b>						Move Do	
✓ Name							Select	All
☐ Table row number							Reset	
☐ Tagname							OK Ca	ncel
Line								
Remote ID								
Point type								
Station ID								
Station name								
Station type								
Station tagname								
Station remote tag								
Change								
☐ Interval								
Upper limit								
Lower limit								
☐ Change limit								
☐ Change interval								
☐ Compress interval								
☐ Plot upper limit								
☐ Plot lower limit								
☐ Data position								
□ Data parameter								
Rated								
Out of service								
Group								
□ Data format								
☐ Data width								
□ Data samples								
Select the limits for	the disp	lay						
Station: All Statio	ons			•				
Point type:  All Point Types								
User Group:   # All User Groups ▼								
Out of Service: all								
Point List Details			ОК	Cance				Тор

Figure 3.1.2. Point List Details

## Select the details to display

Check the box to the left of a detail to display. Details are displayed in the order shown.

Check the Order by box for the detail to sort first. Check Reverse for a descending sort.

Check the Then by box for the detail to sort second. Check Reverse for a descending sort.

Check the second Then by box for the detail to sort third. Check Reverse for a descending sort.

**Button** Action

Move Up Move the selected detail up one row.

Move Down Move the selected detail down one row.

Select All Select all details.

Reset Reset to default details.

OK Return to previous page with new details selected.

Cancel Return to previous page with no changes.

## Select the limits for the display

**Station:** Limit display to points assigned to the selected station(s). Click **Station:** button to

change Station Pick Details and order.

**Button Action** 

Reset pick list to single select.

Decrease pick list length.Increase pick list length.

Expand pick list to multiple select.

Collapse pick list to single select.

**Point Type:** Limit display to points assigned to the selected point type(s). Click **Point Type:** 

button to change **Point Type Pick Details** and order.

**User Group:** Limit display to points assigned to the user group(s). Click **User Group:** button to

change User Group Pick Details and order.

**Out of Service:** Limit display to points with out of service state: *all* ignores out of service, *false* 

only displays points in service, true only displays points out of service.

## 3.1.2 Point Pick Detail

The check boxes on **Point Pick Details** page control the items, organization, sort order, and limit the records displayed on the pick list.

## Select the details to display

Check the box to the left of a detail to display. Details are displayed in the order shown.

Check the Order by box for the detail to sort first. Check Reverse for a descending sort.

Check the Then by box for the detail to sort second. Check Reverse for a descending sort.

Check the second Then by box for the detail to sort third. Check Reverse for a descending sort.

**Button** Action

Move Up Move the selected detail up one row.

Move Down Move the selected detail down one row.

Select All Select all details.

Reset to default details.

OK Return to previous page with new details selected.

Cancel Return to previous page with no changes.

## Select the limits for the display

**Station:** Limit display to points assigned to the selected station(s). Click **Station:** button to

change Station Pick Details and order.

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Button	Action
<b>♦</b> )	Reset pick list to single select.
1	Decrease pick list length.
₽	Increase pick list length.
lacksquare	Expand pick list to multiple select.
$oldsymbol{\Xi}$	Collapse pick list to single select.

**Point Type:** Limit display to points assigned to the selected point type(s). Click **Point Type:** 

button to change **Point Type Pick Details** and order.

**User Group:** Limit display to points assigned to the user group(s). Click **User Group:** button to

change **User Group Pick Details** and order.

**Out of Service:** Limit display to points with out of service state: *all* ignores out of service, *false* only displays points in service, *true* only displays points out of service.

Point Pick Details OK Cancel Bottom							
Select the details to display							
Detail	Order by	Reverse	Then by	Reverse	Then by	Reverse	Move Up
Point ID	<b>✓</b>						Move Down
✓ Point name							Select All
☐ Point key							Reset
☐ Point tagname							
☐ Point line							OK Cancel
☐ Remote ID							
☐ Point type							
☐ Station ID							
☐ Station name							
☐ Station type							
☐ Station tagname							
☐ Station Key							
Select the limits t	for the o	lisplay					
Station: H	ations				▼		
Point type: Hall Po	oint Types		_				
User Group: Hall Us	ser Groups	· 🕶					
Out of Service: all							
Point Pick Detai	ils			ок с	ancel		Тор

Figure 3.1.3. Point Pick Details

#### 3.1.3 Point Add

The **Point Add** page allows users to create a new point by entering, at a minimum, the station, point type, Remote ID, Point ID, tag, and name.

The Point ID and tag muse be unique. When you access the **Point Add** page from the global **Point List** (which includes all of the points defined within the NovaStar 5 system) rather than from the **Point List** associated with a specific station, NovaStar 5 will not know the parent station to assign to the new point. Select the station from the station pick list.

Point Add		OK Apply B	ack		Bottom
* Required field	d ** Must be un	ique			
Identification	n =				
Table row:	Will	be assigned by sy	/stem.		
* Station:	1015 Yellow Pin	ie	•	View L	ist Reset
* Point type:	Water Level Flo	at <u> </u>	View List	Reset	
* ALERT2 SID:	0 ♦ MSR:	0 🔷			
** Point ID:	1013				
** Tag:	1013				
* Name:	Yellow Pine Wat	er Level Float			Reset
Description:					
					.ii
User groups	Assign/Rem	ove groups List			
Details	Name Descri	ption			
	All All grou	ups Edit			
Data checki	ng =				
Change:	0.50	No report interva	il: 1 day	•	
Upper limit:	0.00	Lower lim	it: 0.00		
Change limit:	0.00	Change interva	ıl: 0 second	ds 🕶	
Compress int	erval: 0 second	s +			
Out of service:	fals∈▼				
Plot limits					
Upper limit:	0.00	Lower limit: 0.00	)		
Calibration <sup>6</sup>	List				
		lier Adder Base V	/alue Effect	ive Time	1
	No calibrations	assigned to point			
Rating <sup>=</sup>	List File rating	data: false 🕶			
Ratings:	Point ID Numbe No ratings assig	er Name Effective	e Time   Inter	val Type	No.
		gned to point			
Alarm =	List Name	AlamaCuanti	AlamaTri	n a ubl a ma	П
Alarms:	No alarms assig	AlarmGroupName gned to point	-  Alarm Irigo	jername	Ш
Point Add		OK Apply B	ack		Тор

Figure 3.1.4. Point Add

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Use the Reset buttons to automatically fill in point parameter fields for the station and point type selected. Click Apply to convert your input page to the Point Edit page. The default calibration for the selected point type will be assigned to the new point when applied. The Point Edit page provides the same input fields as the Point Add page, and these are described in Section 3.1.4.

## 3.1.4 Point Edit

When you click on the **Edit** button associated with any point defined in a **Point List**, or when you click **Apply** from the **Point Add** or **Point Copy** pages to create a new point, you reach the **Point Edit** page.

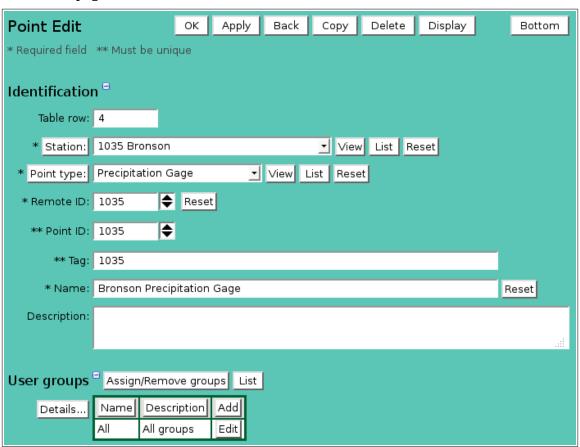


Figure 3.1.5. Point Edit Identification

## Identification

Parameters in this section are used to identify points in the system.

**Table index:** Field can not be modified; it is assigned automatically when a record is added.

**Station:** Select station assigned to point from the pick list.

Click button to change **Station Pick Details** and order, see Section 1.1.2.

View button displays the Station Edit page for the selected station, see Section

3.1.4.

**List** button displays the **Station List** page, see Section 3.1.

**Reset** button resets the remote ID, point ID, tag, and name for change in station.

**Point Type:** Select point type assigned to point from the pick list.

Click button to change the **Point Type Pick Details** and order, see Section 3.2.2. **View** button displays the **Point Type Edit** page for the selected point type, see

Section 3.2.4.

**List** button displays the **Point Type List** page, see Section 3.2.

**Reset** button resets the data checking parameters to the point type parameters.

The assigned point type provides the point with the remote sensor identification, class, data units, digital status name, flag names, default calibration and data checking parameters, see Section 3.2. When new point is added, the point type calibrations parameters are assigned. To add a new point type to the system click **List** to display the **Point Type List** then click the **Add** button. Alternately click **View** to display the **Point Type Edit** page for the selected point type then click **Copy**. Return to the **Point Edit** page and select the new point type.

#### **Remote Sensor Identification**

The method of matching remote station sensor identifiers to station points depends on the protocol assigned to the point's station type. The remote sensor identification fields displayed are limited to those that are effective for the station type protocol unless the expand button below the Point type field is clicked. Click the collapse button to restore the limited display.

Button	Action
<b>+</b>	Show all remote ID parameters
$\blacksquare$	Show remote ID parameters for station type protocol

Table 3.1.1. Station Type Protocol and Remote Sensor Identification

Station Type Protocol	Remote Sensor Identification
none	Remote ID and Line
ALERT1	Remote ID and Line
ALERT2	Sensor ID and Line
HydroLynx 50386 ScadaLynx	Remote ID and Line
HydroLynx 5096 Modem	Remote ID and Line
High Sierra 3350 Radio	Remote ID and Line
HydroLynx Orbcomm Satellite	Data Position, Format, Width, Samples
Web Page Remote ID	Remote ID and Line
Web Page Data Position	Data Position
Web Page Data Parameter	Data Position and Parameter

**Remote ID:** Numeric identifier for sensor reported by remote station in data packet. Often remote ID numbers are related to their associated station number by a numbering convention.

**Reset** button resets the Point ID and Tag for change in Remote ID.

Table 3.1.2. HydroLynx Remote ID numbering convention

Sensor	Conventional Numerical Off-set from Station ID
Rain	+0 (the precipitation gage has the same ID as the station)
Relative Humidity	+1
Air Temperature	+2
Stage	+3
Barometric Pressure	+4
Battery	+8
ALERT Wind speed & direction	-3
Wind Gust	-6

Using this convention, then a Station with an ID of 3560 might include a rain gage with the same Remote ID number, 3560, as well as a stage sensor assigned a

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Remote ID of 3563 (3560+3) and a battery voltage sensor assigned a Remote ID of 3568 (3560+8).

#### Line:

Select the line number for a status point type class. This field is hidden if the point type class is not status. Click button to change the point status line pick details and order, see Section 3.2.6.

Digital status point types can report multiple point states in one data report. One bit is used for each point state. The least significant bit is called line 1, and the highest is line 32. Each point state must be assigned to a unique point ID and status line number (1-32). Each of these points will share the same remote ID and station ID.

# **Sensor ID:** Sensor id for an ALERT2 station type protocol.

Sensor ID field is shown for station types assigned the ALERT2 protocol. The ALERT2 sensor ID numbers 0-8 are defined by the protocol specifications. Numbers 9-254 are open for user definition.

Table 3.1.2. ALERT2 Sensor ID numbers

Sensor	<b>ALERT2 SID</b>
Rain	0
Air Temperature	1
Relative Humidity	2
Barometric Pressure	3
Wind Speed	4
Wind Direction	5
Wind Gust	6
Stage	7
Battery	8
Status	9
GPS Sync Flag	10

**Data position:** Position of point data in data packet

**Parameter:** Data parameter type, see Station Polling Data Position and Parameter table.

**Format:** *Ascii* or *Hexidecimal* data format.

**Width:** Width of data field in characters when multiple data reports are not delimited.

**Samples:** Number of samples returned in data packet.

Table 3.1.3. Station Polling Data Position and Parameter

<b>Remote data logger</b> HydroLynx 5400 satellite	<b>Data Position</b> Field number in the row	Data Parameter
transmitter	1: rainfall	Format: Ascii, Width: 3, Samples: 5
	2: water level	Format: Ascii, Width: 4, Samples: 1
	3: battery voltage	Format: Ascii, Width: 3, Samples: 1
HydroLynx 50386	Field number in the row	Programmable
Orbcomm satellite		Format, Width, Samples
transmitter		
USGS water data	Field number in the row	45: precipitation

60: discharge65: lake level65: stream level

**Point ID:** Numeric identifier for this point. This number must be unique in the system. Alpha-numeric identifier for this point. The tag must be unique in the system.

Max: 8 characters.

**Name:** Point name. Max: 100 characters.

**Reset** button sets point name to default for station and point type.

**Description:** Enter additional information describing point. Max: 1000 characters.

## User groups

The **User groups** table shows the user groups currently assigned to the point. Clicking on any of the column heading buttons will reorder the user groups in the **User groups List**, numerically or alphabetically, by that detail. Click **Details:** button to change the User Group List details and display order, see Section 10.3.1. Click **Assign/Remove groups** button to open **User Group Assignment** window, see Section 10.3.3. Changes made to user group assignments will update this page when the assignment window is closed. Click **List** button to show all user groups, see Section 10.3. Click **Add** button to add a user group, see Section 10.3.4. Click **Edit** button to edit the user group, see Section 10.3.5.

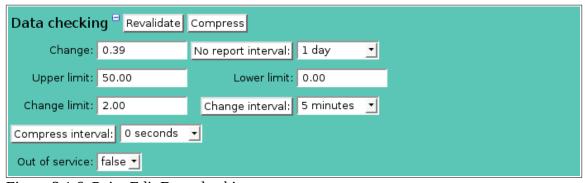


Figure 3.1.6. Point Edit Data checking

## **Data Checking**

The **Data Checking** parameters determine how NovaStar 5 validates data reports when they are filed in the database. Reports received with bad data values or values out of limits are flagged as questionable and are not used in data analysis or displays. Default data checking and calibration parameters can be copied from the assigned point type but they can be individually set for each point.

**Change:** Allowed change in a data report scaled value from previous reports to detect questionable data values.

The difference between each scaled data value and the scaled values received before are compared to the allowed **Change** to detect questionable data values. This is different from NovaStar4X where the change units were in raw units. If the reported value has changed by more than the allowed amount, the data point is not validated and is marked as questionable. Data checking does not stop after one report validates the new value. A data report is validated if it does not change by more than the **Change** amount from the last report, twice the amount from two reports ago, or three times the amount from three reports ago. The checking continues until one of the 3 reports validates the new report or 3 reports that were already validated do not validate the report. The data checking interval for

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previous reports is limited to the larger of the no report interval, change interval, alarm set or reset intervals. Reports already stored in the database that were marked as questionable can be changed to valid by a new report. In this last case the earlier report that is validated is marked with a break flag to indicate the start of a new data series. A 0 value disables data change validation.

**Repeat:** Number of repeated identical reports required for digital status report verification.

**No Report interval:** Minimum reporting time interval. Click the button to alternate between interval selection from a pick list or from time interval fields.

Remote station data does not always report in at regular time intervals but it should report at a minimum time interval. For example, rain gages should be configured to report every bucket tip, but also to report at a minimum level during dry weather to provide assurance that the sensing and transmission system is continually working. If there is a problem it is advantageous to detect it before the station fails to provide data at a critical time. When remote station data is not received at the minimum time interval, validated data is marked with a break flag to indicate a gap in the data record. A 0 value is assigned the default no report interval of 1 day.

**Upper limit:** Scaled data values greater than this value are flagged not valid. **Lower limit:** Scaled data values less than this value are flagged not valid.

Before checking the change from one report to the next, the data checking compares the scaled data value to the upper and lower limits. Any report greater than the Upper Limit is not validated regardless of whether the change in scaled value from surrounding reports is less than the allowed amount. Any report less than the Lower limit is not validated regardless of whether the change in scaled value from surrounding reports is less than the allowed amount. Set both the Upper limit and the Lower limit to zero (or blank) to disable limit checking.

**Change limit:** Scaled data value change over time limit **Change interval:** Change limit time interval. Click the button to

**Change interval:** Change limit time interval. Click the button to alternate between interval selection from a pick list or from time interval fields.

The **Change limit** over **Change interval** data checking tests the scaled data value change over a time interval. This check is done after the change between reports has validated a data report scaled value. Changes over the interval that are greater then the limit will remove the report validation. This type of data checking can be used for sensors like rain gauges where the upper and lower limits do not apply well. A malfunctioning sensor will report too often and can be detected by this test. Set the **Change limit** to zero or blank to disable change limit checking.

**Compress interval:** Data compression time interval. Click the button to alternate between interval selection from a pick list or from time interval fields.

When remote station data reports the same value at time intervals shorter than the minimum data recording interval, you can remove the duplicate data reports by setting a compress interval. Use 0 to disable data compression.

**Out of Service:** *true* if point data is out of service, *false* if in service.

This parameter will take a point data source out of service by selecting **true** from the drop-down list (this can set at the point level or at the station level).

When a point is taken out of service the following conditions apply to that point

- NovaStar 5 will not initiate automatic polling of a point data source that is out-of-service.
- Data reports from a point source that is out-of-service will not appear on maps.
- •Data reports from a point source that is out-of-service will be marked with a maintenance flag in the database. This includes both ALERT data automatically received from the point as well as any data reports received as a result of manual point source interrogation.
- •Alarm checking for data reports received from a point source that is out-of-service is suspended.

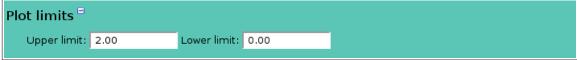


Figure 3.1.7. Point Edit Plot limits

#### **Plot Limits**

Plot limits define the plot scaling for use in point plots. Enter 0 in both fields to disable the point plot limits; plot auto-scaling will be used. Using plot limits will prevent auto-scaling from inappropriately reducing the scale of reports when the variation in data values for a reportted interval is low.

Upper limit: Plot scale upper limit.Lower limit: Plot scale lower limit.

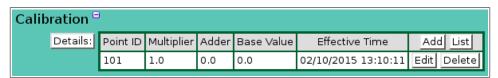


Figure 3.1.8. Point Edit Calibration

#### **Calibration**

The **Calibration** table shows the most recent calibration record parameters assigned to the point. When a point is added to the system, the default point type calibration parameters are assigned to the point. When a point is copied, the most recent calibration is copied also. Historical calibrations are not copied.

The **Add** and **Edit** buttons on **Calibration** table allow a user to create point-specific data calibrations for those sensor types that require individual calibration at each station. In addition, data calibrations may have to change over time if sensing equipment is moved or replaced. When you **Add** or **Edit** a data calibration, NovaStar 5 records the time associated with the creation of the new calibration and it becomes the calibration applied to incoming data streams.

**Details:** Click button to change the Point Calibration List details, see Section 3.4.1. Add Click button to add a calibration record to the point, see Section 3.4.3.

**List** Click button to show all calibrations assigned to point over time, see Section 3.4.

**Edit** Click button to edit the calibration record, see Section 3.4.4. **Delete** Click button to edit the calibration record, see Section 3.4.6.

It is easier to copy an exising calibration record, rather than adding a new record. Click the **Edit** button to display the **Calibration Edit** page, click **Copy** get a new record, enter the effective time for the new calibration, then change the calibration parameters. Click **Apply** to save

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changes. Adding a new calibration record will only affect new data received by the system. To recalibrate point data already in the database, use the **Calibration Recalibration** tool, see Section 3.4.6.

To delete a calibration record, click the **List** button to display the **Calibration List** for the point, click **Edit** to display the **Calibration Edit** page, click **Delete** to display the **Calibration Delete** page, then click **Delete** again to confirm, see Section 3.4.7. If you delete a calibration, you will lose the record of that calibration, which describes how scaled data records were computed for the period of time during which that calibration was in effect. Deleting the calibration will not, however, alter the data records that were computed using that calibration.

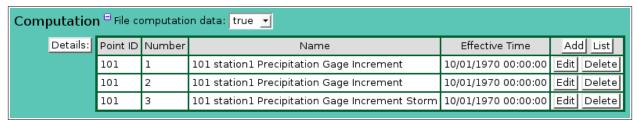


Figure 3.1.9. Point Edit Computation

# Computation

The **Computation** table shows the most recent rating assignment parameters assigned to the point. When a point is added to the system, no rating assignment is made. When a point is copied, the most recent rating assignment is copied also. Historical rating assignments are not copied.

When you **Add** or **Edit** a data rating assignment, NovaStar 5 records the time associated with the creation of the new rating assignment and it becomes the rating assignment applied to incoming data streams.

**File computation data:** If *true* NovaStar 5 automatically computes the rating values and stores it

in the data report for incoming data streams. If false, no rating values are

computed.

Details: Click button to change the Point Rating Assign List details, see Section 3.5.1.
 Add Click button to add a rating assignment record to the point, see Section 3.5.3.
 List Click button to show all rating assignments assigned to point, see Section 3.5.

Edit Click button to edit the rating assignment record, see Section 3.5.4.

Delete Click button to delete the rating assignment record, see Section 3.5.6.

It is easier to copy an existing rating assignment record, rather than adding a new record. Click the **Edit** button to display the **Rating Assign Edit** page, click **Copy** get a new record, enter the effective time for the new rating assignment, then change the rating assignment parameters. Click **Apply** to save changes. Adding a new rating assignment record will only affect new data received by the system. To recompute point data already in the database, use the **Rating Recomputation** tool, see Section 3.5.6.

To delete a rating assignment record, click the **List** button to display the **Rating Assign List** for the point, click **Edit** to display the **Rating Assign Edit** page, click **Delete** to display the **Rating Assign Delete** page, then click **Delete** again to confirm, see Section 3.5.7. If you delete a rating assignment, you will lose the record of that rating assignment, which describes how rating values were computed for the period of time during which that rating assignment was in effect. Deleting the rating assignment will not, however, alter the data records that were computed using that rating assignment.

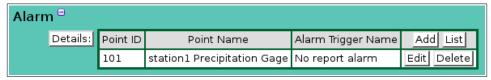


Figure 3.1.10. Point Edit Alarms

#### Alarms

The **Alarms** table shows the alarm triggers assigned to the point. When a point is added to the system, no alarms assignment is made. When a point is copied, the alarm trigger assignment is copied also.

Click button to change the Point Alarm List details, see Section 4.4.1.
 Click button to add an alarm trigger record to the point, see Section 4.5.3.
 Click button to show all alarm triggers assigned to point, see Section 4.4.

**Edit** Click button to edit the alarm trigger record, see Section 4.5.4. **Delete** Click button to delete the alarm trigger record, see Section 4.5.6.

## 3.1.5 Point Copy

The **Point Edit** page allows a user to add a point with many of the same parameters as an existing point using the **Copy** button. When you press the **Copy** button on the **Point Edit** page you reach the **Point Copy** page. Copying an existing point is most convenient when the new point will share many parameters with the existing point that is used as a copy template; this includes the most recent calibration and rating assignments. Once you have assigned a unique **Point ID** and **Tag** to the copied point, clicking the **Apply** button will create the copied point and convert your input page from the **Point Copy** page to the **Point Edit** page, described previously in Section 3.1.4.

#### 3.1.6 Point Delete

To delete a point from the **Point List**, click **Edit** on that point's row in the table and then click **Delete** from the **Point Edit** screen to view the **Point Delete** page. The **Point Delete** page prompts you to click the **Delete** button again to confirm that the point should be deleted. When a point is deleted, NovaStar 5 will warn the user that deleting the point will delete the point and all the calibrations, rating assignments, and data reports assigned to the point. If the user clicks **Delete** again, the point, calibration, rating assignments, and data reports will be deleted. This may take some time if there is a lot of data on file. Deleting a point also removes it from maps, plot, reports, and other point related tables.

## 3.1.7 Point Data Revalidation

When data checking parameters are changed for a point, then data reports in the database must be revalidated using the lastest parameters. Click the **Revalidate** button to the right of the Data checking section name. The point data revalidation tool is displayed, see below.

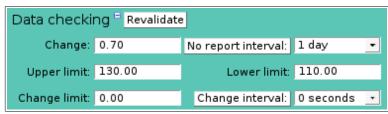


Figure 3.1.11. Point Data Revalidate

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Data checki	ng <sup>=</sup> Close		
Starting Time:	January 🔻	1 - 2011 - 00:00 - Reset Time	
Ending Time:	January 🕶	10 - 2011 - 24:00 - Historic -	
Quiet:	false -		
🔀 🔞 🗞			٦
9 17 17			
<b>⇔ ⇔</b>			ı.i
Change:	0.70	No report interval: 1 day	
Upper limit:	130.00	Lower limit: 110.00	
Change limit:	0.00	Change interval: 0 seconds <u>▼</u>	

Figure 3.1.12. Point Data Revalidation Tool

**Starting Time:** Select the starting time for the data revalidation. Click **Reset Time** to start of day for ending time. Note: the starting time must be before the ending time.

Ending Time: Select the ending time for the data revalidation. Select Current to set the ending

time to the current time.

**Quiet**: *false* prints the command activity in the display window; *true* only prints the

command start and stop messages. Use *true* for the fastest command performance.

**Force:** *false* only updates data reports that change, *true* updates all data reports.

**Digits:** Select the number of decimal digits to display, *default* uses point type assignment.

Click the **Run command** button to revalidate data values for the selected time period; activity is shown in the display window. Click **Close** to hide the revalidation tool.

#### **Button Action**

Run command; display activity in command display window.

Stop command.

🍇 Clear display window.

Reset display window size to default.

Decrease display window height.

Increase display window height.

Decrease display window width.

increase display window width.

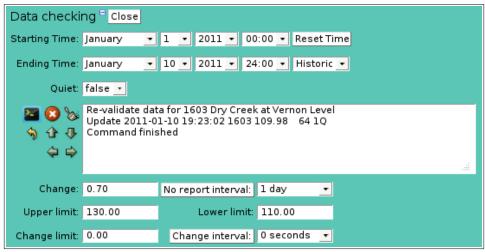


Figure 3.1.13. Point Data Revalidation Execution

## 3.1.8 Point Data Wind Computation

When wind computation or calibration parameters are changed for a point, then data report wind speed must be recomputed. Click the **Compute wind speed** button to the right of the Data checking section name. The point wind speed computation tool is displayed, see below.

Data checking Revalidate Compute wind speed						
Change:	0	No report interval:	1 day	•		
Upper limit:	200	Lower limit:	0			
Change limit:	0	Change interval:	0 seconds	•		

Figure 3.1.14. Point Data Compute Wind Speed

Data checkir			7			
Starting Time:	January -	5 • 2	012 -	01:00 AM <u>•</u>	Reset Time	
Ending Time:	January 🔽	5 • 2	012 -	05:00 AM <u>▼</u>	Historic 🕶	
Quiet:	false 🕶					
🔀 🔞 🗞						
<b>♦ 1</b> ₹						
<b>⇔ ⇔</b>						:

Figure 3.1.15. Point Data Compute Wind Speed Tool

**Starting Time:** Select the starting time for the data revalidation. Click **Reset Time** to start of

day for ending time. Note: the starting time must be before the ending time.

**Ending Time:** Select the ending time for the data revalidation. Select **Current** to set the ending

time to the current time.

**Quiet**: *false* prints the command activity in the display window; *true* only prints the

command start and stop messages. Use true for the fastest command performance.

**Force:** *false* only updates data reports that change, *true* updates all data reports.

**Digits:** Select the number of decimal digits to display, *default* uses point type assignment.

Click the **Run command** button to compute data report wind speed for the selected time period; activity is shown in the display window. Click **Close** to hide the wind speed computation tool.

# Button Action Run command; display activity in command display window. Stop command. Clear display window. Reset display window size to default. Decrease display window height. Increase display window height. Decrease display window width. Lincrease display window width. Increase display window width.

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Data checki	ng <sup>=</sup> Close				
Starting Time:	January 🔻	5 - 2012 - 01:00 AM - Reset Time			
Ending Time:	January 💌	5 <u>• 2012 • 05:00 AM • Historic • </u>			
Quiet:	false -				
<b>№ № ♦ ♦</b>	Update 2012-0 Update 2012-0 Update 2012-0 Update 2012-0	Compute wind speed for 1417 Diamond Hill Wind Speed Update 2012-01-05 01:19:19 1417			
Change:	0	No report interval: 1 day			
Upper limit:	200	Lower limit: 0			
Change limit:	0	Change interval: 0 seconds 🔻			

Figure 3.1.16. Point Data Compute Wind Speed Execution

# 3.1.9 Point Data Compression

When data compression parameters are changed for a point, then data reports in the database must be compressed using the lastest parameters. Click the **Compress** button to the right of the Data checking section name. The point data compress tool is displayed, see below.

Data checking Revalidate Compress						
Change:	0.50	No report interval:	1 day	•		
Upper limit:	0.00	Lower limit:	50.00			
Change limit:	2.00	Change interval:	5 minutes	•		
Compress inten	val: 12 hours	<u>-</u>				

Figure 3.1.17. Point Data Compress

Data checkir	ng <sup>=</sup> Close		
Starting Time:	December 🛨	1 ▼ 2013 ▼ 00:00 ▼ Reset Time	
Ending Time:	December 🛨	3 ▼ 2013 ▼ 15:30 ▼ Current ▼	
Quiet:	false 🛨 Force:	false ▼ Digits: 0 ▼	
<b>22</b> 🐼 🗞			1
🥎 👉 🐺			
<b>⇔</b>			
Change:	0.50	No report interval: 1 day	
Upper limit:	0.00	Lower limit: 50.00	
Change limit:	2.00	Change interval: 5 minutes 💌	4
Compress inter	val: 12 hours	<u> </u>	

Figure 3.1.18. Point Data Compress Tool

**Starting Time:** Select the starting time for the data compression. Click **Reset Time** to start of

day for ending time. Note: the starting time must be before the ending time.

**Ending Time:** Select the ending time for the data compression. Select **Current** to set the ending

time to the current time.

false prints the command activity in the display window; true only prints the **Quiet:** 

command start and stop messages. Use *true* for the fastest command performance.

false only updates data reports that change, true updates all data reports. Force:

Select the number of decimal digits to display, *default* uses point type assignment. **Digits:** 

Click the **Run command** button to revalidate data values for the selected time period; activity is shown in the display window. Click **Close** to hide the revalidation tool.

# Button Action

Run command; display activity in command display window.

Stop command.

Clear display window.

**♦** Reset display window size to default.

Decrease display window height.

⇩ Increase display window height.

Decrease display window width.

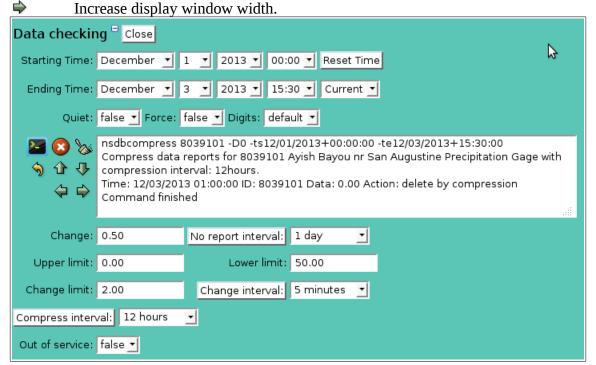


Figure 3.1.19. Point Data Compress Execution

# 3.2 Point Type List

Defined Point Types allow users to organize sensor parameters, including data units, data calibration and data checking parameters, around specific types of sensors. Point types are used to define raw data checking parameters specifically for counters, encoders, and digital status sensors.

Data checking parameters and calibrations can also be specific to individual *points* if required, because most point types, for example those that measure stream depth, are typically individually calibrated at each station so that measured stream depths are converted into calibrated water surface elevations. See Section 3.0 for a complete discussion of points and point calibrations.

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Figure 3.2.1. Point Type List

The **Point Type List** sub-command is available under the **Points** command in the command menu available to users. When you click on the **Point Type List** option, the **Point Type List** page is displayed. The **Point Type List** page shows all of the point types that have been defined in the NovaStar 5 system. Clicking on any of the column heading buttons will reorder the point types in the **Point Type List**, numerically or alphabetically, by that detail. You can customize the appearance of the **Point Type List** using the **Choose details...** button to access the **Point Type List Details** page, see Section 3.2.1.

NovaStar 5 provides predefined point types in the **Point Type List**. The point types that will be needed for most systems are included on the list, but users should confirm that the point type parameters are set as desired before using predefined point types. Click the **Add** button at the upper right-hand corner of the **Point Type List** table to create a new point type using the **Point Type Add** page. Or, click the **Edit** button associated with an existing point type to use that point type as a copy template for creating a new point type. The **Copy** button provided on the template point type's **Point Type Edit** page accesses the **Point Type Copy** page and allows you to create a new point type.

## 3.2.1 Point Type List Details

The check boxes on **Point TypeList Details** page control the items, organization, sort order, and limit the records displayed on the List page.

Ро	int Type List [	Details			ок	Cancel			Bottom
C - I									
Sei	ect the details t	Order by		There by	Reverse	Thom but	Daysana		
✓	Name	Order by	Reverse	⊓ Inen by	Reverse	⊓ Inen by	Reverse	_	love Up
<b>∀</b>	Point class	□							ove Down
	Table row number							S	elect All
H	Description								Reset
늄	Abbreviation							ОК	Cancel
<u> </u>	SHEF parameter								
ī	Data units		П						
ī	Data unit		П						
	Data unit abbr.								
市	Raw digits								
	Scaled digits								
	Cycle size								
	Multiplier								
	Adder								
	Base value								
	Change								
	Interval								
	Lower limit								
	Upper limit								
	Change limit								
	Change interval								
	Compress interval								
	Computation type								
	Display type								
	Group								
Select the limits for the display									
Point class:   All Point Classes   All Point Classes									
User Group:   All User Groups ▼									
-									
Poi	nt Type List D	etails			ок	Canc	el		Тор

Figure 3.2.2. Point Type List Details

# Select the details to display

Check the box to the left of a detail to display. Details are displayed in the order shown. Check the Order by box for the detail to sort first. Check Reverse for a descending sort. Check the Then by box for the detail to sort second. Check Reverse for a descending sort. Check the second Then by box for the detail to sort third. Check Reverse for a descending sort.

**Button** Action

Move Up Move the selected detail up one row.

Move Down Move the selected detail down one row.

Select All Select all details.

Reset to default details.

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OK Return to previous page with new details selected.

Cancel Return to previous page with no changes.

# Select the limits for the display

Point Class: Limit display to point types assigned to the selected point class(s). Click Point

Class: button to change Point Class Pick Details and order.

**Button Action** 

Reset pick list to single select.

Decrease pick list length.

Increase pick list length.

Expand pick list to multiple select.

Collapse pick list to single select.

**User Group:** Limit display to point types assigned to the user group(s). Click **User Group:** 

button to change **User Group Pick Details** and order.

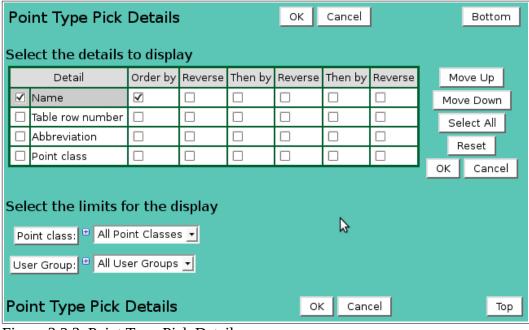


Figure 3.2.3. Point Type Pick Details

## 3.2.2 Point Type Pick Details

The check boxes on **Point Type Pick Details** page control the items, organization, sort order, and limit the records displayed on the pick list.

# Select the details to display

Check the box to the left of a detail to display. Details are displayed in the order shown.

Check the Order by box for the detail to sort first. Check Reverse for a descending sort.

Check the Then by box for the detail to sort second. Check Reverse for a descending sort.

Check the second Then by box for the detail to sort third. Check Reverse for a descending sort.

**Button** Action

Move Up Move the selected detail up one row.

Move Down Move the selected detail down one row.

Select All Select all details.

Reset to default details.

OK Return to previous page with new details selected.

Cancel Return to previous page with no changes.

## Select the limits for the display

**Point Class:** Limit display to point types assigned to the selected point class(s). Click **Point** 

Class: button to change Point Class Pick Details and order.

## **Button Action**

• Reset pick list to single select.

Decrease pick list length.

♣ Increase pick list length.

Expand pick list to multiple select.

Collapse pick list to single select.

**User Group:** Limit display to point types assigned to the user group(s). Click **User Group:** button to change **User Group Pick Details** and order.

# 3.2.3 Point Type Add/Copy

The **Point Type Add** page and the **Point Type Copy** page allow users to create a new point type. The **Point Type Copy** page is most convenient when the new point type will share many parameters with the template point type. To access the **Point Type Copy** page, click on the **Edit** button in the template point type's row in the **Point Type List** table. You will reach the **Point Type Edit** page. Click on the **Copy** button to reach the **Point Type Copy** page.

New point types must be given a unique **Name.** The **Point Type Add** page and the **Point Type Copy** page function in the same way and provide the same input fields as the **Point Type Edit** page, described in Section 3.2.4.

Point Type	Edit	ОК	Apply	Back	Сору	Delete	Bottom
* Required field	** Must be	unique					
Identification	n =						
Table row:	3						
** Name:	Precipitation	n Gage					
Description:	Precipitation	n Gage					
							.ali
Abbreviation:	precip						
SHEF code:	PC						
* Point class:	counter 💌	View	ist				
User groups	Assign/Re	move gro	ups List				
Details		scription	Add				
	All All	groups	Edit				

Figure 3.2.4. Point Type Edit Identification

## 3.2.4 Point Type Edit

When you click on the **Edit** button associated with any point type defined in the **Point Type List** page, you reach the **Point Type Edit** page.

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The **Point Type Edit** page allows users to view or edit point type parameters for an existing point type, or to add a point type with many of the same parameters as a template point type using the **Copy** button.

#### Identification

**Table index:** Field can not be modified; it is assigned automatically when a record is added. **Name:** Unique identifier for the point type you are creating. Max: 100 characters.

This is the name that will appear in reports and point pick lists. Enter a name you will recognize when you are setting up points, for example, water level PT, water level encoder, precipitation 1-mm, wind speed, battery, etc. If you have different calibrations for tipping-bucket rain gages of different volumes, for example, you may have more than one point type for that sensor. However, calibrations can also be associated with specific points for sensors that require individual calibration at

each station.

**Description:** Additional information describing attributes of the point type. Many point types

are similar and some users may want to differentiate between them by describing physical attributes or vendor make and model number. Max: 1000 characters.

**Short name:** Short name for the point type. This is used in reports where a shortened text field

may be required. Max: 100 characters.

**SHEF code:** SHEF parameter code as described in the National Weather Service Standard

Hydrologic Exchange Format documents. A reference to all the parameter codes

can be found at: www.nws.noaa.gov/ohd/hrl/shef/shefcode.htm. Max: 7

characters.

**Point Class:** Select point class assigned to point type from the pick list. Click button to change

the **Point Class Pick Details**, see Section 3.3.2. **View** button displays the **Point Class Edit** page for the selected point class, see Section 3.3.4. **List** button

displays the **Point Class List** page, see Section 3.3.

Point classes determine how NovaStar 5 checks and processes this data based on the expected behavior of the sensor making measurements. Point type classe examples are shown in table 3.2.1. See Section 3.3 for additional information about point classes.

Table 3.2.1 Point Type Class Examples

Class	Description	Example
Analog	Values range up and down	Pressure transducer
Counter	Count up only with roll-over	Rain gage
Encoder	Count up and down with roll-over	Shaft encoder
Status	Digital status	Float switch
Flag	Values relate to messages	System messages
Wind	Wind run counter	Anemometer
Alertwind	Wind run and direction	ALERT wind
Flow	Discharge or flow measurement	Model output
Total	Totaled data	Model input



Figure 3.2.5. Point Type Edit Computation

**Computation:** Select the type of point class computation.

*none*: no computation; *wind speed*: compute wind speed from wind run; *wind direction*: extract wind direction from alertwind point class data.

**Control:** Remote control type. Stations that have control points will have this parameters

changed from "none" to "set value" to enable remote control through the web

page.

## User groups

The **User groups** table shows the user groups currently assigned to the point type. Clicking on any of the column heading buttons will reorder the user groups in the **User groups List**, numerically or alphabetically, by that detail. Click **Details:** button to change the User Group List details and display order, see Section 10.3.1. Click **Assign/Remove groups** button to open **User Group Assignment** window, see Section 10.3.3. Changes made to user group assignments will update this page when the assignment window is closed. Click **List** button to show all user groups, see Section 10.3. Click **Add** button to add a user group, see Section 10.3.4. Click **Edit** button to edit the user group, see Section 10.3.5.

Data units 🖰					
Units:	inches		Unit:	inch	
Abbreviation:	in	Raw digits: 0	<b>♦</b> Scaled	d digits: 2 🔷	
Cycle size:	2048				

Figure 3.2.6. Point Type Edit Data units

## **Data Units**

Data unit fields are not shown for point class Flag or Status.

Units: Sensor value data units (plural). Max: 100 characters.Unit: Sensor value data unit (singular). Max: 100 characters.Abbreviation: Sensor value abbreviated data units. Max: 100 characters.

**Raw digits:** Number of digits to display to the right of the decimal point when raw data is

displayed.

Scaled digits: Number of digits to display to the right of the decimal point when scaled data is

displayed.

**Cycle size:** Raw data reading where count is reset to 0. This field is only shown for the point

classes listed in Table 3.2.2.

Table 3.2.2. Point Type - Cycle Size Examples

Class	Sensor example	Cycle size
Counter	5096 rain gage	2048
Counter	0850 rain gage	65536
Encoder	5096 shaft encoder	2048
Wind	5096 wind counter	2048
ALERTwind	5096 ALERT wind sensor	32

Data calibrat	tion <sup>=</sup>					
Multiplier:	0.0393701	Adder:	0.0	Base value:	0.0	Reset
Display type:	Numeric 🛨					

Figure 3.2.7. Point Type Edit Data calibration

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#### **Data Calibration**

Data reported by station sensors is raw data. This data needs to be converted into engineering units using appropriate calibration values. The scaled data is displayed in reports and used in data analysis. Raw data is calibrated using the calibration formula:

Cal data = Raw data \*Multiplier+ Adder + Base value

**Multiplier:** Multiplier term (slope) in the calibration equation. Adder: Add term (offset) in the calibration equation.

**Base value:** Base value term (elevation) in the calibration equation.

**Display type:** Select the type of data display.

Numeric displays floating point numeric values.

String displays the name of the flag number or status line state.

Heading displays a compass heading (N,NNE,NE,...)

**NOTE:** Data calibrations are only assigned to newly added points. Changing the data calibration for a point type will not change data calibrations for point already defined.

Data checkir	ng 🖱				
Change:	0.39		No report interval:	1 day	<u>•</u>
Upper limit:	0.00		Lower limit:	50.00	
Change limit:	2.00		Change interval:	5 minutes	•
Compress inten	val: 12 hours	▼			

Figure 3.2.8. Point Type Edit Data checking

## **Data Checking**

The **Data Checking** parameters determine how NovaStar 5 validates data reports when they are filed in the database. Reports received with bad data values or values out of limits are flagged as questionable and are not used in data analysis or displays. Default data checking parameters can be copied from the assigned point type but they can be individually set for each point.

**Change:** 

Allowed change in a data report scaled value from previous reports to detect questionable data values.

The difference between each scaled data value and the scaled values received before are compared to the allowed **Change** to detect questionable data values. This is different from NovaStar4X where the change units were in raw units. If the reported value has changed by more than the allowed amount, the data point is not validated and is marked as questionable. Data checking does not stop after one report validates the new value. A data report is validated if it does not change by more than the **Change** amount from the last report, twice the amount from two reports ago, or three times the amount from three reports ago. The checking continues until one of the 3 reports validates the new report or 3 reports that were already validated do not validate the report. The data checking interval for previous reports is limited to the larger of the no report interval, change interval, alarm set or reset intervals. Reports already stored in the database that were marked as questionable can be changed to valid by a new report. In this last case

the earlier report that is validated is marked with a break flag to indicate the start of a new data series. A 0 value disables data change validation.

**Repeat:** Number of repeated identical reports required for digital status report verification.

**No Report Interval:** Minimum reporting time interval. Click the button to alternate between interval selection from a pick list or from time interval fields.

Remote sensor data does not always report in at regular time intervals but it should report at a minimum time interval. For example, rain gages should be configured to report every bucket tip, but also to report at a minimum level during dry weather to provide assurance that the sensing and transmission system is continually working. If there is a problem it is advantageous to detect it before the station fails to provide data at a critical time. When remote data is not received at the minimum time interval, validated is marked with a break flag to indicate a gap in the data record. A 0 value uses the default 1 day interval.

**Upper limit:** Scaled data values greater than this value are flagged not valid. **Lower limit:** Scaled data values less than this value are flagged not valid.

Before checking the change from one report to the next, the data checking compares the scaled data value to the upper and lower limits. Any report greater than the Upper Limit is not validated regardless of whether the change in scaled value from surrounding reports is less than the allowed amount. Any report less than the Lower limit is not validated regardless of whether the change in scaled value from surrounding reports is less than the allowed amount. Set both the Upper limit and the Lower limit to zero (or blank) to disable limit checking.

Change limit: Scaled data value change over time limit

**Change interval:** Change limit time interval. Click the button to alternate between interval selection from a pick list or from time interval fields.

The **Change limit** over **Change interval** data checking tests the scaled data value change over a time interval. This check is done after the change between reports has validated a data report scaled value. Changes over the interval that are greater then the limit will remove the report validation. This type of data checking can be used for sensors like rain gauges where the upper and lower limits do not apply well. A malfunctioning sensor will report too often and can be detected by this test. Set the **Change limit** to zero or blank to disable change limit checking.

**Compress interval:** Data compression time interval. Click the button to alternate between interval selection from a pick list or from time interval fields.

When remote station data reports the same value at time intervals shorter than the minimum data recording interval, you can remove the duplicate data reports by setting a compress interval. Use 0 to disable data compression.

## 3.2.5 Point Type Flag Names

The **Flag names** list the strings that will be displayed for point data values assigned to this point type. Flag names are only displayed when the point type display type is set to *string*.

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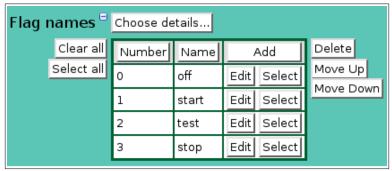


Figure 3.2.9. Point Type Flag Names

When a point type is first defined, no flag name records will be assigned. Click on the table column headers to resort the table for this column; first ascending, then descending. Click on **Choose details...** to change the list display details and order.

## Select the details to display

Check the box to the left of a detail to display. Details are displayed in the order shown. Check the Order by box for the detail to sort first. Check Reverse for a descending sort.

Check the Then by box for the detail to sort second. Check Reverse for a descending sort.

Check the second Then by box for the detail to sort third. Check Reverse for a descending sort.

**Button** Action

Move Up Move the selected detail up one row.

Move Down Move the selected detail down one row.

Select All Select all details.

Reset Reset to default details.

OK Return to previous page with new details selected.

Cancel Return to previous page with no changes.

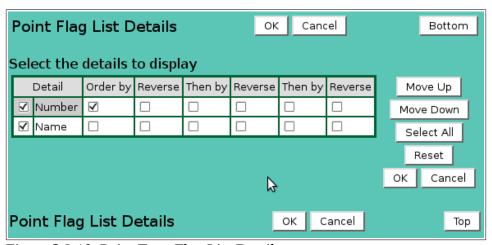


Figure 3.2.10. Point Type Flag List Details

Click on a table field to edit the text. Click **Add** to add an new flag, click **Edit** to edit an existing flag; an edit panel is opened.

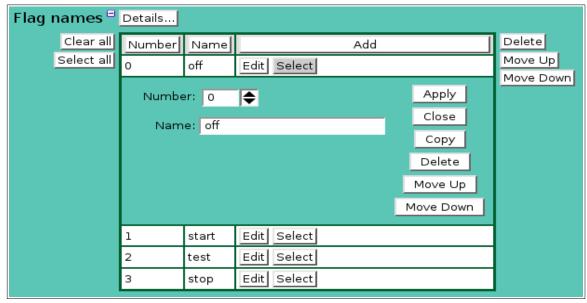


Figure 3.2.11. Point Type Flag Name Edit

**Number:** Point scaled data value for this flag name.

**Name:** Flag name string.

## **Button** Action

Clear all Clear selection of all rows in this table.

Select all Select all rows in this table.

Add Opens the edit panel where you can enter the parameters for a new record.

Edit Open the edit panel for this record.

Select Select row for applied changes from the edit panel; first select, then clear select.

Delete Mark selected rows for deletion; first select, then clear select.

Move up Move the selected rows up one row.

Move down Move the selected rows down one row.

Apply Assign changed field values to this and all other selected rows in the table.

Changed fields are highlighted with a blue-green background while unchanged

fields have a white background.

Close the edit panel without saving changes; you will be warned if changes will

be lost by this action.

## 3.2.6 Point Type Status Line Names

The **Line names** list the digital status off and on state strings that will be displayed for point data values assigned to this point type. Digital status state strings are only displayed when the point type display type is set to *string*.



Figure 3.2.12. Point Type Status Line Names

Point data for a status point class can contain digital status states for multiple points. The Line name table defines which status lines are enabled and can be assigned to points. The line number defines the bit in the raw data report to be examined for the point data value. Line 1 is bit 0, line

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2 is bit 1, and so on. The status bit state is either 0 for off or 1 for on. If the status bit state is off, a 0 is stored in the point data report. If the status bit state is on, a 1 is stored in the point data report.

Status point class data cannot be validated using the change, upper/lower limit or change over interval parameters used by other point classes. An alternative validation check can be used by requiring unused bits in the raw data report to be fixed values, either 0 for off or 1 for on. If the unused bits states do not match the required states, the data report is not validated. The line **Use** parameter in the line name list is where the data validation bit states are set. Use *Fixed Off* for a required off state, or use *Fixed On* for a required on state.

Another data validation check can require minimum number repeated of a data reports that are identical before a report is validated. This data checking parameter is named **Repeat**.

When a point type is first defined, no line name records will be assigned. Click on the table column headers to resort the table for this column; first ascending, then descending. Click on **Choose details...** to change the list display details and order, see Figure 3.2.9.

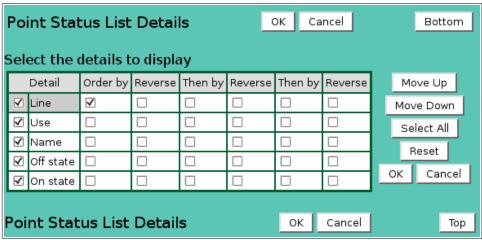


Figure 3.2.13. Point Type Status List Details

## Select the details to display

Check the box to the left of a detail to display. Details are displayed in the order shown. Check the Order by box for the detail to sort first. Check Reverse for a descending sort. Check the Then by box for the detail to sort second. Check Reverse for a descending sort. Check the second Then by box for the detail to sort third. Check Reverse for a descending sort.

Button	Action
Move Up	Move the selected detail up one row.
Move Down	Move the selected detail down one row.
Select All	Select all details.
Reset	Reset to default details.
OK	Return to previous page with new details selected.
Cancel	Return to previous page with no changes.

On the **Point Edit** page, see section 3.1.4, the point type status line is selected from a pick list. The pick list details order are selected from the Point Type Status Pick Details.

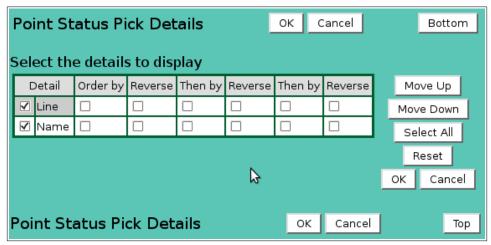


Figure 3.2.14. Point Type Status Pick Details

Click on a table field to edit the text. Click **Add** to add an new line, click **Edit** to edit an existing line; an edit panel is opened.

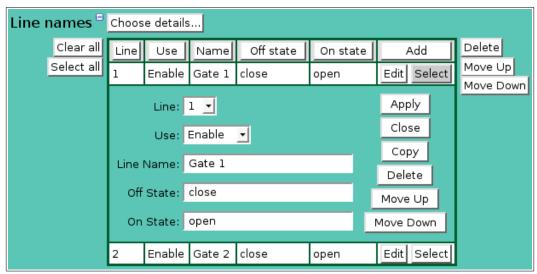


Figure 3.2.15. Point Type Status Line Name Edit

**Line:** Digital status line number.

**Use:** Select the line use.

*Enable*: the line state can be stored as point data.

Disable: ignore this line.

*Fixed Off*: the line state must be off for a data report to be validated. *Fixed On*: the line state must on on for a data report to be validated.

**Name:** Digital status line name.

Off State: String displayed when line state is off. String displayed when line state is on.

**Button** Action

Clear all Clear selection of all rows in this table.

Select all Select all rows in this table.

Add Opens the edit panel where you can enter the parameters for a new record.

Edit Open the edit panel for this record.

Select Select row for applied changes from the edit panel; first select, then clear select.

Delete Mark selected rows for deletion; first select, then clear select.

Move up Move the selected rows up one row.

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Move down Move the selected rows down one row.

Apply Assign changed field values to this and all other selected rows in the table.

Changed fields are highlighted with a blue-green background while unchanged

fields have a white background.

Close Close edit panel without saving changes; you will be warned if changes will be

lost by this action.

# 3.2.7 Point Type Delete

To delete a point type from the **Point Type List**, click **Edit** on that point type's row in the table and then click **Delete** from the **Point Type Edit** screen to view the **Point Type Delete** page. The **Point Type Delete** page prompts you to click the **Delete** button again to confirm that the point type should be deleted. You cannot delete a point type that is assigned to a point. You must first delete the point or reassign the point to a different point type using the **Point Edit** page.

## 3.3 Point Class List

A **point class** determines how the NovaStar 5 system processes raw data and analyzes scaled data. This includes validation, calibration, and data storage into multiple points. The point classes preloaded into NovaStar 5 will be sufficient to process all raw data type for incoming data streams. The creation of additional point classes is unnecessary. The point class table row number is used by the system. This allows users to rename the point classes to either reflect the use of a different language or so that the point class names are easy to remember.

**Point Class List** can be displayed from the **Point Type Edit** page by clicking the **List** button to the right of the Point class pick list. The **Point Class List** page shows all of the point classes defined in the NovaStar 5 system. Clicking on any of the column heading buttons will reorder the point classes in the **Point Class List**, numerically or alphabetically, by that detail. You can customize the appearance of the **Point Class List** using the **Choose details...** button to access the **Point Class List Details** page, see Section 3.3.1.

Network master	Point C	lass List	Choose details	Back	Refres	h [	3ottom
Home	Name	Description				Add	]
Stations	alertwind	ALERT Wind format (combined windrun/direction)				Edit	
Points	analog	Analog sensor				Edit	
Point List     Calibration List	counter	Counter with rollover				Edit	
Point Type List	encoder	Encoder counter that continues at rollover				Edit	
Equation List	flag	Flag values: numeric values with specific meanings				Edit	
Rating Assign List	flow	Volume per time interval				Edit	
Rating Table List	status	Status: each bit marks a state				Edit	
Alarms	total	Totalized data				Edit	
Data	wind	Wind run				Edit	
Point Class List						Тор	

Figure 3.3.1. Point Class List

Do not use the **Add** button at the upper right-hand corner of the **Point Class List** page to create new data classes, the NovaStar 5 system is not configured to utilize data classes beyond those that have been predefined. To change the name or description of an existing point class using the **Edit** button for that point class to access the **Point Class Edit** page, see Section 3.3.3.



Figure 3.3.2. Point Class List Details

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#### 3.3.1 Point Class List Details

The check boxes on **Point Class List Details** page control the items, organization, sort order, and limit the records displayed on the List page.

## Select the details to display

Check the box to the left of a detail to display. Details are displayed in the order shown.

Check the Order by box for the detail to sort first. Check Reverse for a descending sort.

Check the Then by box for the detail to sort second. Check Reverse for a descending sort.

Check the second Then by box for the detail to sort third. Check Reverse for a descending sort.

**Button** Action

Move Up Move the selected detail up one row.

Move Down Move the selected detail down one row.

Select All Select all details.

Reset to default details.

OK Return to previous page with new details selected.

Cancel Return to previous page with no changes.

## 3.3.2 Point Class Pick Details

The check boxes on **Point Class Pick Details** page control the items, organization, sort order, and limit the records displayed on the pick list.



Figure 3.3.3. Point Class Pick Details

## Select the details to display

Check the box to the left of a detail to display. Details are displayed in the order shown.

Check the Order by box for the detail to sort first. Check Reverse for a descending sort.

Check the Then by box for the detail to sort second. Check Reverse for a descending sort.

Check the second Then by box for the detail to sort third. Check Reverse for a descending sort.

## 3.3.3 Point Class Edit

When you click on the **Edit** button associated with any point class defined in the **Point Class List** page, you reach the **Point Class Edit** page.

Point classes determine how NovaStar 5 checks and processes this data based on the expected behavior of the sensor making measurements. Point type classe examples are shown in table 3.2.1. See Section 3.3 for additional information about point classes.

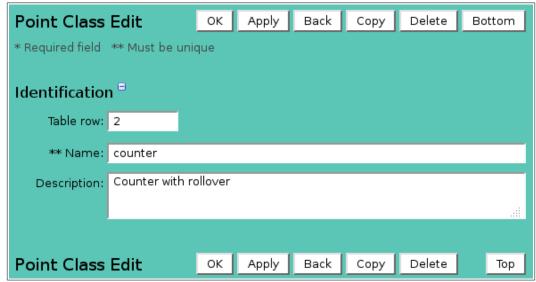


Figure 3.3.4. Point Class Edit

Table 3.3.1 Point Class Examples

Class	Description	Example
Analog	Values range up and down	Pressure transducer
Counter	Count up only with roll-over	Rain gage
Encoder	Count up and down with roll-over	Shaft encoder
Status	Digital status	Float switch
Flag	Values relate to messages	System messages
Wind	Wind run counter	Anemometer
Alertwind	Wind run and direction	ALERT wind
Flow	Discharge or flow measurement	Model output
Total	Totaled data	Model input

#### 3.3.4 Point Class Delete

To delete a point class from the **Point Class List**, click the **Edit** button on that point class' row in the table to access the **Point Class Edit** page. Click on the **Delete** button. You will be prompted to confirm that you wish to delete the point class by clicking on the **Delete** button again. Deleting predefined point classes is not recommended. You cannot delete a point class that is assigned to a point type. You must first delete the point type or reassign the point type to a different class using the **Point Type Edit** page.

#### 3.3.5 Point Class Raw Data Validation

The raw data range is limited for the *counter*, *encoder*, *wind* classes by the point type cycle size. If the cycle size is greater than zero, then raw data values greater than or equal to the cycle size are not validated. The *alertwind* class is a special case where the raw data is composed of the wind direction in the lower 6 bits, and the wind run counter in the upper 5 bits. The wind run counter is extracted from the upper 5 bits before it is tested. Shifted wind run counter data values greater than or equal to the cycle size are not validated.

## 3.3.6 Point Class Counter Roll-over Detection and Recalibration

The raw data changes must be positive for *counter* classes. If the data change is negative, then the data is tested for a roll-over event. A roll-over event occurs when a counter is incremented past the cycle size supported by the data logger memory or data transmission format. When a roll-over event is tested, the cycle size is added to the raw data counter.

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If the adjusted data value has a positive change then the data is calibrated and validated. If the adjusted data value is validated, a new calibration record is added to the system for the point at the time of the data report. The new calibration base value is set to the last calibration base value + multiplier \* cycle size.

If the adjusted data value is not validated, then the data report must be validated by another report received later. When the report is finally validated, the calibration base value is reset to zero if not already zero and a break flag is set in the report flags.

# 3.3.7 Point Class Encoder Roll-over Detection and Recalibration

The raw data changes can be be positive or negative for *encoder* classes. If the a change in data is not validated by the data checking change limit, then the data is tested for a roll-over event. A roll-over event occurs when a counter is decremented below zero or incremented past the cycle size supported by the data logger memory or data transmission format.

The scaled cycle size is added to the calibrated data value and the adjusted data value is tested for validation. If the adjusted data value is validated, then a new calibration record is added to the system for the point at the time of the data report. The new calibration base value is set to the last calibration base value + multiplier \* cycle size.

If adjusted data value is not validated, then the scaled cycle size is subtracted from the calibrated data value and this adjusted data value is tested for validation. If this adjusted data value is validated, then a new calibration record is added to the system for the point at the time of the data report. The new calibration base value is set to the last calibration base value - multiplier \* cycle size.

If the neither the positive or negative adjusted data value is validated, then the data report must be validated by another report received later. When the report is finally validated, the calibration is unchanged and a break flag is set in the report flags.

## 3.3.8 Point Class Alertwind Computation

The *alertwind* class has raw data that is composed of the wind direction in the lower 6 bits, and the wind run counter in the upper 5 bits. Raw data for this class must be stored in two different points. Each point will have the same remote ID but different point ID and tags. The wind direction is stored in a point data report whose point type class is *alertwind* and computation is *wind direction*. The wind speed is computed by taking the difference in the wind run counter from the previous report and dividing by the time (in hours) between reports. The resulting wind speed data value in units per hour is stored in the point data report whose point type class is *alertwind* and computation is *wind* speed.

## 3.4 Calibration List

A **calibration** is a set of values that is applied to incoming raw data reports to produce calibrated data in the desired engineering units. NovaStar 5 saves calibration values in a database table that can be viewed using the **Calibration List** command. The **Calibration List** sub-command is available under the **Points** command in the command menu available to users. When you click on the **Calibration List** option, the **Calibration List** page is displayed. The **Calibration List** page shows all of the calibrations that have been assigned to points defined in the NovaStar 5 system. Clicking on any of the column heading buttons will reorder the calibrations in the **Calibration List**, numerically or alphabetically, by that detail. You can customize the appearance of the **Calibration List** using the **Choose details...** button to access the **Calibration List Details** page, see Section 3.4.1.

Network master	Calibration List		Choose details		Back	Refresh	Botton	n
Home	Point ID	Multiplier	Adder	Base Value	Effective Time		Add	
Stations	3463	0.7328	0.0	25513.12	11/14/2013 10:59:23		Edit	
Points	3463	0.7328	0.0	24012.35	11/14/2	Edit		
Point List	992	1.0	0.0	0.0	11/11/2	013 10:15:49	Edit	
Calibration List	991	1.0	0.0	0.0	11/11/2	013 10:14:29	Edit	
Point Type List     Equation List	995	1.0	0.0	0.0	11/11/2	013 10:09:30	Edit	
Rating Assign List	994	1.0	0.0	0.0	11/11/2	013 09:59:03	Edit	
Rating Table List	993	1.0	0.0	0.0	11/11/2	013 09:58:37	Edit	
Alarms	1603	0.0147	0.0	4.14	11/11/2	013 03:06:30	Edit	
Data	1110	1.0	0.0	0.0	11/06/2	013 16:17:21	Edit	
System	1633	1.0	0.0	0.0	11/04/2	013 13:32:58	Edit	
Users	1635	1.0	0.0	0.0	11/04/2	013 13:31:49	Edit	
Tabular Data	2050	0.0394	0.0	0.0	10/25/2	013 10:11:50	Edit	
Report Data	2055	1.0	0.0	0.0	10/25/2	013 10:11:04	Edit	
Plot Data	1110	1.0	0.0	0.0	10/25/2	013 10:07:27	Edit	
Map Data	1105	1.0	0.0	0.0	10/25/2	013 10:07:27	Edit	
About NovaStar 5	1505	1.0	0.0	0.0	10/25/2	013 10:04:15	Edit	
Contact HydroLynx	2540	0.0394	0.0	0.0	10/21/2	013 13:29:28	Edit	
Change Profile	1185	1.0	0.0	0.0	10/14/2	013 17:04:51	Edit	
Log out	1183	1.0	0.0	0.0	10/14/2	2013 17:04:03	Edit	

Figure 3.4.1. Calibration List

Data calibrations may have to change over time if sensing equipment is moved or replaced. When you **Add** or **Edit** a data calibration, NovaStar 5 records the time associated with the creation of the new calibration and it becomes the calibration applied to incoming data streams. The **Calibration List** table shows all of the data calibrations that have been applied to data at each point over time. Sometimes an *operator* may wish to retroactively apply a data calibration change to a period of data reports that were calibrated erroneously when they were received.

Click the **Add** button at the upper right-hand corner of the **Calibration List** table to create a new calibration using the **Calibration Add** page. Or, click the **Edit** button associated with an existing calibration to use that calibration as a copy template for creating a new calibration. The **Copy** button provided on the template calibration's **Calibration Edit** page accesses the **Calibration Copy** page and allows you to create a new calibration.

#### 3.4.1 Calibration List Details

The check boxes on **CalibrationList Details** page control the items, organization, sort order, and limit the records displayed on the List page.

## Select the details to display

Check the box to the left of a detail to display. Details are displayed in the order shown. Check the Order by box for the detail to sort first. Check Reverse for a descending sort. Check the Then by box for the detail to sort second. Check Reverse for a descending sort. Check the second Then by box for the detail to sort third. Check Reverse for a descending sort.

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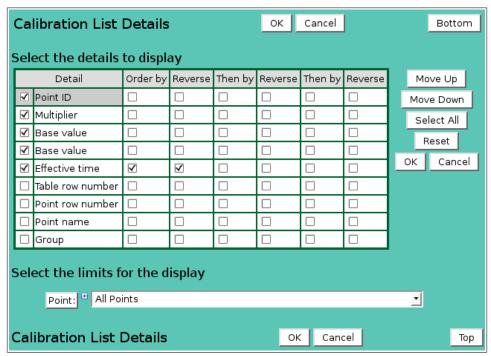


Figure 3.4.2. Calibration List Details

Button	Action
Duttun	/ <b>1</b> CUUII

Move Up Move the selected detail up one row.

Move Down Move the selected detail down one row.

Select All Select all details.

Reset to default details.

OK Return to previous page with new details selected.

Cancel Return to previous page with no changes.

#### Select the limits for the display

**Point:** Limit display to calibrations assigned to the selected point(s). Click **Point:** button

to change Point Pick Details and order.

#### **Button Action**

Reset pick list to single select.

**Decrease pick list length.** 

♣ Increase pick list length.

Expand pick list to multiple select.

Collapse pick list to single select.

**User Group:** Limit display to calibrations assigned to the user group(s). Click **User Group:** 

button to change **User Group Pick Details** and order.

#### 3.4.2 Calibration Pick Details

The check boxes on **Calibration Pick Details** page control the items, organization, sort order, and limit the records displayed on the pick list.

#### Select the details to display

Check the box to the left of a detail to display. Details are displayed in the order shown.

Check the Order by box for the detail to sort first. Check Reverse for a descending sort.

Check the Then by box for the detail to sort second. Check Reverse for a descending sort.

Check the second Then by box for the detail to sort third. Check Reverse for a descending sort.

Calibration Pick Details OK Cancel									Bottom		
5	Select the details to display										
I		Detail	Order by	Reverse	Then by	Reverse	Then by	Reverse	Move Up		
ı	✓	Point ID							Move Down		
I	✓	Multiplier							Select All		
I	<	Base value							Reset		
ı	✓	Base value									
ı	✓	Effective time	✓						OK Cancel		
ı		Table row number									
ı		Point row number									
ı		Point name									
Select the limits for the display											
(	Calibration Pick Details OK Cancel Top										

Figure 3.4.3. Calibration Pick Details

Button	Action
Move Up	Move the selected detail up one row.
Move Down	Move the selected detail down one row.
Select All	Select all details.
Reset	Reset to default details.
OK	Return to previous page with new details selected.

OK Return to previous page with new details selected.

Cancel Return to previous page with no changes.

#### Select the limits for the display

**Point:** Limit display to calibrations assigned to the selected point(s). Click **Point:** button

to change **Point Pick Details** and order. **Button Action** 

Reset pick list to single select.
Decrease pick list length.
Increase pick list length.
Expand pick list to multiple select.

Collapse pick list to single select.

**User Group:** Limit display to calibrations assigned to the user group(s). Click **User Group:** button to change **User Group Pick Details** and order.

# 3.4.3 Calibration Add/Copy

The **Calibration Add** page and the **Calibration Copy** page allow users to create new calibrations. They function in the same way. The **Calibration Copy** page is most convenient when the new calibration will share several parameters with the template calibration. To access the **Calibration Copy** page, click on the **Edit** button in the template calibration's row in the **Calibration List** table. You will reach the **Calibration Edit** page. Click on the **Copy** button to reach the **Calibration Copy** page.

The **Calibration Add/Copy** page(s) prompt you to enter the new calibration parameters and the **Time** associated with the calibration change. The **Calibration Edit** page provides the same input fields as the **Calibration Add** and the **Calibration Copy** pages, and these are described below.

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#### 3.4.4 Calibration Edit

When you click on the **Edit** button associated with any calibration defined in the **Calibration List** page, or when you click **Apply** from the **Calibration Add** or **Calibration Copy** pages to create a new calibration, you reach the **Calibration Edit** page. The **Calibration Edit** page allows users to **Edit** the calibration parameters assigned to an existing point, or to add a calibration with many of the same parameters as a template calibration using the **Copy** button.

Data reported by station sensors is raw data. This data needs to be converted into engineering units using appropriate calibration values. The calibrated data is displayed in reports and used in data analysis. Raw data is calibrated using the calibration equation:

Cal data = Raw data \* **Multiplier** + **Base value** 

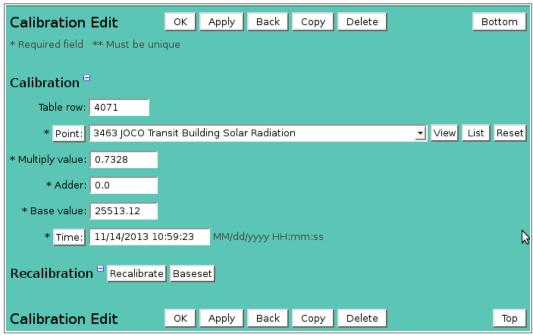


Figure 3.4.4. Calibration Edit

#### Calibration

**Table index:** Field can not be modified; it is assigned automatically when a record is added.

**Point:** Select point for calibration from the pick list.

Click button to change **Point Pick Details** and order, see Section 3.1.2.

**View** button displays the **Point Edit** page for the selected point, see Section 3.1.4.

**List** button displays the **Point List** page, see Section 3.1.

**Reset** button resets the calibration parameters to the point's point type defaults.

**Multiply value:** Multiplier term (slope) in the calibration equation.

**Adder:** Adder term (offset) in the calibration equation.

**Base value:** Base value term (elevation) in the calibration equation.

**Time:** Date and time when calibration becomes effective. Point calibrations can change

over time due to sensor drift, replacement, or relocation. NovaStar 5 keeps a time history of point calibrations in the data base. A point calibrations remains in effect from the effective time forward until another calibrations is added with a newer

effective time. **Time:** button assigns the current date and time.

Click the **Apply** button to save the calibration parameters and stay on this page. Click **OK** to return to the previous page.

#### 3.4.5 Calibration Baseset

The **Calibration Edit** page baseset tool allows the calibration base value to be computed from an observed reading and a data report raw value. Click the **Baseset** button to open this tool.

#### Recalibration

**Starting Time:** Select the starting time for the data report search. Click **Reset Time** to set the starting time to the calibration effective time. Note: the starting time must be before the ending time.

**Ending Time:** Select the ending time for the data report search. Select **Current** to set the ending time to the current time.

**Get data** Request point's data reports from the database for selected time period.

**Close** Hide the baseset tool

Recal	libratior	Close	
Start	ing Time:	April	▼ 12 ▼ 2000 ▼ 11:00 ▼ Reset Time
End	ing Time:	April	▼ 12 ▼ 2000 ▼ 17:00 ▼ Historic ▼
	Get data	04/12/2000	11:02:50 47 🔽
Observ	ved value:	109.60	Baseset Enter observed value then click baseset

Figure 3.4.5. Calibration Edit Page Baseset Tool

Select the point data report from the list that is close to the observed reading time. Enter the **Observed value** for this time. Click the **Baseset** button to compute the **Base value**. Click the **Close** button hide the baseset tool. Click the **Apply** button to save the calibration parameters.

#### 3.4.6 Calibration Recalibration

If a calibration is changed for data reports already stored in the database then the calibrated data values must be recalibrated. The **Calibration Edit** page recalibrate tool will recalibration point data reports for a selected time period. Click the **Recalibrate** button to open this tool.

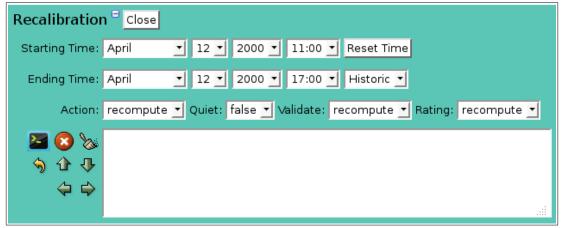


Figure 3.4.6. Calibration Edit Page Recalibration Tool

#### Recalibration

**Starting Time:** Select the starting time for the recalibration. Click **Reset Time** to set the starting time to the calibration effective time. Note: the starting time must be before the ending time.

**Ending Time:** Select the ending time for the recalibration. Select **Current** to set the ending time to the current time.

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**Action:** *recompute* will recalibrate the data reports for the assigned calibration records.

set wil assign the selected calibration and then recalibrate the data reports.

**Quiet**: *false* prints the command activity in the display window; *true* only prints the

command start and stop messages. Use *true* for the fastest command performance.

**Validate:** *recompute* will revalidate the data reports after the recalibration.

*false* will not perform the revalidation.

**Rating:** *recompute* will recompute the data reports ratings the recalibration.

false will not perform the rating recomputation.

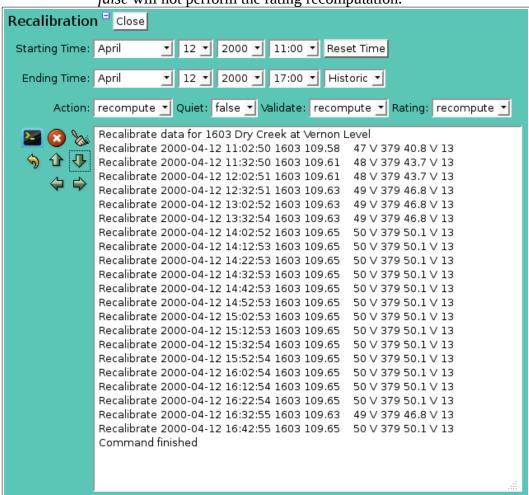


Figure 3.4.7. Calibration Edit Page Recalibration Tool

Click the **Run command** button to recalibrate the data reports for the selected time period; activity is shown in the display window.

# Button Action Run command; display activity in command display window. Stop command. Clear display window.

Reset display window size to default.

Decrease display window height.

Increase display window height.

Decrease display window width.

➡ Increase display window width.

#### 3.4.7 Calibration Delete

To delete a calibration from the **Calibration List**, click **Edit** on that calibration's row in the table and then click **Delete** from the **Calibration Edit** screen to view the **Calibration Delete** page. The **Calibration Delete** page prompts you to click the **Delete** button again to confirm that the calibration should be deleted. If you delete a calibration, you will lose the record of that calibration, which describes how calibrated data records were computed for the period of time during which that calibration was in effect. Deleting the calibration will not, however, alter the data records that were computed using that calibration.

# 3.5 Rating Assign List

A rating is a value returned from a computation table that is stored in a data report. For example a water level data report value in feet can be used to compute the stream discharge in cubic feet per second. NovaStar 5 supports up to five different rating values stored in the data report. Rating tables (see Section 3.6) are assigned to a point to compute the rating values. Different rating tables can be assigned for use at different time periods. Rating shifts can also be added to a rating assignment to adjust a rating rather than add a new rating table. As with rating tables, different rating shifts assigned for use at different time periods. When ratings are active for a point, the assigned rating values are computed and stored in the data report when the data report is filed in the database.

NovaStar 5 saves rating assign values in a database table that can be viewed using the **Rating Assign List** command. The **Rating Assign List** sub-command is available under the **Points** command in the command menu available to users. When you click on the **Rating Assign List** option, the **Rating Assign List** page is displayed. The **Rating Assign List** page shows all of the rating assigns that have been assigned to points defined in the NovaStar 5 system. Clicking on any of the column heading buttons will reorder the rating assigns in the **Rating Assign List**, numerically or alphabetically, by that detail. You can customize the appearance of the **Rating Assign List** using the **Choose details...** button to access the **Rating Assign List Details** page, see Section 3.5.1.

System up	Rating	Assign	List	Choose detail	s	Back	Refr	esh s	Show All	В	ottom
Home	Point: 160	oint: 1603 Dry Creek at Vernon Level									
Stations	Point ID	Number		Nar	ne		1	Effec	tive Tim	e	Add
Points	1603	1	Dry Cr	reek at Vernon (	06/10/	2010 0	0:00:00	06/10/2	010 00:0	0:00	Edit
Point List	1603	1	Dry Cr	reek at Vernon I	10/01/	2005 0	0:00:00	10/01/2	005 00:0	0:00	Edit
AlertTalk3 List	1603	1	Dry Cr	eek at Vernon (	)1/24/	2000 1	7:54:00	01/24/2	000 17:5	4:00	Edit
Calibration List     Device Type List	1603	1	Dry Cr	eek at Vernon I	10/01/	1999 0	1:00:00	10/01/1	999 01:0	0:00	Edit
Equation List	1603	1	Dry Cr	reek at Vernon (	1/22/	1997 2	3:30:00	01/22/1	997 23:3	0:00	Edit
MapDisplay List	1603	1	Dry Cr	reek at Vernon I	10/01/	1996 0	0:00:00	10/01/1	996 00:0	0:00	Edit
Rating Assign List	1603	1	Dry Cr	reek at Vernon I	12/31/	1979 1	6:00:00	12/31/1	979 16:0	0:00	Edit
Rating Table List .	Rating	Assign	List								Тор

Figure 3.5.1. Rating Assign List

Use the **Add** button at the upper right-hand corner of the **Rating Assign List** table to create a new rating assign using the **Rating Assign Add** page. Or, click the **Edit** button associated with an existing rating assign to use that rating assign as a copy template for creating a new rating assign. The **Copy** button provided on the template rating assign's **Rating Assign Edit** page accesses the **Rating Assign Copy** page and allows you to create a new rating assign as described below.

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#### 3.5.1 Rating Assign List Details

The check boxes on **Rating Assign List Details** page control the items, organization, sort order, and limit the records displayed on the List page.

# Select the details to display

Check the box to the left of a detail to display. Details are displayed in the order shown. Check the Order by box for the detail to sort first. Check Reverse for a descending sort. Check the Then by box for the detail to sort second. Check Reverse for a descending sort. Check the second Then by box for the detail to sort third. Check Reverse for a descending sort.

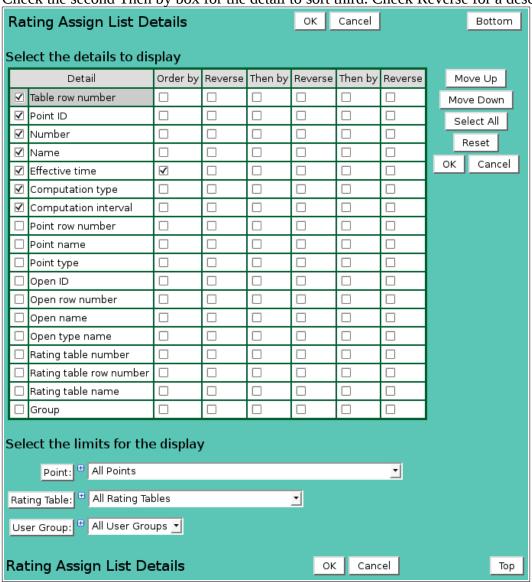


Figure 3.5.2. Rating Assign List Details

Button	Action
Move Up	Move the selected detail up one row.
Move Down	Move the selected detail down one row.
Select All	Select all details.
Reset	Reset to default details.
OK	Return to previous page with new details selected.
Cancel	Return to previous page with no changes.

#### Select the limits for the display

**Point:** Limit display to rating assignments assigned to the selected point(s). Click **Point:** 

button to change **Point Pick Details** and order.

**Button Action** 

Reset pick list to single select.

Decrease pick list length.

Increase pick list length.

Expand pick list to multiple select.Collapse pick list to single select.

Rating Table: Limit display to rating assignments assigned to the selected rating table(s). Click

Rating Table: button to change Rating Table Pick Details and order.

**User Group:** Limit display to rating assignments assigned to the user group(s). Click **User** 

Group: button to change User Group Pick Details and order.

#### 3.5.2 Rating Assign Pick Details

The check boxes on **Rating Assign Pick Details** page control the items, organization, sort order, and limit the records displayed on the pick list.

#### Select the details to display

Check the box to the left of a detail to display. Details are displayed in the order shown. Check the Order by box for the detail to sort first. Check Reverse for a descending sort. Check the Then by box for the detail to sort second. Check Reverse for a descending sort. Check the second Then by box for the detail to sort third. Check Reverse for a descending sort.

Button	Action
Move Up	Move the selected detail up one row.
Move Down	Move the selected detail down one row.
Select All	Select all details.
Reset	Reset to default details.
OK	Return to previous page with new details selected.
Cancel	Return to previous page with no changes.

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# Select the limits for the display

**Point:** Limit display to rating assignments assigned to the selected point(s). Click **Point:** 

button to change Point Pick Details and order.

#### **Button Action**

Reset pick list to single select.

Decrease pick list length.

Increase pick list length.

Expand pick list to multiple select.Collapse pick list to single select.

Rating Table: Limit display to rating assignments assigned to the selected rating table(s). Click

Rating Table: button to change Rating Table Pick Details and order.

**User Group:** Limit display to rating assignments assigned to the user group(s). Click **User** 

Group: button to change User Group Pick Details and order.

Rating Assign Pick Details OK Cancel Bottom										
Select the details to display										
Г	Detail	Order by	Reverse	Then by	Reverse	Then by	Reverse	М	ove Up	
6	✓ Number							Мо	ve Down	
6	<b>☑</b> Name	<b>V</b>						Se	elect All	
0	☐ Table row number								Reset	
[	☐ Effective time							_		
[	☐ Table number							ОК	Cancel	
[	☐ Table name									
Se	elect the limits f	or the d	isplay							
	Point: Hall Po	ints							•	
Rating Table: All Rating Tables										
User Group:   All User Groups   ✓										
R	ating Assign Pi	ck Deta	ails			ок	ancel		Тор	

Figure 3.5.3. Rating Assign Pick Details

#### 3.5.3 Rating Assign Add/Copy

The Rating Assign Add page and the Rating Assign Copy page allow users to create new rating assigns. They function in the same way. The Rating Assign Copy page is most convenient when the new rating assign will share several parameters with the template rating assign. To access the Rating Assign Copy page, click on the Edit button in the template rating assign's row in the Rating Assign List table. You will reach the Rating Assign Edit page. Click on the Copy button to reach the Rating Assign Copy page.

The **Rating Assign Add/Copy** page(s) prompt you to enter the new rating assign parameters and the **Time** associated with the rating assign change. The **Rating Assign Edit** page provides the same input fields as the **Rating Assign Add** and the **Rating Assign Copy** pages, and these are described in Section 3.5.4.

#### 3.5.4 Rating Assign Edit

When you click on the **Edit** button associated with any rating assignment defined in the **Rating Assign List** page, you reach the **Rating Assign Edit** page.

The **Rating Assign Edit** page allows users to view or edit rating assignment parameters for an existing rating assignment, or to add a rating assignment with many of the same parameters as a template rating assignment using the **Copy** button. The parameters that are edited or input using the **Rating Table Edit** page are grouped under **Identification and Rating shifts**.

#### Identification

The **Identification** fields include input boxes for the **Point, Table, Number, Name, Effective Time, Computation**. The **Table Row** field is generated by NovaStar 5 when the rating table is created and cannot be changed by the user.

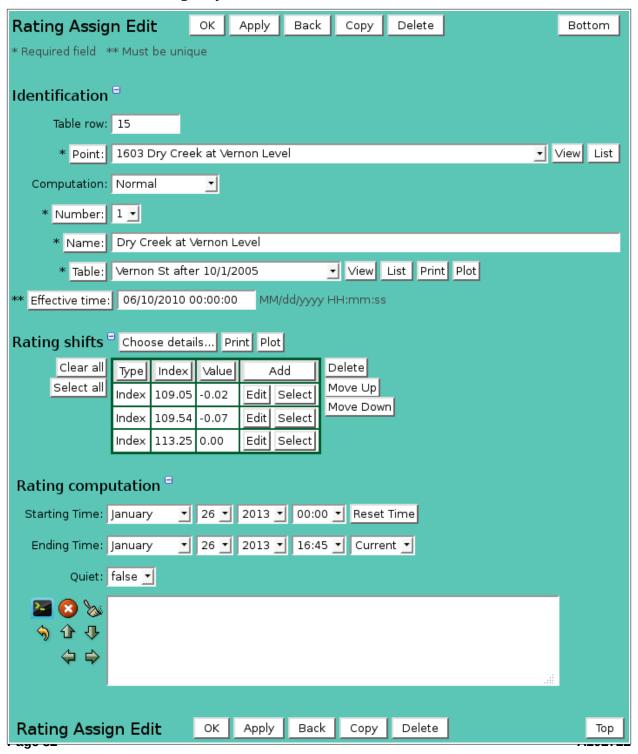


Figure 3.5.4. Rating Assign Edit

**Table index:** Field can not be modified; it is assigned automatically when a record is added.

**Point:** Select point for rating assignment from the pick list.

Click button to change **Point Pick Details** and order, see Section 3.1.2.

**View** button displays the **Point Edit** page for the selected point, see Section 3.1.4.

**List** button displays the **Point List** page, see Section 3.1.

**Open:** Select point for table open value from the pick list.

Click button to change **Point Pick Details** and order, see Section 3.1.2.

**View** button displays the **Point Edit** page for the selected point, see Section 3.1.4.

**List** button displays the **Point List** page, see Section 3.1.

**Computation:** Rating table computation direction, see Table 3.5.1.

Table 3.5.1. Rating Assignment Computation

1 able 3.5.1. Rati	ng Assignment Computation
<b>Computation</b> Normal Inverse	Description Point data provides index value and normal rating computed. Point data provides output value and inverse rating computed. Use this computation type for forecast model data points with discharge units that require a water level rating table inverse computation.
Gate	Point data provides index and output values; gate opening is computed.
Accumulator	Assigned to accumulator precipitation sensors to compute incremental rainfall
Incremental	by subtracting last data report value from this data report value. Negative
Rainfall	changes are reset to 0. Break flag restarts incremental rainfall at 0.
Totalized	Assigned to incremental precipitation sensors to compute incremental rainfall
Incremental	from last data report to this report by using rainfall increment.
Rainfall	
Encoder	Assigned to tank encoder precipitation sensors to compute incremental
Incremental	rainfall by subtracting last data report value from this data report value.
Rainfall	Negative changes allowed. Break flag restarts incremental rainfall at 0.
Accumulator	Assigned to accumulator precipitation sensors to compute season rainfall by
Season	adding this data report incremental value to the last data report season rainfall
Rainfall	value. Season total restarts on date of rating assignment effective time.
Totalized	Assigned to incremental precipitation sensors to compute season rainfall by
Season	adding this data report incremental value to the last data report season rainfall
Rainfall	value. Season total restarts on date of rating assignment effective time.
Encoder	Assigned to tank encoder precipitation sensors to compute season rainfall by
Season	adding this data report incremental value to the last data report season rainfall
Rainfall	value. Season total restarts on date of rating assignment effective time.
Accumulator	Assigned to accumulator precipitation sensors to compute storm rainfall by
Storm Rainfall	adding this data report incremental value to the last data report storm rainfall value. Storm total restarts after 0 incremental rainfall for rating assignment computation interval.
Totalized	Assigned to incremental precipitation sensors to compute storm rainfall by
Storm Rainfall	adding this data report incremental value to the last data report storm rainfall value. Storm total restarts after 0 incremental rainfall for rating assignment computation interval.
Encoder Storm Rainfall	Assigned to tank encoder precipitation sensors to compute storm rainfall by adding this data report incremental value to the last data report storm rainfall value. Storm total restarts after 0 incremental rainfall for rating assignment computation interval.

**Number:** Rating number for this assignment. A point can have up to 5 rating assignments.

Each rating assignment can have different rating tables assigned. **Number:** button assigns the next available rating number.

**Name:** Rating assignment name is required but does not have to be unique. It should

describe the rating table and shift use. If multiple rating assignments are created for a point over different time periods, add a time designator to the name. Max:

100 characters.

**Table:** Select rating table for rating assignment from the pick list.

Click button to change **Rating Table Pick Details** and order, see Section 3.6.2. **View** button displays the **Rating Table Edit** page for the selected rating table, see

Section 3.6.4.

**List** button displays the **Rating Table List** page, see Section 3.6.

**Print** button displays the selected rating table using shifts, see Section 3.5.4. **Plot** button plots the selected rating table using shifts, see Section 3.5.5.

Effective time: Date and time when rating assignment becomes effective. Point ratings can

change over time due to channel profile changes. NovaStar 5 keeps a time history of point rating assignments in the data base. A point rating assignment remains in effect from the effective time forward until another rating assignment is added

with a newer effective time.

**Effective time:** button assigns the current date and time.

#### **Rating shifts**

The **Rating shifts** list the shifts assigned to the rating table. When a rating assignment is first defined, no rating shift records will be assigned. Click on the table column headers to resort the table for this column; first ascending, then descending. Click on the **Choose details...** button to change the details and display order.

When a river channel profile changes it is necessary to modify the rating table. If the change only affects part of the profile then it is easier to add shifts to the rating table rather than create a new table. A rating shift record has the shift type, point index data value where the shift starts, the shift value added to the point index data value, and an optional time interval for prorating the shift over time. The rules for computing a shift value for a point index data value are shown in table 3.5.2.

Table 3.5.2. Rating Table Shift Rules

#### **Shift Rules**

Data values that match a shift row index use the shift value for that row.

Data values between two shift row indices use an interpolation between two shift row values.

Data values less than the first shift row index use the shift value for the first shift row.

Data values greater than the last shift row index use the shift value for the last shift row.

Type: Type of shift, see Table 3.5.3.
Index: Index data value for start of shift.
Value: Shift value added to index data value.

**Interval:** Prorate start of shift over this interval. Default: none. Click the button to alternate

between interval selection from a pick list or from time interval fields.

Table 3.5.3. Rating Shift Types

**Shift Type Description** 

Index Shift value added to point index data value before rating computation.

Output Shift value added to rating computation result.

Opening Shift value added to point open data value before rating computation..

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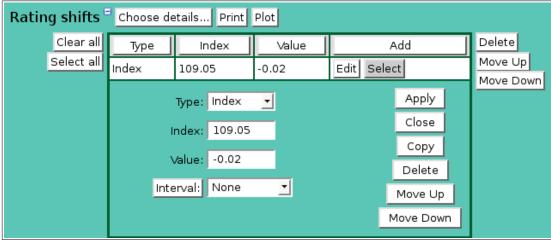


Figure 3.5.5. Rating Shift Edit

Button	Action
Print	Display the rating table shifts. See section 3.5.4.
Plot	Plot the rating table shifts. See section 3.5.5.
Clear all	Clear selection of all rows in this table.
Select all	Select all rows in this table.
Add	Opens the edit panel where you can enter the parameters for a new record.
Edit	Open the edit panel for this record.
Select	Select row for applied changes from the edit panel; first select, then clear select.
Delete	Mark selected rows for deletion; first select, then clear select.
Move up	Move the selected rows up one row.
Move down	Move the selected rows down one row.
Apply	Assign changed field values to this and all other selected rows in the table.
	Changed fields are highlighted with a blue-green background while unchanged
	fields have a white background.
Close	Close the edit panel without saving changes; you will be warned if changes will
	be lost by this action.

#### 3.5.5 Rating Recomputation

#### **Rating computation**

When a rating table is assigned to a point and ratings are enabled then rating values are automatically computed and stored in the data report for incoming data streams. If a rating assignment changes for data reports already stored in the database then the rating values must be recomputed using this tool.

**Starting Time:** Select the starting time for the rating computation. Click **Reset Time** to set the starting time to the rating assignment effective time. Note: the starting time must be before the ending time.

**Ending Time:** Select the ending time for the rating computation. Select **Current** to set the

ending time to the current time.

**Quiet**: *false* prints the command activity in the display window; *true* only prints the

command start and stop messages. Use *true* for the fastest command performance.

**Digits:** Select the number of decimal digits to display, *default* uses point type assignment.

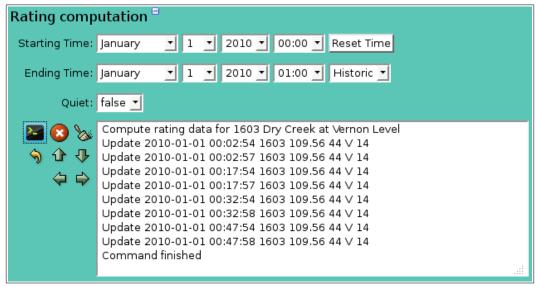


Figure 3.5.6. Rating Computation

Click the **Run command** button to recompute the rating values for the selected time period; activity is shown in the display window. See Table 3.5.5 for a description of the control buttons.

# Button Action Run command; display activity in command display window. Stop command. Clear display window. Reset display window size to default. Decrease display window height. Increase display window height. Decrease display window width. Increase display window width. Increase display window width.

#### 3.5.6 Rating Assign Delete

To delete a rating assignment from the **Rating Assign List**, click **Edit** on that rating assignment's row in the table and then click **Delete** from the **Rating Assign Edit** screen to view the **Rating Assign Delete** page. The **Rating Assign Delete** page prompts you to click the **Delete** button again to confirm that the rating assignment should be deleted. If you delete a rating assignment, you will lose the record of that rating computation, which describes how data report ratings were computed for the assignment time period. Deleting the rating assignment will not remove rating values already computed and stored in the point data reports. Use the rating computation tool (see above) to recompute the rating values.

## 3.5.7 Rating Shift Print

To print a rating shift table from the **Rating Assign Edit page**, click **Print** above the Rating shift table. The table vertical index is set by the rating table index display digits. Click **Print** to show the page in print preview then click **[Ctrl]P** to print.

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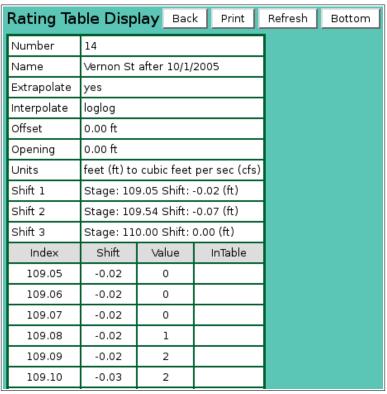


Figure 3.5.7. Rating Shift Display

# 3.5.8 Rating Shift Plot

To plot a rating shift table from the **Rating Assign Edit page**, click **Plot** above the Rating shift table. Click **Print** to show the page in print preview then click **[Ctrl]P** to print.

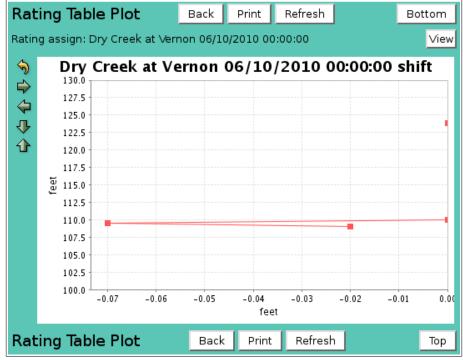


Figure 3.5.8. Rating Shift Plot

# 3.6 Rating Table List

A rating is a value returned from a computation table that is stored in a data report. For example a water level data report value in feet can be used to compute the stream discharge in cubic feet per second. NovaStar 5 supports four different types of rating tables with openings: Linear interpolation, Log log interpolation, Power Curve, and Polynomial. A rating table can be assigned to one or more points using the Rating Assign Edit page (see Section 3.5.2). Multiple rating tables can be added to the database for a point and are assigned for use at different time periods.

NovaStar 5 saves rating table parameters in a database table that can be viewed using the **Rating Table List** command. The **Rating Table List** sub-command is available under the **Points** command in the command menu available to users. When you click on the **Rating Table List** option, the **Rating Table List** page is displayed. The **Rating Table List** page shows all of the rating tables in the NovaStar 5 system. Clicking on any of the column heading buttons will reorder the rating tables in the **Rating Table List**, numerically or alphabetically, by that detail. You can customize the appearance of the **Rating Table List** using the **Choose details...** button to access the **Rating Table List Details** page, see Section 3.6.1.

System up	Rating	Table List	Choose details	Back	Refresh	Bottom
Home	Number		Name	Add	1	
Stations	1	Dry Creek at \	/ernon	Edit		
Points	2	Dry Creek at F		Edit		
Point List	3	Antelope Cree		Edit		
AlertTalk3 List	4	Pressure Conv		Edit		
Calibration List	5					
Device Type List		Linda Creek @		Edit		
• Equation List	6	Cirby Crk. Befo	ore the Flood Wall	Edit		
MapDisplay List	7	Linda Cr. @ Ch	ampion Oaks, 1626	Edit		
Rating Assign List	8	Cirby Crk Afte	r Flood Wall	Edit		
Rating Table List	9	Dry Crk w/ nev	v SPRR trestle	Edit		
Alarms	10	Dry Creek at \	ernon after 1/22/97/	Edit		
Data	11	Dry Creek at \	ernon after 10/01/99/	Edit		
Forecast	12	Dry Creek at \	/ernon after 01/24/200	0 Edit		
System	13	Woodlake Bike	Woodlake Bike Bridge			
Users	14	Vernon St after 10/1/2005				
Tabular Data	15	1626 Champion Oaks after Nov 1999				
Report Data	Pating			Edit	,	Top
Plot Data	Kating	Table List				Тор

Figure 3.6.1. Rating Table List

Use the **Add** button at the upper right-hand corner of the **Rating Table List** table to create a new rating table using the **Rating Table Add** page. Or, click the **Edit** button associated with an existing rating table to use that rating table as a copy template for creating a new rating table. The **Copy** button provided on the template rating table's **Rating Table Edit** page accesses the **Rating Table Copy** page and allows you to create a new rating table as described below.

#### 3.6.1 Rating Table List Details

The check boxes on **Rating Table List Details** page control the items, organization, sort order, and limit the records displayed on the List page.

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Rating Table List Details OK Cancel Bottom										
Select the details to display										
Detail	Order by	Reverse	Then by	Reverse	Then by	Reverse	Move Up			
✓ Name	<b>✓</b>						Move Down			
☐ Table row number							Select All			
☐ Number							Reset			
□ Туре										
☐ Extrapolate							OK Cancel			
☐ In Units										
☐ In Unit										
☐ In Abbr.										
☐ In Digits										
☐ In Lower Limit										
☐ In Upper Limit										
☐ Output Units										
☐ Output Unit										
☐ Output Abbr.										
☐ Output Digits										
☐ Output Lower Limit										
☐ Output Upper Limit										
☐ Plot Lower Limit										
☐ Plot Upper Limit										
☐ Description										
☐ Group										
Select the limits for the display										
User Group:   All User Groups ▼										
Rating Table List	Details			OI	Can	cel	Тор			

Figure 3.6.2. Rating Table List Details

#### Select the details to display

Check the box to the left of a detail to display. Details are displayed in the order shown. Check the Order by box for the detail to sort first. Check Reverse for a descending sort.

Check the Then by box for the detail to sort second. Check Reverse for a descending sort.

Check the second Then by box for the detail to sort third. Check Reverse for a descending sort.

**Button** Action

Move Up Move the selected detail up one row.

Move Down Move the selected detail down one row.

Select All Select all details.

Reset to default details.

OK Return to previous page with new details selected.

Cancel Return to previous page with no changes.

#### Select the limits for the display

**User Group:** Limit display to rating tables assigned to the user group(s). Click **User Group:** 

button to change User Group Pick Details and order.

Button	Action
<b>♦</b>	Reset pick list to single select.
<b>1</b>	Decrease pick list length.
₽	Increase pick list length.
<b></b>	Expand pick list to multiple select.
	Collapse pick list to single select.

#### 3.6.2 Rating Table Pick Details

The check boxes on **Rating Table Pick Details** page control the items, organization, sort order, and limit the records displayed on the pick list.

#### Select the details to display

Check the box to the left of a detail to display. Details are displayed in the order shown. Check the Order by box for the detail to sort first. Check Reverse for a descending sort. Check the Then by box for the detail to sort second. Check Reverse for a descending sort. Check the second Then by box for the detail to sort third. Check Reverse for a descending sort.

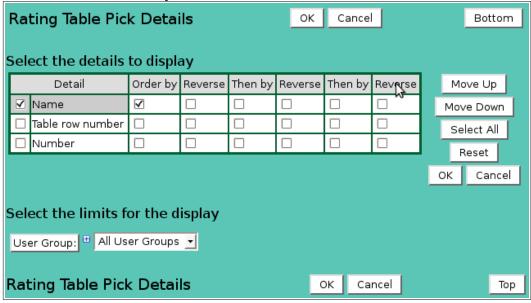


Figure 3.6.3. Rating Table Pick Details

Button	Action
Move Up	Move the selected detail up one row.
Move Down	Move the selected detail down one row.
Select All	Select all details.
Reset	Reset to default details.
OK	Return to previous page with new details selected.
Cancel	Return to previous page with no changes.

#### Select the limits for the display

**User Group:** Limit display to rating tables assigned to the user group(s). Click **User Group:** button to change **User Group Pick Details** and order.

button to change <b>User Group Pick Details</b> and order.					
Button	Action				
<b>♦</b> )	Reset pick list to single select.				
<b>1</b>	Decrease pick list length.				
◆	Increase pick list length.				
+	Expand pick list to multiple select.				
	Collapse pick list to single select.				

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Rating Table	e Edit	ОК	Apply	Back	Сору	Delete	Bottom
* Required field	** Must be i	unique					
Identification	_ =						
Table row:							
** Number:	,						
* Name:	Woodlake B	ike Bridge					
Description:							
							.::
Туре:	Linear inter	oolation		•			
Extrapolate:	false 🛨						
User groups	= Assign/Rei	move aroi	ups List	1			
Details	-	Descriptio		1			
Details		system us					
Index units							
Units:	feet		Unit	foot			
Abbreviation:	ft	Display d	igits: 1	<u> </u>			
Upper limit:	0.0	Lower lim	it: 0.0				
Output units							
	ts: cubic feet per seco Unit:				1		
				,			
Abbreviation:				<u> </u>			
Upper limit:	9999	Lower lim	it:   0				
Plot upper limit:	0	Plot lower	limit: 0				
Rating rows	Choose de	etails	rint Plot	Import			
Clear all		put	Add	Delete			
Select all	132.5 3	Edit	-	Move Up			
	141.8 119	9 Edit	Select	Move Do	own		
	144.5 232	5 Edit	Select				
	145.4 330						
	146.4 456	5 Edit	Select				
Datin Til	- Edia	a 1		- ·			
Rating Table	e Edit	OK	Apply	Back	Сору	Delete	Тор

Figure 3.6.4. Rating Table Edit

# 3.6.3 Rating Table Add/Copy

The **Rating Table Add** page and the **Rating Table Copy** page allow users to create new rating tables. They function in the same way. The **Rating Table Copy** page is most convenient when the new rating table will share several parameters with the template rating table. To access the **Rating Table Copy** page, click on the **Edit** button in the template rating table's row in the **Rating Table List** table. You will reach the **Rating Table Edit** page. Click on the **Copy** button to reach the **Rating Table Copy** page.

The **Rating Table Add/Copy** page(s) prompt you to enter the new rating table number and name that are unique to the NovaStar5 system. The **Rating Table Edit** page provides the same input fields as the **Rating Table Add** and the **Rating Table Copy** pages, and these are described in Section 3.6.4.

#### 3.6.4 Rating Table Edit

When you click on the **Edit** button associated with any rating table defined in the **Rating Table List** page, you reach the **Rating Table Edit** page.

The **Rating Table Edit** page allows users to view or edit rating table parameters for an existing rating table, or to add a rating table with many of the same parameters as a template rating table using the **Copy** button. The parameters that are edited or input using the **Rating Table Edit** page are grouped under **Identification**, **Index units**, **Output units**, **Rating rows**.

#### Identification

Rating table identification is used to organize and describe rating tables in the system and define the computation type and rules.

**Table index:** Field can not be modified; it is assigned automatically when a record is added. **Number:** Rating table number must be unique for the system. Rating table numbering does

not have to be sequential. Click on the **Number:** button to assign the next

available rating table number.

**Name:** Rating table name must be unique for each rating table and should describe the

rating table use. If multiple rating tables are created for a point over different time

periods, add a time designator to the name. Max: 100 characters.

**Description:** Enter additional information describing rating table. Max: 1000 characters.

**Type:** Select the type of rating computation; see Table 3.6.2.1 below

**Extrapolate:** Select the computation limits of the table. If a data value exceeds the index upper

limit and extrapolate is false then the rating returned is limited to the computation

for the upper limit value. If extrapolate is true then the rating returned is an

extrapolation of the computation for the last index value.

#### User groups

The **User groups** table shows the user groups currently assigned to the rating table. Clicking on any of the column heading buttons will reorder the user groups in the **User groups List**, numerically or alphabetically, by that detail. Click **Details:** button to change the User Group List details and display order, see Section 10.3.1. Click **Assign/Remove groups** button to open **User Group Assignment** window, see Section 10.3.3. Changes made to user group assignments will update this page when the assignment window is closed. Click **List** button to show all user groups, see Section 10.3. Click **Add** button to add a user group, see Section 10.3.4. Click **Edit** button to edit the user group, see Section 10.3.5.

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Table 3.6.1. Rating Table Type Computation Rules

Table 5.0.1. Rating	Table Type Computation Killes
Rating Table Type	Computation Rules
Linear	Use linear interpolation to compute rating value.
interpolation	Data values that match an index row value return the output row value.
interpolation	· · · · · · · · · · · · · · · · · · ·
	Data values that fall between two index row values return an interpolation
	between the two output row values.
	Data values less than the table lower limit return the first output value.
	Data values greater than the table upper limit return the last output value
	when rating table extrapolation is false.
	Data values greater than the table upper limit return a linear extrapolation
	<u> </u>
_	of the last two output values when rating table extrapolation is true.
Log log	Use linear interpolation of log base 10 index and output values to compute
interpolation	rating value. The rating table index lower limit (rating table offset) is
	subtracted from the data and index values before log log interpolation is
	computed. The USGS prefers the Log log interpolation.
	Data values that match an index row value return the output row value.
	Data values that fall between two index row values return an interpolation
	<u> </u>
	between the two output row values.
	Data values less than the table lower limit return the first output value.
	Data values greater than the table upper limit return the last output value
	when rating table extrapolation is false.
	Data values greater than the table upper limit return a linear extrapolation
	of the last two output values when rating table extrapolation is true.
Linear	Use linear interpolation to compute rating value for variable openings.
interpolation with	Data and opening values that match an index and opening row value return
opening	the output row value.
opening	Data or opening values that fall between two index or opening row values
	return an interpolation between the two output row values then a second
	interpolation between the computed rating values for the surrounding
	openings.
	Data or opening values less than the table lower limit return the first output
	value.
	Data or opening values greater than the table upper limit return the last
	output value when rating table extrapolation is false.
	Data or opening values greater than the table upper limit return a linear
	extrapolation of the last two output values when rating table extrapolation
	is true.
Loglog	
Log log	Use linear interpolation of log base 10 index and output values to compute
interpolation with	rating value for variable openings. The rating table index lower limit
opening	(rating table offset) is subtracted from the data and index values before log
	log interpolation is computed.
	Data and opening values that match an index and opening row value return
	the output row value.
	Data or opening values that fall between two index or opening row values
	<u>-</u>
	· •
	Data or opening values less than the table lower limit return the first output
	return an interpolation between the two output row values then a second interpolation between the computed rating values for the surrounding openings.
	value

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value.

Data or opening values greater than the table upper limit return the last output value when rating table extrapolation is false.

Data or opening values greater than the table upper limit return a linear extrapolation of the last two output values when rating table extrapolation is true.

**Power Curve** 

Use a power curve equation to compute rating value:

Q = ((S - offset) \*\*exponent) \* multiplier

Where S is the data value and Q is the computed rating value. Data values that match an index row value return the power curve computation.

Data values that fall between two index row values return the power curve computation for equation assigned to the lower index row value. Data values less than the table lower limit return the power curve computation for equation assigned to the first index row value. Data values greater than the table upper limit return the power curve computation for equation assigned to the last index row value using the last index value when rating table extrapolation is false.

Data values greater than the table upper limit return the power curve computation for equation assigned to the last index row value using the data value when rating table extrapolation is true.

Power Curve with opening

Use a power curve equation to compute rating value:

Q = ((S - offset) \*\*exponent) \* multiplier

Where S is the data value and Q is the computed rating value.

Data and opening values that match an index and opening row values return the power curve computation.

Data or opening values that fall between two index or opening row values return the power curve computation for equation assigned to the lower index and opening row values.

Data or opening values less than the table lower limit return the power curve computation for equation assigned to the first index and opening row values.

Data values greater than the table upper limit return the power curve computation for equation assigned to the last index and opening row values using the last index value when rating table extrapolation is false. Data or opening values greater than the table upper limit return the power curve computation for equation assigned to the last index and opening row values using the data value when rating table extrapolation is true.

Polynomial

Use a polynomial equation to compute rating value:

Q = K0 + K1\*S + K2\*(S\*\*2) + K3\*(S\*\*3) + K4\*S(\*\*4) + K5\*(S\*\*5)

Where S is the data value and Q is the computed rating value. Data values that match an index row value return the polynomial computation.

Data values that fall between two index row values return the polynomial computation for equation assigned to the lower index row value. Data values less than the table lower limit return the polynomial computation for equation assigned to the first index row value. Data values greater than the table upper limit return the polynomial computation for equation assigned to the last index row value using the last index value when rating table extrapolation is false. Data values greater than the table upper limit return the polynomial

Data values greater than the table upper limit return the polynomial computation for equation assigned to the last index row value using the

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data value when rating table extrapolation is true.

Polynomial with opening

Use a polynomial equation to compute rating value:

Q = K0 + K1\*S + K2\*(S\*\*2) + K3\*(S\*\*3) + K4\*S(\*\*4) + K5\*(S\*\*5)

Where S is the data value and Q is the computed rating value.

Data and opening values that match an index and opening row values

return the polynomial computation.

Data or opening values that fall between two index or opening row values return the polynomial computation for equation assigned to the lower

index and opening row values.

Data or opening values less than the table lower limit return the polynomial computation for equation assigned to the first index and

opening row values.

Data values greater than the table upper limit return the polynomial computation for equation assigned to the last index and opening row values using the last index value when rating table extrapolation is false. Data or opening values greater than the table upper limit return the polynomial computation for equation assigned to the last index and opening row values using the data value when rating table extrapolation is

true.

#### **Index units**

Rating table index units fields describe the rating table index value data.

Units: Index value data units (plural). Max: 100 characters.Unit: Index value data unit (singular). Max: 100 characters.Abbreviation: Index value abbreviated data units. Max: 100 characters.

**Display digits:** Number of digits to display to the right of the decimal point when index data is

displayed on the rating table screens and data maps, plots and reports.

**Upper limit:** Limit extrapolation if the index data value is greater than the last index value.

Default: use highest rating row index value.

**Lower limit:** Lowest index data value used in rating computation. A data value less than the

lower limit is replaced by the lower limit before a rating computation. The lower limit is also used as the offset in the log log interpolations. Default: use lowest

rating row index value.

#### **Output units**

Rating table output units fields describe the rating table output value data.

Units: Output value data units (plural). Max: 100 characters.Unit: Output value data unit (singular). Max: 100 characters.Abbreviation: Output value abbreviated data units. Max: 100 characters.

Display digits: Number of digits to display to the right of the decimal point when output data is

displayed on the rating table screens and data maps, plots and reports.

Upper limit: Rating table display upper limit; does not affect rating computations. Default: use

highest rating row output value.

Lower limit: Rating table display lower limit; does not affect rating computations. Default: use

lowest rating row output value.

**Plot upper limit:** Rating plot scale upper limit. Default: use highest rating row output value. **Plot lower limit:** Rating plot scale lower limit. Default: use lowest rating row output value.

#### **Rating rows**

The **Rating rows** list the rating rows assigned to the rating table. When a rating table is first defined, no rating row records will be assigned to the rating table. Click on the table column

headers to resort the table for this column; first ascending, then descending. Click on the **Choose details...** button to change the details and display order.

Button	Action
Print	Display the rating table rows. See section 3.6.4.
Plot	Plot the rating table rows. See section 3.6.5.
Import	Import a rating table from a CSV file. See section 3.6.6.
Clear all	Clear selection of all rows in this table.
Select all	Select all rows in this table.
Add	Opens the edit panel where you can enter the parameters for a new record.
Edit	Open the edit panel for this record.
Select	Select row for applied changes from the edit panel; first select, then clear select.
Delete	Mark selected rows for deletion; first select, then clear select.
Move up	Move the selected rows up one row.
Move down	Move the selected rows down one row.
Apply	Assign the changed field values to this and all other selected rows in the table.
	Changed fields are highlighted with a blue-green background while unchanged
	fields have a white background.
Close	Close the edit panel without saving changes; you will be warned if changes will

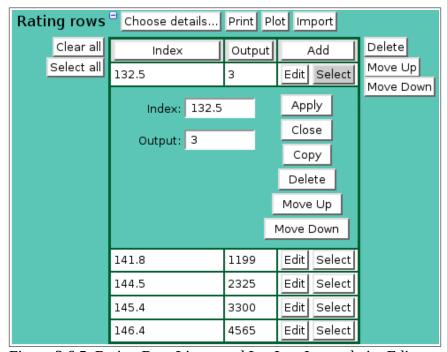


Figure 3.6.5. Rating Row Linear and LogLog InterpolationEdit

Index: Point data value is matched to index.Output: Rating value returned for index.

be lost by this action.

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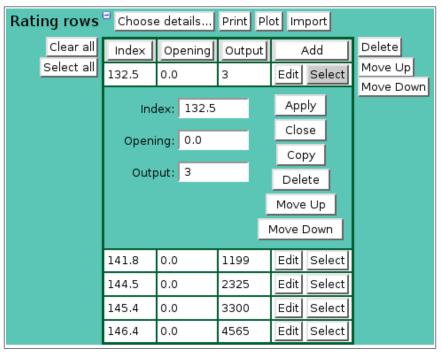


Figure 3.6.6. Rating Row Linear and LogLog Interpolation With Opening Edit

**Index:** Point data value is matched to index.

**Opening:** Open point data value is matched to opening.

**Output:** Rating value returned for index.

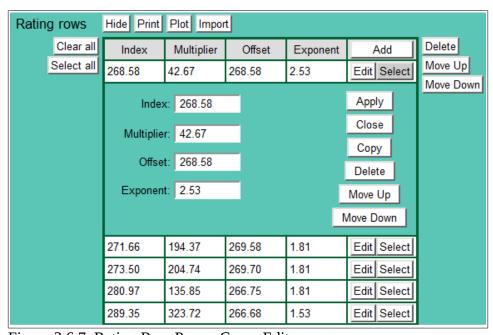


Figure 3.6.7. Rating Row Power Curve Edit

**Power curve:** Q = ((S - Offset) \*\*Exponent) \* Multiplier

**Index:** Point data value is matched to index.

Multiplier: Multiplier term in equation.Offset: Offset term in equation.Exponent: Exponent term in equation.



Figure 3.6.8. Rating Row Power Curve With Opening Edit

**Power curve:** Q = ((S - Offset) \*\*Exponent) \* Multiplier

**Index:** Point data value is matched to index.

**Opening:** Open point data value is matched to opening.

Multiplier: Multiplier term in equation.Offset: Offset term in equation.Exponent: Exponent term in equation.

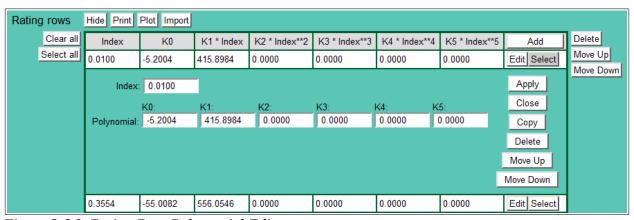


Figure 3.6.9. Rating Row Polynomial Edit

**Polynomial:** Q = K0 + K1\*S + K2\*(S\*\*2) + K3\*(S\*\*3) + K4\*S(\*\*4) + K5\*(S\*\*5)

**Index:** Point data value is matched to index.

**K0-K5:** K0 - K5 term in equation.

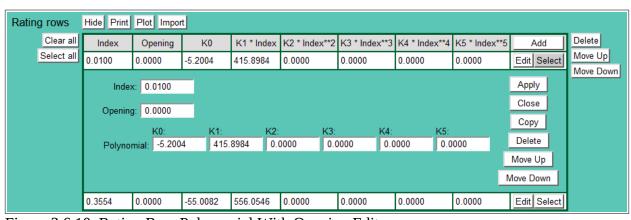


Figure 3.6.10. Rating Row Polynomial With Opening Edit

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**Polynomial:** Q = K0 + K1\*S + K2\*(S\*\*2) + K3\*(S\*\*3) + K4\*S(\*\*4) + K5\*(S\*\*5)

**Index:** Point data value is matched to index.

**Opening:** Open point data value is matched to opening.

**K0-K5:** K0 - K5 term in equation.

# 3.6.5 Rating Table Delete

To delete a rating table from the **Rating Table List**, click **Edit** on that rating table's row in the table and then click **Delete** from the **Rating Table Edit** screen to view the **Rating Table Delete** page. The **Rating Table Delete** page prompts you to click the **Delete** button again to confirm that the rating table should be deleted. If you delete a rating table, you will lose the record of that rating computation, which describes how data report ratings were computed for the assignment time period. Deleting the rating tables will not remove rating values already computed and stored in the point data reports.

#### 3.6.6 Rating Table Print

To print a rating table from the **Rating Table Edit page**, click **Print** above the Rating row table.

Rating Tal	ble Di	ispla	у	Back	Pr	int f	Refresh	n l	Во	ttom
Number	3									
Name	Antelo	pe Cre	ek							
Extrapolate	yes									
Interpolate	linear									
Offset	0.0 ft									
Opening	0.0 ft									
Units	feet (ft	) to cu	bic fee	et/seco	nd (cf	s)				
	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
158	0	0	0	0	0	0*	0	1	1	1
159	2	2	3	3	3	4*	4	5	7	10
160	12*	15	19	22	26	30*	35	41	46	52
161	58*	65	73	81	89	96*	106	117	127	137
162	147*	159	172	184	197	209*	225	240	255	270
163	285*	303	321	338	356	374*	394	415	435	456
164	476*	501	526	551	576	601	626	651	676	701
165	726*	757	788	819	850	882	913	944	975	1006
166	1037*	1074	1112	1149	1187	1224	1261	1299	1336	1374
167	1411*	1455	1499	1543	1587	1631	1675	1719	1763	1807
168	1851*	1902	1953	2004	2055	2106	2157	2208	2259	2310
169	2361*	2417	2473	2530	2586	2642*	2702	2762	2821	2881
170	2941*	3005	3068	3132	3195	3259*	3326	3393	3461	3528
171	3595*	3666	3737	3808	3879	3950*	4025	4100	4174	4249
172	4324*	4403	4482	4560	4639	4718*	4801	4883	4966	5048
173	5131*	5214	5296	5379	5461	5544	5627	5709	5792	5874
Rating Tal	ble Di	ispla	у	Bad	:k	Print	Refre	sh		Тор

Figure 3.6.11. Rating Table Display

The table horizontal index is set by the rating table index display digits. Table row entries are starred. Non-starred entries are interpolated.

Click **Print** to show the page in print preview then click **[Ctrl]P** to print.

#### 3.6.7 Rating Table Plot

To plot a rating table from the **Rating Table Edit page**, click **Plot** above the Rating row table.

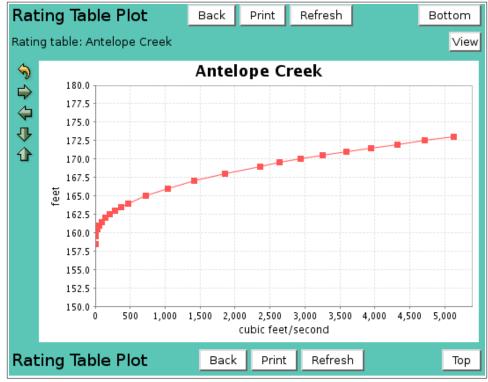


Figure 3.6.12. Rating Table Plot

Click **Print** to show the page in print preview. Click **[Ctrl]P** on the print preview page to print.

#### 3.6.8 Rating Table Import

To import a rating table from the **Rating Table Edit page**, click **Import** above the Rating row table. The file upload window is opened on your screen. A file will be uploaded from your workstation file system to the NovaStar 5 file system. Rating import files must be CSV files with entries in the following order depending on the rating table type, see Table 3.6.2.

Table 3.6.2. Rating Row Import File Formats

Rating Table Type	Import File Format
Linear interpolation	index,output
Log log interpolation	index,output
Linear interpolation with	index,opening,output
opening	
Log log interpolation with	index,opening,output
opening	
Power curve	index,multiplier,offset,exponent
Power curve with opening	index,opening,multiplier,offset,exponent
Polynomial	index,K0,K1,K2,K3,K4,K5
Polynomial with opening	index,opening,K0,K1,K2,K3,K4,K5

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Figure 3.6.13. Rating Table Import Upload File Select

Click the **Browse...** button to select the file to import. Then click the **Upload** button to start the upload. The file will be copied from your workstation file system to the NovaStar 5 file system. When the upload is complete the success window is display. Click **Close** to close the window and continue with the import. If an error occurs, you may not have permission to upload a file. Contact your system administrator.



Figure 3.6.14. Rating Table Import Upload File Success

The import tool is displayed with the import file name above the command display window.



Figure 3.6.15. Rating Table Import Preparation

**Quiet**: *false* prints the command activity in the display window; *true* only prints the

command start and stop messages. Use *true* for the fastest command performance.

**View** Click the **View** button to display the import file.

Click the **Run command** button to recompute the rating values for the selected time period; activity is shown in the display window. See Table 3.6.4 for a description of the control buttons.

5	1 7
Button	Action
>_	Run command; display activity in command display window.
<b>8</b>	Stop command.
<b>S</b>	Clear display window.
<b>∮</b> <b>1</b>	Reset display window size to default.
<b>1</b>	Decrease display window height.
₽	Increase display window height.
<b>4</b>	Decrease display window width.
$\Rightarrow$	Increase display window width.

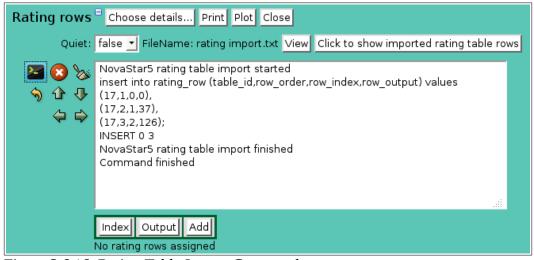


Figure 3.6.16. Rating Table Import Command

**Click to show imported rating table rows** will refresh the display and show the imported rows.

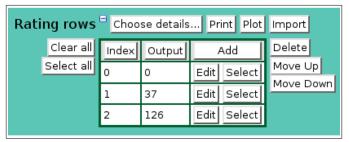


Figure 3.6.17. Rating Table Import Finish

# 3.7 Equation List

Equations allow users to compute data values from one or more sensors and store these computed values in the database for display, alarm checking and notification. The computed data values are stored in an export point that must be defined in the database. Before defining an equation you must first define the export point its data will be stored in, see Section 3.1. The export can be assigned to one of the stations whose point is used in the equation computation or you can define a new station and assign the export point to it. You may have to create a new equation for the equation computation data units, see Section 3.2.

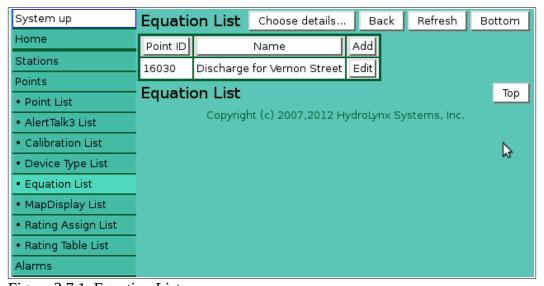


Figure 3.7.1. Equation List

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The points and their data analyses that are used in the equation computation are defined in the equation import list. Equation computations are triggered when a data report is inserted or updated in the database for a point in the equation import list.

The **Equation List** sub-command is available under the **Points** command in the command menu available to users. When you click on the **Equation List** option, the **Equation List** page is displayed. The **Equation List** page shows all of the equations that have been defined in the NovaStar 5 system. Clicking on any of the column heading buttons will reorder the equations in the **Equation List**, numerically or alphabetically, by that detail. You can customize the appearance of the **Equation List** using the **Choose details...** button to access the **Equation List Details** page, see Section 3.7.1.

Click the **Add** button at the upper right-hand corner of the **Equation List** table to create a new equation using the **Equation Add** page. Or, click the **Edit** button associated with an existing equation to use that equation as a copy template for creating a new equation. The **Copy** button provided on the template equation's **Equation Edit** page accesses the **Equation Copy** page and allows you to create a new equation.

#### 3.7.1 Equation List Details

The check boxes on **EquationList Details** page control the items, organization, sort order, and limit the records displayed on the List page.

# Select the details to display

Check the box to the left of a detail to display. Details are displayed in the order shown. Check the Order by box for the detail to sort first. Check Reverse for a descending sort. Check the Then by box for the detail to sort second. Check Reverse for a descending sort. Check the second Then by box for the detail to sort third. Check Reverse for a descending sort.



Figure 3.7.2. Equation List Details

**Button** Action

Move Up Move the selected detail up one row.

#### **HydroLynx Systems, Inc.**

Move Down Move the selected detail down one row.

Select All Select all details.

Reset to default details.

OK Return to previous page with new details selected.

Cancel Return to previous page with no changes.

#### Select the limits for the display

**User Group:** Limit display to equations assigned to the user group(s). Click **User Group:** button to change **User Group Pick Details** and order.

#### **Button Action**

Reset pick list to single select.

Decrease pick list length.

Increase pick list length.

Increase pick list length.Expand pick list to multiple select.

Collapse pick list to single select.

#### 3.7.2 Equation Pick Details

The check boxes on **Equation Pick Details** page control the items, organization, sort order, and limit the records displayed on the pick list.

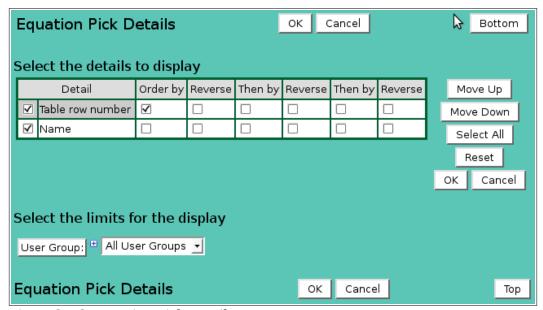


Figure 3.7.3. Equation Pick Details

# Select the details to display

Check the box to the left of a detail to display. Details are displayed in the order shown.

Check the Order by box for the detail to sort first. Check Reverse for a descending sort.

Check the Then by box for the detail to sort second. Check Reverse for a descending sort.

Check the second Then by box for the detail to sort third. Check Reverse for a descending sort.

Button	Action
Move Up	Move the selected detail up one row.
Move Down	Move the selected detail down one row.
Select All	Select all details.
Reset	Reset to default details.
OK	Return to previous page with new details selected.
Cancel	Return to previous page with no changes.

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#### Select the limits for the display

**User Group:** Limit display to equations assigned to the user group(s). Click **User Group:** 

button to change User Group Pick Details and order.

**Button Action** 

• Reset pick list to single select.

Decrease pick list length.

Increase pick list length.Expand pick list to multiple select.

Collapse pick list to single select.

# 3.7.3 Equation Add/Copy

The **Equation Add** page and the **Equation Copy** page allow users to create a new equation. The **Equation Copy** page is most convenient when the new equation will share many parameters with the template equation. To access the **Equation Copy** page, click on the **Edit** button in the template equation's row in the **Equation List** table. You will reach the **Equation Edit** page. Click on the **Copy** button to reach the **Equation Copy** page.

New equations must be given a unique **Name**. The **Equation Add** page and the **Equation Copy** page function in the same way and provide the same input fields as the **Equation Edit** page, described in Section 3.7.4.

# 3.7.4 Equation Edit

When you click on the **Edit** button associated with any equation defined in the **Equation List** page, you reach the **Equation Edit** page. The **Equation Edit** page allows users to view or edit equation parameters for an existing equation, or to add a equation with many of the same parameters as a template equation using the **Copy** button.

#### Identification

**Table index:** Field can not be modified; it is assigned automatically when a record is added. **Name:** Unique identifier for the equation you are creating. This is the name that will

appear in reports and point pick lists.

**Description:** Additional information describing attributes of the equation. Max: 1000

characters.

**Export point:** Select point for storing the equation computed data values from the pick list.

Click button to change **Point Pick Details** and order, see Section 3.1.2.

**View** button displays the **Point Edit** page for the selected point, see Section 3.1.4.

**List** button displays the **Point List** page, see Section 3.1.

**Equation type:** Select the equation type from the pick list. The equation types are descrived in

Table 3.7.1.

**Enabled:** Select *true* to compute and store the equation data values; *false* will not compute

or store the equation data values.

#### User groups

The **User groups** table shows the user groups currently assigned to the equation. Clicking on any of the column heading buttons will reorder the user groups in the **User groups List**, numerically or alphabetically, by that detail. Click **Details:** button to change the User Group List details and display order, see Section 10.3.1. Click **Assign/Remove groups** button to open **User Group Assignment** window, see Section 10.3.3. Changes made to user group assignments will update this page when the assignment window is closed. Click **List** button to show all user groups, see Section 10.3. Click **Add** button to add a user group, see Section 10.3.4. Click **Edit** button to edit the user group, see Section 10.3.5.

Equation E	dit	ок	Apply	Back	Сору	Delete		Bottom
* Required field	** Must be un	ique						
Identificatio	n =							
Table row:	1							
** Name:	Discharge for	Vernon	Street					
Description:								.#
* Export point:	11603 Dry Cre	eek at ∨	ernon Stre	et Discha	arge			▼ View List
Equation type:	Standard						<b>▼</b>	
Enabled:	true 🔻							
User groups  Details	Name De	scriptio						
Import list =	Choose details	s						
Clear all	Operation		Import		Anal	ysis	Add [	Delete
Select all	1 1	603 Dry	Creek at \	√ernon Le	vel last/r	1 Edit	Select	Move Up Move Down
Compute =								Nove Down
Starting Time:					Reset 1			
Ending Time:	January <u>*</u>	26 🕶	2013 🕶	17:00	Curren	t <u>▼</u>		
Quiet:	false 🕶							
\$ û ↓ \$ û ↓								.::
Equation Ed	dit	ок	Apply	Back	Сору	Delete		Тор

Figure 3.7.4. Equation Edit

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Table 3.7.1. Equation Types

<b>Equation Type</b>	Description
Standard	Combine import point data analysis using arithmetic or logical operations.
Average	Average import point data analysis data values.
Dew point temperature	Compute dew point temperature in degrees C from air temperature
in degrees C	in degrees C and relative humidity in percent.
Dew point temperature	Compute dew point temperature in degrees F from air temperature
in degrees F	in degrees C and relative humidity in percent.
Wet bulb temperature in	Compute wet bulb temperature in degrees C from air temperature in
degrees C	degrees C and relative humidity in percent.
Wet bulb temperature in	Compute wet bulb temperature in degrees F from air temperature in
degrees F	degrees C and relative humidity in percent.
Vapor pressure from	Compute vapor pressure in millibars from air temperature in
temperature in degrees C	degrees C and relative humidity in percent.
Vapor pressure from	Compute vapor pressure in millibars from air temperature in
temperature in degrees F	degrees F and relative humidity in percent.
Evapotranspiration	Compute evapotranspiration demand in millimeters per hour from
demand from	solar radiation in watts per square meters, air temperature in degrees
temperature in degrees C	C, relative humidity in percent, wind speed in kilometers per hour and air pressure in millibars.
Evapotranspiration	Compute evapotranspiration demand in inches per hour from solar
demand from	radiation in watts per square meters, air temperature in degrees F,
temperature in degrees F	relative humidity in percent, wind speed in miles per hour and air pressure in millibars.

# **Import list**

The points and their data analyses that are used in the equation computation are defined in the equation **Import list**, see Figure 3.7.5. When a equation is first defined, no import records will be assigned. Click on the table column headers to resort the table for this column; first ascending, then descending. Click on the **Choose details...** button to change the details and display order.

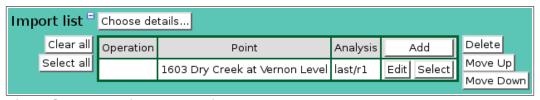


Figure 3.7.5. Equation Import List

Button	Action
Clear all	Clear selection of all rows in this table.
Select all	Select all rows in this table.
Add	Opens the edit panel where you can enter the parameters for a new record.
Edit	Open the edit panel for this record.
Select	Select row for applied changes from the edit panel; first select, then clear select.
Delete	Mark selected rows for deletion; first select, then clear select.
Move up	Move the selected rows up one row.
Move down	Move the selected rows down one row.
Apply	Assign changed field values to this and all other selected rows in the table.
	Changed fields are highlighted with a blue-green background while unchanged
	fields have a white background.
Close	Close the edit panel without saving changes; you will be warned if changes will

be lost by this action.

Click on a table field to edit the text. Click **Add** to add an new import; the import list add panel is opened, see Figure 3.7.6. Click **Edit** to edit an existing import; the import list edit panel is opened, see Figure 3.7.7.

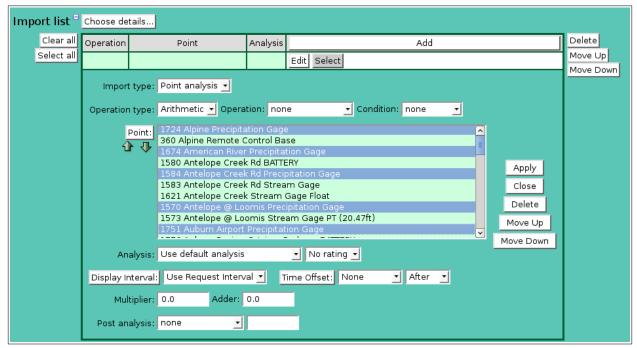


Figure 3.7.6. Equation Import List Add Panel

**Import type:** Select type of import from pick list, see Table 3.7.2. Changing this type will affect

the fields shown in the edit panel.

**Operation Type:** Select type of operation from pick list, see Table 3.7.3. Changing this type will

affect the fields to the right in the edit panel.

**Operation:** Select arithmetic operation from pick list, see Table 3.7.4. **Condition:** Select the logical test results from pick list, see Table 3.7.5.

**Test:** Select logical test from pick list, see Table 3.7.6.

**Point:** Select points to add to the import list from the pick list. Hold down the [Ctrl] kev

and click to select multiple points. Hold down the [Shift] key and click to select points from last selected to current selection. Click button to change **Point Pick** 

**Details** and order, see Section 3.1.2.

**Button Action** 

Decrease pick list length.

Increase pick list length.

Click the **Apply** button to add all selected points to the import list. The import list add panel will change to the import list edit panel for the last point added. You will then need to set the appropriate data analysis for each import. First click **Clear all** to de-select all imports except the one shown in the edit panel.

Table 3.7.2. Equation Import Types

Import type	Description
-------------	-------------

Constant Constant value used in equation, see Figure 3.7.8.

Point analysis Result of point data analysis used in equation, see Figure 3.7.10.

Trigger only Data stored for point triggers equation computation but point data not used, see

Figure 3.7.9.

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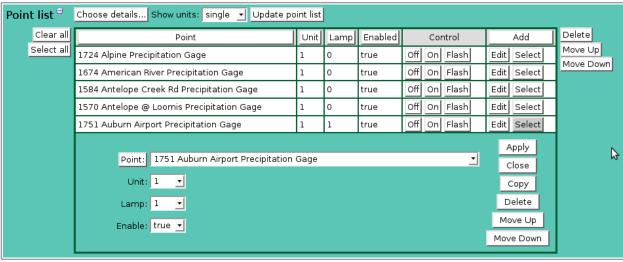


Figure 3.7.7. Equation Import List Edit Panel

Table 3.7.3. Equation Import Operation Types

Description
Use operation type, see Table 3.7.4, to modify equation value by point data
analysis or constant value. This operation is only executed if conditions met,
see Table 3.7.5.
Use logical test, see Table 3.7.6, to compare equation value with point data analysis or constant value.

Table 3.7.4. Equation Import Arithmetic Operations

Operation	Description
none	No action
+ add	Add equation running total to point data analysis or constant value.
- subtract	Subtract point data analysis or constant value from equation running total.
* multiply	Multiply equation running total by point data analysis or constant value.
/ divide	Divide equation running total by point data analysis or constant value.
% modulus	Assign remainder of equation running total divided by point data analysis or
	constant value.
or	Or equation running total with point data analysis or constant value.
^ excluseive or	Exclusive or of equation running total with point data analysis or constant
	value.
& and	And equation running total with point data analysis or constant value.
<< bit shift left	Shift left equation running total by point data analysis or constant value
	number of bits.
>> bit shift right	Shift right equation running total by point data analysis or constant value
	number of bits.
= assign	Assign point data analysis or constant value to equation running total.
MAX	Save maximum point data analysis
MIN	Save minimum point data analysis

Table 3.7.5. Equation Import Arithmetic Conditions

Condition	Description
none	No action
when false	Perform arithmetic operation when previous logical test was false.
when true	Perform arithmetic operation when previous logical test was true.

Table 3.7.6. Equation Import Logical Tests

<b>Logical Test</b>	Description
none	No action
== equal	Return true if equation running total is equal to point data analysis or constant value.
!= not equal	Return true if equation running total is not equal to point data analysis or constant value.
< less than	Return true if equation running total is less than point data analysis or constant value.
<= less than or equal	Return true if equation running total is less than or equal to point data analysis or constant value.
> greater than	Return true if equation running total is greater than point data analysis or constant value.
>= greater then or equal	Return true if equation running total is greater than or equal to point data analysis or constant value.

## **Equation Import Constant**

The *Constant* import type performs the arithmetic operation or logical test using a constant instead of a point data analysis value.

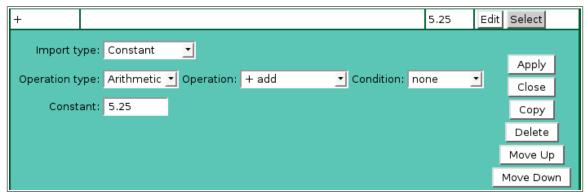


Figure 3.7.8. Equation Import Constant

**Constant:** Enter constant value for equation import operation.

### **Equation Import Trigger Only**

The *Trigger only* import type does not modify the equation computation. It is used to trigger the equation computation when a data report is filed in the database for the trigger point.

**Point:** Select point to trigger the equation computatation from the pick list. Click button to change **Point Pick Details** and order, see Section 3.1.2.

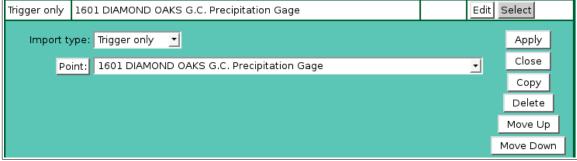


Figure 3.7.9. Equation Import Trigger Only

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### **Equation Import Point Analysis**

The *Point analysis* import type performs the arithmetic operation or logical test using the point data analysis value. The equation computation is triggered when a data report is filed in the database for the analysis point.

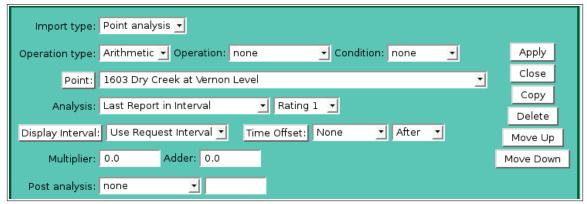


Figure 3.7.10. Equation Import Point Analysis

**Point:** Select point to trigger the equation computatation from the pick list.

Click button to change Point Pick Details and order, see Section 3.1.2.

**Analysis:** Select the data analysis for the point data. See the data analysis appendix for a

description of the analysis types. Use default analysis will do the default analysis

for the point type.

**Analysis Interval:** The *Storm Rainfall* and *Rainfall Intensity* data analysis require an analysis

interval. See the data analysis appendix for a description of the analysis interval use for these analysis types. Click the button to alternate between interval

selection from a pick list or from time interval fields.

**Data type:** Select the type of data displayed:

Data type	Database information displayed
Scaled	Scaled or analysis value
Raw	Raw data value
Score	Nova score value
Rating1-Rating5	Rating value 1 - 5

**Display Interval:** Select the time interval for the data analysis. The time interval is used to compute the start time for the data analysis from the end time. Click the button to

alternate between interval selection from a pick list or from time interval fields. *Use Request Interval* and *Show Data Reports* will use the point data checking no

report interval by default.

**Time Offset:** Select the time offset from the trigger data report time for the data analysis period,

default if 0.0 seconds. A positive time offset starts in the future (*After*), a negative time offset starts in the past (*Before*). Click the Time Offset: button to select from a list of intervals. The time offset direction is selected from the *After/Before* list.

Click the button again to use the time offset fields.

**Multiplier:** Multiply the data analysis computed value by this constant.

**Adder:** Add this constant to the data analysis computed value.

**Post analysis:** Select additional arithmetic operation, see Table 3.7.4, and constant value to be

applied to the result of the point data analysis.

### 3.7.5 Equation Examples

### **Equation Average Computation**

The *Average* equation type computes the average of the equation import values and stores it in the export point.

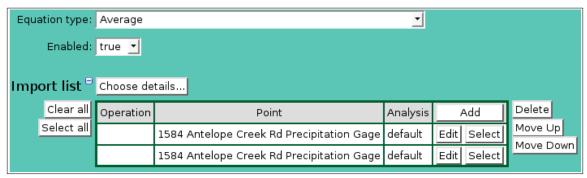


Figure 3.7.11. Equation Average Computation Example.

### **Equation Rating Computation**

This *Standard* equation type computes the rating value of the import point and stores it in the export point.

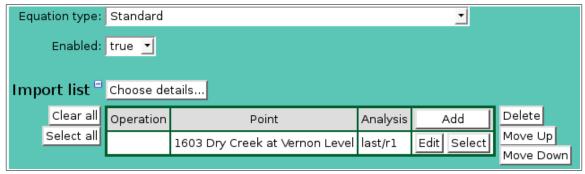


Figure 3.7.12. Equation Rating Computation Example.

# **Equation Dewpoint Temperature Computation**

This *Dew point temperature in degrees F* equation type computes the dew point temperature from the temperature and relative humidity import points and stores it in the export point.

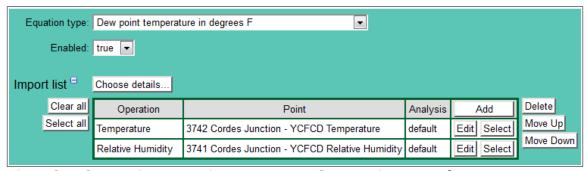


Figure 3.7.13. Equation Dewpoint Temperature Computation Example.

### **Equation Evapotranspiration Demand Computation**

This *Evapotranspiration demand from temperature in degrees F* equation type computes the evapotranspiration demand in inches from the solar radiation, temperature, relative humidity, wind speed, and barometric pressure import points and stores it in the export point.

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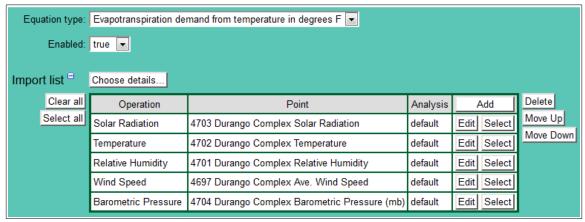


Figure 3.7.14. Equation Evapotranspiration Demand Computation Example.

### **Equation Barometric Pressure in Inches of Mecury Computation**

This *Standard* equation type computes the barometric pressure in inches of Mercury from the barometric pressure import point in millibars and stores it in the export point.

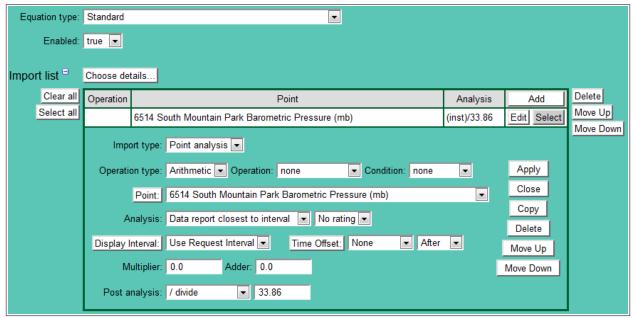


Figure 3.7.15. Equation Barometric Pressure in Inches of Mecury Computation Example.

### **Equation Maximum Computation**

This *Standard* equation type computes the maximum value from import point values and stores it in the export point.

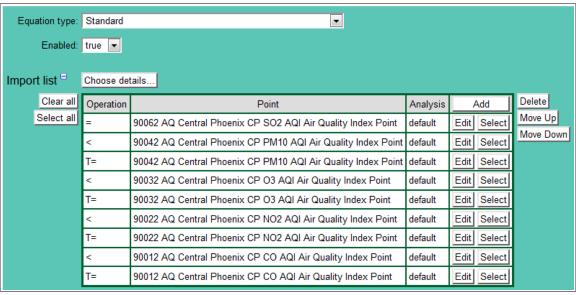


Figure 3.7.16. Equation Maximum Computation Example.

# **Equation Composite Water Level Computation**

This *Standard* equation type computes the composite water level from two import point water level values and stores it in the export point. If the water level from the 40 inches PT is greater than 175 feet, then assign the 40 inches PT water level value to the export point. If the water level is at or below 175 feet, assign the 10 feet PT water level value to the export point.

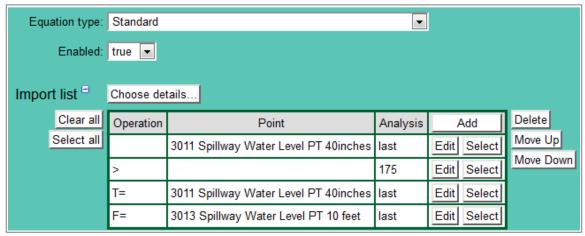


Figure 3.7.17. Equation Composite Water Level Computation Example.

### 3.7.6 Equation Delete

To delete a equation from the **Equation List**, click **Edit** on that equation's row in the table and then click **Delete** from the **Equation Edit** screen to view the **Equation Delete** page. The **Equation Delete** page prompts you to click the **Delete** button again to confirm that the equation should be deleted. Deleting an equation does not delete the export point. You must delete the point using the **Point Edit** page.

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#### 3.8 AlertTalk3 List

The AlertTalk3 auto-dialer provides dial-in access to point data values and performs dial-out alarm notification for alarm triggers. Voice recordings are stored in digital format on the auto-dialer and are assembled for speaking by the program. Multiple auto-dialers can be connected to the NovaStar 5 system. Each auto-dialer can support up to 155 station identifiers.

The **AlertTalk3 List** sub-command is available under the **Points** command in the command menu available to users when the alerttalk3 driver is defined in the Configuration list, see Section 9.1. When you click on the **AlertTalk3 List** option, the **AlertTalk3 List** page is displayed. The **AlertTalk3 List** displays all auto-dialers defined in the system. Clicking on any of the column heading buttons will reorder the auto-dialers in the **AlertTalk3 List**, numerically or alphabetically, by that detail. You can customize the appearance of the **AlertTalk3 List** using the **Choose details...** button to access the **AlertTalk3 List Details** page, see Section 3.8.1.

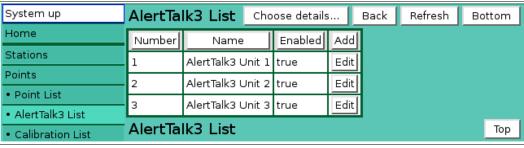


Figure 3.8.1. AlertTalk3 List

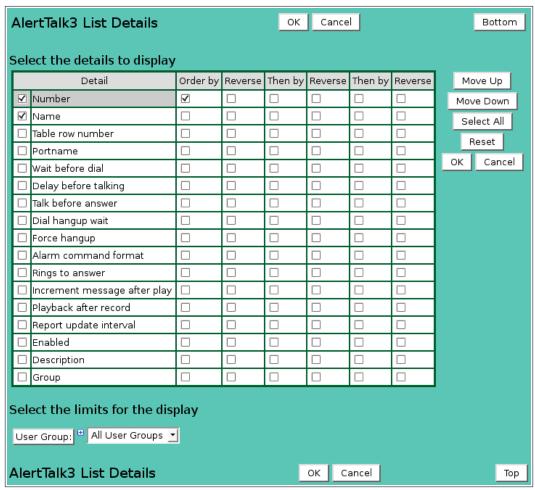


Figure 3.8.2. AlertTalk3 List Details

Click the **Add** button at the upper right-hand corner of the **AlertTalk3 List** table to create a new AlertTalk3 unit using the **AlertTalk3 Add** page. Or, click the **Edit** button associated with an existing AlertTalk3 unit to use that AlertTalk3 unit as a copy template for creating a new unit. The **Copy** button provided on the template AlertTalk3 unit's **AlertTalk3 Edit** page accesses the **AlertTalk3 Copy** page and allows you to create a new AlertTalk3 unit.

#### 3.8.1 AlertTalk3 List Details

The check boxes on **AlertTalk3List Details** page control the items, organization, sort order, and limit the records displayed on the List page.

## Select the details to display

Check the box to the left of a detail to display. Details are displayed in the order shown. Check the Order by box for the detail to sort first. Check Reverse for a descending sort. Check the Then by box for the detail to sort second. Check Reverse for a descending sort. Check the second Then by box for the detail to sort third. Check Reverse for a descending sort.

Move Up Move the selected detail up one row.

Move Down Move the selected detail down one row.

Select All Select all details.

Reset to default details.

OK Return to previous page with new details selected.

Cancel Return to previous page with no changes.

### Select the limits for the display

**User Group:** Limit display to alerttalk3s assigned to the user group(s). Click **User Group:** button to change **User Group Pick Details** and order.

Button	Action

Reset pick list to single select.

Decrease pick list length.

Increase pick list length.

Expand pick list to multiple select.
Collapse pick list to single select.

### 3.8.2 AlertTalk3 Pick Details

The check boxes on **AlertTalk3 Pick Details** page control the items, organization, sort order, and limit the records displayed on the pick list.

# Select the details to display

Check the box to the left of a detail to display. Details are displayed in the order shown. Check the Order by box for the detail to sort first. Check Reverse for a descending sort.

Check the Then by box for the detail to sort second. Check Reverse for a descending sort.

Check the second Then by box for the detail to sort third. Check Reverse for a descending sort.

**Button** Action

Move Up Move the selected detail up one row.

Move Down Move the selected detail down one row.

Select All Select all details.

Reset to default details.

OK Return to previous page with new details selected.

Cancel Return to previous page with no changes.

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Figure 3.8.3. AlertTalk3 Pick Details

### Select the limits for the display

**User Group:** Limit display to alerttalk3s assigned to the user group(s). Click **User Group:** 

button to change User Group Pick Details and order.

#### **Button Action**

Reset pick list to single select.

Decrease pick list length.

♣ Increase pick list length.

Expand pick list to multiple select.
Collapse pick list to single select.

# 3.8.3 AlertTalk3 Add/Copy

The **AlertTalk3 Add** page and the **AlertTalk3 Copy** page allow users to create a new AlertTalk3 unit. The **AlertTalk3 Copy** page is most convenient when the new AlertTalk3 unit will share many parameters with the template AlertTalk3 unit. To access the **AlertTalk3 Copy** page, click on the **Edit** button in the template AlertTalk3 unit's row in the **AlertTalk3 List** table. You will reach the **AlertTalk3 Edit** page. Click on the **Copy** button to reach the **AlertTalk3 Copy** page.

New AlertTalk3 unit must be given a unique **Number** and **Name**. The **AlertTalk3 Add** page and the **AlertTalk3 Copy** page function in the same way and provide the same input fields as the **AlertTalk3 Edit** page, described in Section 3.8.4.

#### 3.8.4 AlertTalk3 Edit

When you click on the **Edit** button associated with any point type defined in the **AlertTalk3 List** page, you reach the **AlertTalk3 Edit** page. The **AlertTalk3 Edit** page allows users to view or edit point type parameters for an existing point type, or to add a point type with many of the same parameters as a template point type using the **Copy** button.

#### Identification

Table index: Field can not be modified; it is assigned automatically when a record is added.
 Number: Unique number for the AlertTalk3 unit you are creating; start with number 1.
 Name: Unique name for the AlertTalk3 unit you are creating. Max: 100 characters.
 Description: Additional information describing the AlertTalk3 unit. Max: 1000 characters.

AlertTalk3 Edit	ОК	Apply	Back	Сору	Delete	Bottom
* Required field ** Must be uni	que					
Identification =						
Table row: 1						
** Number: 1						
* Name: Alerttalk3 unit	1					
Description:						
						.::
* Port name: /dev/adas3	/dev/	adas3 🛨	View			
Enable: false 🔻						
User groups □ Assign/Remo	ve arou	ups List	1			
	scriptio					
	stem us					
Parameters =						
Dial wait: 0 seconds	▼ Ri	ngs to ans	wer: 2	<b>+</b>		
		before ans		 e		
		Force han				
Update interval: 15 minutes		Alarm for				
Auto increment: true 🔻		Auto playb				
		,	,			
Control single R	eset					
Alarm: Update						
Dial: Start Stop						
Report: Alarm Level	2	▼ Stop				
Message list <sup>®</sup>						
Point list <sup>⊕</sup>						
Phone list <sup>(*)</sup>						
AlertTalk3 Edit	ОК	Apply	Back	Сору	Delete	Тор

Figure 3.8.4. AlertTalk3 Edit

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**Port name:** Enter serial port name connected to the AlertTalk3 unit (e.g. /dev/adas1) or select

from pick list. Click button to change the **Serial Port Pick Details**, see Section 9.5.2. **View** button displays the **Serial Port Edit** page for the selected serial port,

see Section 9.5.3.

**Enabled:** Select *true* to have the NovaStar 5 AlertTalk3 driver manage the unit.

### User groups

The **User groups** table shows the user groups currently assigned to the alerttalk3. Clicking on any of the column heading buttons will reorder the user groups in the **User groups List**, numerically or alphabetically, by that detail. Click **Details:** button to change the User Group List details and display order, see Section 10.3.1. Click **Assign/Remove groups** button to open **User Group Assignment** window, see Section 10.3.3. Changes made to user group assignments will update this page when the assignment window is closed. Click **List** button to show all user groups, see Section 10.3. Click **Add** button to add a user group, see Section 10.3.4. Click **Edit** button to edit the user group, see Section 10.3.5.

#### **Parameters**

**Dial wait:** Select the time to wait after alarm trigger before dialing. Click the button to

alternate between interval selection from a pick list or from time interval fields.

**Rings to answer:** Select the number of rings before answer for dial-in users. Use 0 to disable

dial-in support.

**Talk wait:** Select the time to wait after dialing before talking. Click the button to alternate

between interval selection from a pick list or from time interval fields.

**Talk before answer:** Select *true* to start talking on alarm dial before answer. Select *false* to wait

until phone call answered before talking.

**Hangup wait:** Select the time to wait after dial or answer before forcing hangup. Click the button to alternate between interval selection from a pick list or from time interval

ields

**Force hangup:** Select *true* to force hangup after hangup wait. Select *false* to disable hangup.

**Update interval:** Select the report data update interval. Data analysis values from point list will be sent to AlertTalk3 unit at this interval. Click the button to alternate between interval selection from a pick list or from time interval fields.

**Alarm format:** Select alarm format type from pick list. *Standard* speaks site name, *custom* speaks site number.

**Auto increment:** Select *true* to enable auto-message increment after playback, record, or delete. **Auto playback:** Select *true* to enable auto-playback after record.

#### Control

**Control**: Select *single* to control AlertTalk3 unit selected by edit page. Select *all* to control

all enabled AlertTalk3 units in system. Click the Reset button to send all the

AlertTalk3 parameters to the units and reset the unit operation.

**Alarm:** Click the **Update** button to send an updated alarm list to the selected AlertTalk3

units.

**Dial:** Click the **Start** button to start an alarm dial-out on the selected AlertTalk3 units.

Click the **Stop** button to stop alarm dial-outs on the selected AlertTalk3 units.

**Report:** Click the **Alarm** button to speak the alarm report on the selected AlertTalk3 units.

Click the **Level** button to speak the level report on the selected AlertTalk3 units. Select the level report number in the pick list; the first level report is number 2 (the alarm report is report number1). Click the **Stop** button to stop speaking a

report on the selected AlertTalk3 units.

### 3.8.5 AlertTalk3 Message List

The **Message list** displays the AlertTalk3 unit's recorded messages, see Figure 3.8.5.

Message	Message list □ Choose details Show units: single ▼							
		Unit	Number	Name	Control	Add	Delete	
Sel	ect all	1	1	0	Play Record Delete	Edit Select	Move Up	
		1	2	1	Play Record Delete	Edit Select	Move Down	
		1	3	2	Play Record Delete	Edit Select		
		1	4	3	Play Record Delete	Edit Select		
		1	5	4	Play Record Delete	Edit Select		
		1	6	5	Play Record Delete	Edit Select		
		1	7	6	Play Record Delete	Edit Select		
		1	8	7	Play Record Delete	Edit Select		
		1	9	8	Play Record Delete	Edit Select		
		1	10	9	Play Record Delete	Edit Select		

Figure 3.8.5. AlertTalk3 Message List

The message number use is divided into sections, see Table 3.8.1. When an AlertTalk3 unit is first defined, no message records will be assigned. Click on the table column headers to resort the table for this column; first ascending, then descending. Click on the **Choose details...** button to change the details and display order. Click on a table field to edit the text. Click **Add** to add an new message, click **Edit** to edit an existing message; an edit panel is opened, see Figure 3.8.6.

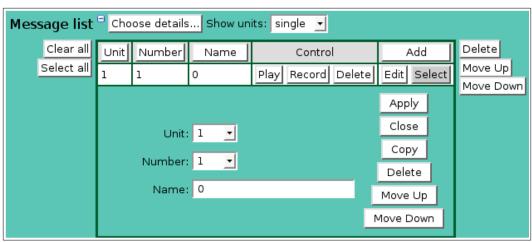


Figure 3.8.6. AlertTalk3 Message List Edit

**Unit:** Select AlertTalk3 unit number from pick list.

**Number:** Select the message number from the pick list. Range 1 - 255.

**Name:** Description of the message.

**Button** Action

Show units: Select *single* to show message for this unit only; select *all* to show messages for

all units.

Clear all Clear selection of all rows in this table.

Select all Select all rows in this table.

Play Play this recored message number on the selected unit.

Record Record this recored message number on the selected unit.

Delete Delete this recored message number on the selected unit.

Add Opens the edit panel where you can enter the parameters for a new record.

Edit Open the edit panel for this record.

Select Select row for applied changes from the edit panel; first select, then clear select.

Delete Mark selected rows for deletion; first select, then clear select.

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Move up Move the selected rows up one row.
Move down Move the selected rows down one row.

Apply Assign changed field values to this and all other selected rows in the table.

Changed fields are highlighted with a blue-green background while unchanged

fields have a white background.

Close the edit panel without saving changes; you will be warned if changes will

be lost by this action.

Table 3.8.1 AlertTalk3 Message Number Assignment

Table	3.8.1 AlertTalk3 Message	Number Ass
No.	Description	Example
1	0	(required)
2	1	(required)
3	2	(required)
4	3	(required)
5	4	(required)
6	5	(required)
7	6	(required)
8	7	(required)
9	8	(required)
10	9	(required)
11	10	(required)
12	11	(required)
13	12	(required)
14	13	(required)
15	14	(required)
16	15	(required)
17	16	(required)
18	17	(required)
19	18	(required)
20	19	(required)
21	20	(required)
22	30	(required)
23	40	(required)
24	50	(required)
25	60	(required)
26	70	(required)
27	80	(required)
28	90	(required)
29	Hundred	(required)
30	Thousand	(required)
31	Million	(required)
32	Billion	(required)
33	Point	(required)
34	Minus	(required)
35	In	(required)
36	(reserved)	
37	Station ID	(required)
38	End of report	(required)
39	There are no alarms	(required)
40	Alarm at station	(required)
		- '

	*** 1	( 1 1)
41	High at	(required)
42	Low at	(required)
43	Rising at	(required)
44	Falling at	(required)
45	Not reporting	(required)
46	Alarm test	(required)
47	Network failure	(required)
48	Data collection failure	(required)
49	(reserved)	
50	(reserved)	
51	Off	(required)
52	On	(required)
53	Open	(required)
54	Closed	(required)
55	Low	(required)
56	High	(required)
57	Not running	(required)
58	Running	(required)
59	(reserved)	(required)
60	(reserved)	
61	Sensor type 1	Rainfall rate
62	Sensor type 2	Water level
63	Sensor type 3	Battery volts
64	Sensor type 4	Air temperature
65	Sensor type 5	Humidity
66	Sensor type 6	Barometric pressure
67	Sensor type 7	Wind speed
68	Sensor type 8	Wind direction
69	Sensor type 9	Water temperature
70	Sensor type 10	Reservoir level
71	Sensor units 1	Inches
72	Sensor units 2	Feet
73	Sensor units 3	Volts
74	Sensor units 4	Degrees F
75	Sensor units 5	Percent
76	Sensor units 6	Millibars
77	Sensor units 7	Miles per hour
78	Sensor units 8	Degrees
79	Sensor units 9	Degrees F
80	Sensor units 10	Feet
81	Second	(required)
82	Minute	(required)
83	Hour	(required)
84	Day	(required)
85	(reserved)	(required)
86	Seconds	(required)
87	Minutes	(required)
88	Hours	(required)
89	Days	(required)
90	(reserved)	(requireu)
91	Greeting	This is the NovaStar system auto dialer.
<b>J 1</b>	Orecting.	11110 10 the 110 valour system auto dialer.

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92	Menu	Press 1 for alarms, 2 for levels, * to acknowledge, # to exit.
93	Enter security code	Please enter your security code follow by the number sign.
94	Security code accepted	Your security code is accepted, alarms are acknowledged.
95	Security code rejected	Your security code is rejected.
96	Goodbye	Thank you, good bye.
97	(reserved)	
98	(reserved)	
99	(reserved)	
100	(reserved)	
101	Site name 1	First site name
102	Site name 2	Second site name
•••	•••	
255	Site name 155	155 <sup>th</sup> site name

### 3.8.6 AlertTalk3 Point List

The **Point list** displays the list of point and data analysis whose values are sent to the AlertTalk3 unit for speaking in alarm or level reports, see Figure 3.8.7. When an AlertTalk3 unit is first defined, no point records will be assigned. Click on the table column headers to resort the table for this column; first ascending, then descending. Click on the **Choose details...** button to change the details and display order. Click on a table field to edit the text. Click **Add** to add an new point; the point list add panel is opened, see Figure 3.8.8. Click **Edit** to edit an existing point; the point list edit panel is opened, see Figure 3.8.9.

Point list	Choose	details	Show units: single Update point list	single 🔻					
Clear all	Order	Unit	Point	Analysis	Group	Site Name	Enabled	Add	Delete
Select all	1	1	900 Lake Fork Dam Level	last	2	Lake Fork	true	Edit Select	Move Up
	2	1	5000 Iron Bridge Dam Level	last	2	Iron Bridge Dam	true	Edit Select	Move Dow
	3	1	1000 USGS Hwy 37 Stream Level	last	2	Highway 37	true	Edit Select	
	4 1 6000 USGS Hwy 69 Stream Level				2	Highway 69	true	Edit Select	
	5 1 910 Lake Fork Dam Office Precipitation Gage		periodRain/1day	2	Lake Fork	true	Edit Select		
	6	1	101 Denton	periodRain/1day	2	Denton	true	Edit Select	
	7	1	151 17 Boat Ramp Precipitation Gage	periodRain/1day	2	17 Boat Ramp	true	Edit Select	
	8	1	201 Tarrant Precipitation Gage	periodRain/1day	2	Tarrant	true	Edit Select	
	9	1	301 BL Koon Precipitation Gage	periodRain/1day	2	B L Koon	true	Edit Select	
	10	1	401 LM Garrett Precipitation Gage	periodRain/1day	2	L M Garrett	true	Edit Select	

Figure 3.8.7. AlertTalk3 Point List

1 15arc 5.0.7	merrumo i omi ziot
Button	Action
Show units:	Select <i>single</i> to show points for this unit only; <i>all</i> to show points for all units.
Update	Send the point list to the selected units (single for this unit only, all for all units).
point list	
Clear all	Clear selection of all rows in this table.
Select all	Select all rows in this table.
Add	Opens the edit panel where you can enter the parameters for a new record.
Edit	Open the edit panel for this record.
Select	Select row for applied changes from the edit panel; first select, then clear select.
Delete	Mark selected rows for deletion; first select, then clear select.
Move up	Move the selected rows up one row.
Move down	Move the selected rows down one row.
Apply	Assign changed field values to this and all other selected rows in the table.
	Changed fields are highlighted with a blue-green background while unchanged
	fields have a white background.

Close Close the edit panel without saving changes; you will be warned if changes will be lost by this action.

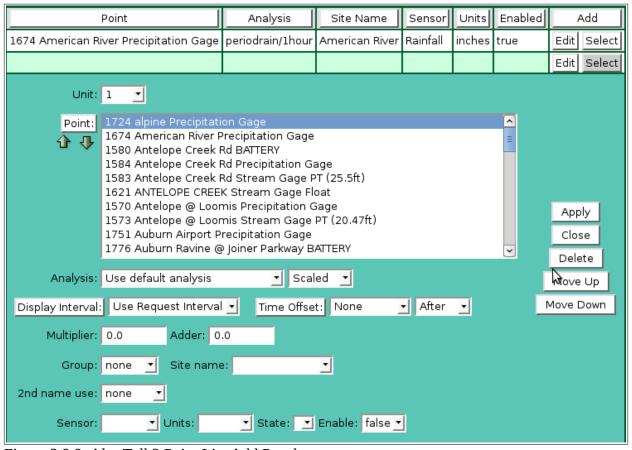


Figure 3.8.8. AlertTalk3 Point List Add Panel

**Unit:** Select AlertTalk3 unit number from pick list.

**Point:** Select points to add to the point list from the pick list. Hold down the [Ctrl] key

and click to select multiple points. Hold down the [Shift] key and click to select points from last selected to current selection. Click button to change **Point Pick** 

**Details** and order, see Section 3.1.2.

**Button Action** 

Decrease pick list length.

Increase pick list length.

Click the **Apply** button to add all selected points to the point list. The point list add panel will change to the point list edit panel for the last point added. You will then need to assign the other parameters to each point. First click **Clear all** to de-select all points except the one shown in the edit panel.

**Unit:** Select AlertTalk3 unit number from pick list.

**Point:** Select point from the pick list. Click button to change Point Pick Details and

order, see Section 3.1.2.

**Analysis:** Select the data analysis for the point data. See the data analysis appendix for a

description of the analysis types. *Use default analysis* will do the default analysis

for the point type.

**Analysis Interval:** The *Storm Rainfall* and *Rainfall Intensity* data analysis require an analysis

interval. See the data analysis appendix for a description of the analysis interval use for these analysis types. Click the button to alternate between interval

selection from a pick list or from time interval fields.

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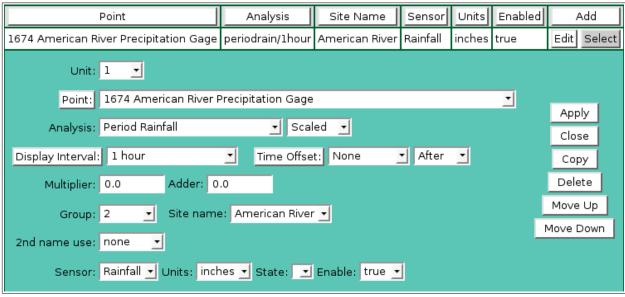


Figure 3.8.9. AlertTalk3 Point List Edit Panel

Select the type of data displayed: Data type:

Data type	Database information displayed
Scaled	Scaled or analysis value
Raw	Raw data value
Score	Nova score value
Rating1-Rating5	Rating value 1 - 5

**Display Interval:** Select the time interval for the data analysis. The time interval is used to compute the start time for the data analysis from the end time. Click the button to alternate between interval selection from a pick list or from time interval fields. *Use Request Interval* and *Show Data Reports* will use the point data checking no report interval by default.

**Time Offset:** Select the time offset from the trigger data report time for the data analysis period, default if 0.0 seconds. A positive time offset starts in the future (*After*), a negative time offset starts in the past (*Before*). Click the Time Offset: button to select from a list of intervals. The time offset direction is selected from the *After/Before* list. Click the button again to use the time offset fields.

**Multiplier:** Multiply the data analysis computed value by this constant.

Adder: Add this constant to the data analysis computed value.

Select the group number for the point. Group 2 is the first level group. Group 1 is **Group:** 

reserved for the active alarm list. Range: 2 - 8. Select *none* to define the point for

alarm messages but not include in a level report.

Select the first site name spoken for the point. Site names are defined in the Site name:

message list above for message numbers 101-255.

2<sup>nd</sup> name use: Select the method of speaking the second name assigned.

None will not speak the second name.

Name will speak the second site name selected.

Number will speak the number entered

2<sup>nd</sup> name: Select the second name spoken for the point. Site names are defined in the

message list above for message numbers 101-255.

2<sup>nd</sup> number: Enter the number spoken for the point after the site name.

Select the sensor type spoken for the point. Sensor types are defined in the Sensor:

message list for message numbers 61-70.

**Units:** Select the sensor type spoken for the point. Sensor types are defined in the

message list for message numbers 71-80.

**State:** Select the digital off state spoken for the point. Sensor digital state off/on

messages are defined in the message list for message numbers 51, 53, 55, 57.

**Enable:** Select true to enable use of this point in the AlertTalk3 unit reports.

#### 3.8.7 AlertTalk3 Phone List

The **Phone list** displays the list of telephone numbers dialed for AlertTalk3 dail out alarms, see Figure 3.8.10. When an AlertTalk3 unit is first defined, no phone records will be assigned. Click on the table column headers to resort the table for this column; first ascending, then descending. Click on the **Choose details...** button to change the details and display order. Click on a table field to edit the text. Click **Add** to add an new phone number, click **Edit** to edit an existing phone number; an edit panel is opened, see Figure 3.8.11.



Figure 3.8.10. AlertTalk3 Phone List

### **Button** Action

Show units: Select *single* to show phone numbers for this unit only; *all* to show for all units. Update Send the phone list to the selected units (single for this unit only, all for all units).

phone list

Clear all Clear selection of all rows in this table.

Select all Select all rows in this table.

Add Opens the edit panel where you can enter the parameters for a new record.

Edit Open the edit panel for this record.

Select Select row for applied changes from the edit panel; first select, then clear select.

Delete Mark selected rows for deletion; first select, then clear select.

Move up Move the selected rows up one row.

Move down Move the selected rows down one row.

Apply Assign changed field values to this and all other selected rows in the table.

Changed fields are highlighted with a blue-green background while unchanged

fields have a white background.

Close Close the edit panel without saving changes; you will be warned if changes will

be lost by this action.

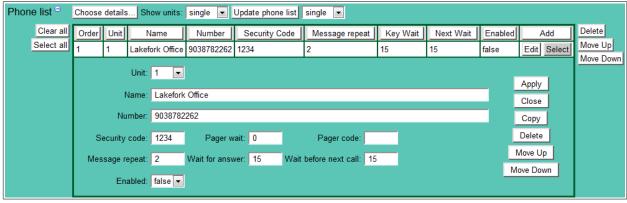


Figure 3.8.11. AlertTalk3 Phone List Edit

Unit: Select AlertTalk3 unit number from pick list.Name: Enter the operator name for the phone number.

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**Number:** Enter the phone number.

**Security code:** Enter the operator security code to acknowledge alarms, for example: 1234. **Pager wait:** Enter the wait in seconds before sending the pager code (0 for no pager code).

**Pager code:** Enter the pager code (blank for no pager). **Message repeat:** Enter the alarm message repeat count.

**Wait for answer:** Enter the wait in seconds for the operator to answer.

**Wait before next call:** Enter the wait in seconds before calling the next phone number.

**Enabled:** Select *true* to use this number in the alarm dial-out.

#### 3.8.8 AlertTalk3 Delete

To delete an AlertTalk3 unit from the **AlertTalk3 List**, click **Edit** on that AlertTalk3 unit's row in the table and then click **Delete** from the **AlertTalk3 Edit** screen to view the **AlertTalk3 Delete** page. The **AlertTalk3 Delete** page prompts you to click the **Delete** button again to confirm that the AlertTalk3 unit should be deleted.

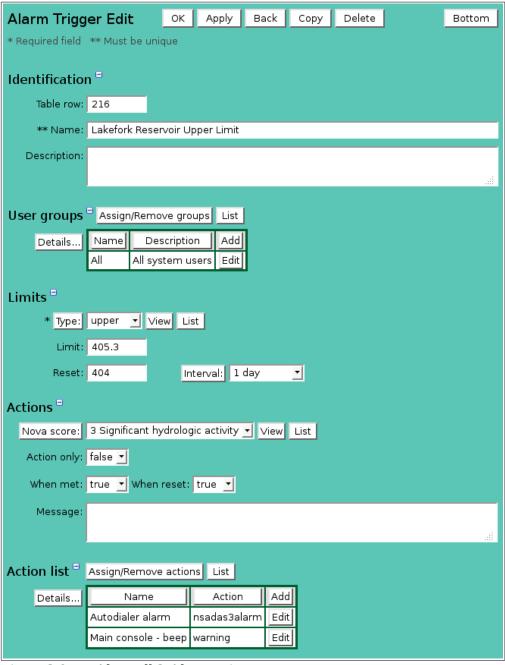


Figure 3.8.12. AlertTalk3 Alarm Trigger

### 3.8.9 AlertTalk3 Alarm Trigger

The AlertTalk3 driver will send alarm messages to the AlertTalk3 units to speak in the alarm report. To send alarm messages based on point data report values, create an alarm group with alarm triggers that have the Alerttalk3 alarm action assigned, see Section 4.7.7. A point that has an Alerttalk3 alarm trigger action must be defined in the Alerttalk3 point list for it to be spoken properly in the alarm report.

In the example in Figure 3.8.12, an upper limit alarm trigger is assigned to points in an alarm group. When the data report value meets or exceeds 403.5, the AlertTalk3 alarm action is executed, see **Alarm Trigger Edit** in section 4.5.4. This action send an alarm message to the AlertTalk3 unit to speak in the alarm report. It also triggers the AlertTalk3 dial-out alarm notification. The reset value will reset the alarm after the level drops below 403.5 feet. The AlertTalk3 alarm reset updates the alarm report in the AlertTalk3 unit removing the alarm message for point that triggered the alarm. Set **Hidden** *false* to add the alarm flag assignment to the data reports that meet the alarm criteria. Set **When met** to *true* to update the alarm report when the alarm criteria is met.

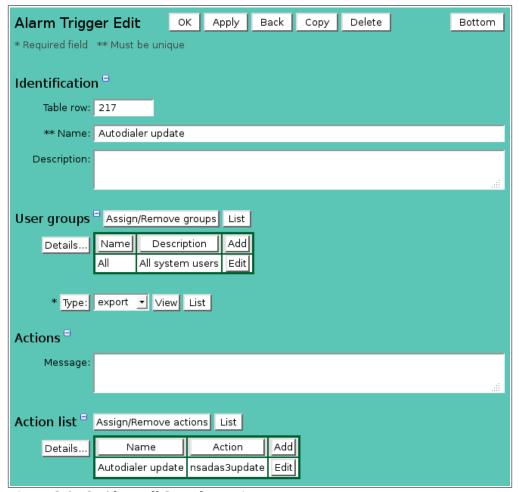


Figure 3.8.13. AlertTalk3 Update Trigger

# 3.8.10 AlertTalk3 Update Trigger

The AlertTalk3 driver will send level report updates to the AlertTalk3 units to speak in the level report. To send level reports update when data reports are filed in the database, create an alarm group with alarm triggers that have the Alerttalk3 update action assigned, see Section 4.7.8. A

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point that has an Alerttalk3 update trigger action must be defined in the Alerttalk3 point list for it to be spoken properly in the level report.

In the example in Figure 3.8.13, an export alarm trigger is assigned to points in an alarm group. When a data report is filed in the database for a point in the alarm group, the AlertTalk3 update action is executed, see **Alarm Trigger Edit** in section 4.5.4. This action sends a level report update to the AlertTalk3 unit for the point whose data was filed. When the level report is spoken by the AlertTalk3 unit, the data will be up to date for this point.

# 3.9 Map Display List

The Map Display turns on and flashes LEDs on a map background using the HydroLynx Map Display Interface. The Map Display Interface is connected to the NovaStar 5 server on a serial port. Each map display interface unit can control 100 LEDs. Multiple map display interface units can be connected to the NovaStar 5 system.

The **Map Display List** sub-command is available under the **Points** command in the command menu available to users when the map\_display driver is defined in the Configuration list, see Section 9.1. When you click on the **Map Display List** option, the **Map Display List** page is displayed. The **Map Display List** displays all map display interface units defined in the system. Clicking on any of the column heading buttons will reorder the map display interface units in the **Map Display List**, numerically or alphabetically, by that detail. You can customize the appearance of the **Map Display List** using the **Choose details...** button to access the **Map Display List Details** page, see Section 3.9.1.



Figure 3.9.1. Map Display List

Click the **Add** button at the upper right-hand corner of the **Map Display List** table to create a new Map Display unit using the **Map Display Add** page. Or, click the **Edit** button associated with an existing Map Display unit to use that Map Display unit as a copy template for creating a new unit. The **Copy** button provided on the template Map Display unit's **Map Display Edit** page accesses the **Map Display Copy** page and allows you to create a new Map Display unit.

#### 3.9.1 Map Display List Details

The check boxes on **Map DisplayList Details** page control the items, organization, sort order, and limit the records displayed on the List page.

### Select the details to display

Check the box to the left of a detail to display. Details are displayed in the order shown. Check the Order by box for the detail to sort first. Check Reverse for a descending sort. Check the Then by box for the detail to sort second. Check Reverse for a descending sort. Check the second Then by box for the detail to sort third. Check Reverse for a descending sort.

MapDisplay List Details						ок	Cancel			Bottom
S	Select the details to display									
I		Detail	Order by	Reverse	Then by	Reverse	Then by	Reverse	Mov	ve Up
I	✓	Number	<b>V</b>						Move	e Down
I	✓	Name							Sel	ect All
L		Table row number							R	eset
L		Portname							_	
L		Enabled							OK .	Cancel
L		Description								
L		Group								
Select the limits for the display  User Group:   All User Groups										
M	la	pDisplay List	Details	;		O	Can	cel		Тор

Figure 3.9.2. Map Display List Details

Dutton	A stion
Button	Action

Move Up Move the selected detail up one row.

Move Down Move the selected detail down one row.

Select All Select all details.

Reset to default details.

OK Return to previous page with new details selected.

Cancel Return to previous page with no changes.

#### Select the limits for the displays

**User Group:** Limit display to map displays assigned to the user group(s). Click **User Group:** button to change **User Group Pick Details** and order.

# **Button Action**

Reset pick list to single select.

Decrease pick list length.

Increase pick list length.Expand pick list to multiple select.

Collapse pick list to single select.

### 3.9.2 Map Display Pick Details

The check boxes on **Map Display Pick Details** page control the items, organization, sort order, and limit the records displayed on the pick list.

#### Select the details to display

Check the box to the left of a detail to display. Details are displayed in the order shown.

Check the Order by box for the detail to sort first. Check Reverse for a descending sort.

Check the Then by box for the detail to sort second. Check Reverse for a descending sort.

Check the second Then by box for the detail to sort third. Check Reverse for a descending sort.

**Button** Action

Move Up Move the selected detail up one row.

Move Down Move the selected detail down one row.

Select All Select all details.

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Reset to default details.

OK Return to previous page with new details selected.

Cancel Return to previous page with no changes.

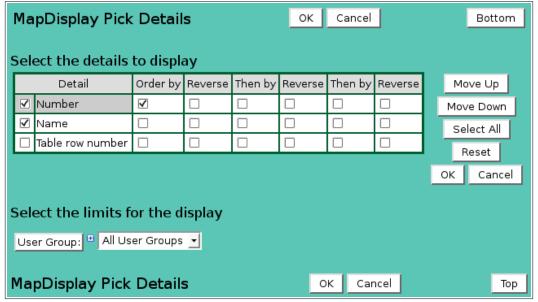


Figure 3.9.3. Map Display Pick Details

### Select the limits for the display

**User Group:** Limit display to map displays assigned to the user group(s). Click **User Group:** button to change **User Group Pick Details** and order.

### **Button Action**

Reset pick list to single select.

Decrease pick list length.

Increase pick list length.

Expand pick list to multiple select.

Collapse pick list to single select.

# 3.9.3 Map Display Add/Copy

The **Map Display Add** page and the **Map Display Copy** page allow users to create a new map display unit. The **Map Display Copy** page is most convenient when the new map display unit will share many parameters with the template map display unit. To access the **Map Display Copy** page, click on the **Edit** button in the template map display unit's row in the **Map Display List** table. You will reach the **Map Display Edit** page. Click on the **Copy** button to reach the **Map Display Copy** page.

New map display unit must be given a unique **Number** and **Name**. The **Map Display Add** page and the **Map Display Copy** page function in the same way and provide the same input fields as the **Map Display Edit** page, described in Section 3.9.4.

### 3.9.4 Map Display Edit

When you click on the **Edit** button associated with any point type defined in the **Map Display List** page, you reach the **Map Display Edit** page. The **Map Display Edit** page allows users to view or edit point type parameters for an existing point type, or to add a point type with many of the same parameters as a template point type using the **Copy** button.

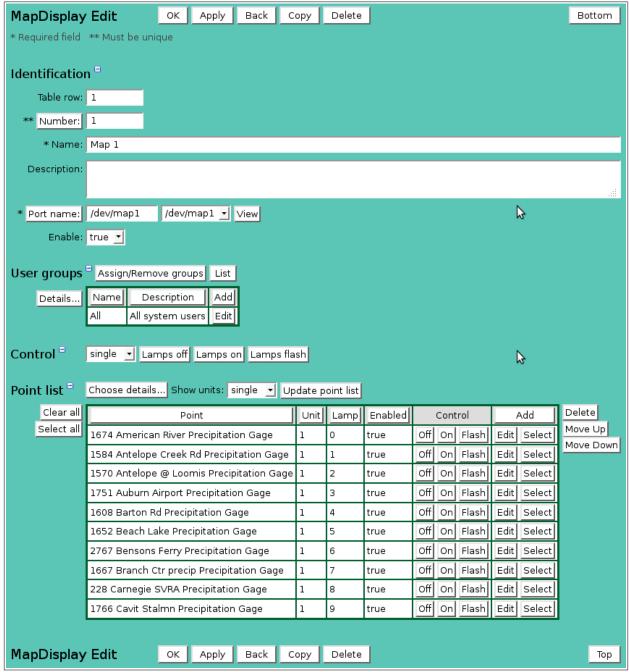


Figure 3.9.4. Map Display Edi

### Identification

Table index: Field can not be modified; it is assigned automatically when a record is added.

Number: Unique number for the Map Display unit you are creating; start with number 1.

Unique name for the Map Display unit you are creating. Max: 100 characters.

Additional information describing the Map Display unit. Max: 1000 characters.

Port name: Enter serial port name connected to the Map Display unit (e.g. /dev/map1) or select from pick list. Click button to change the Serial Port Pick Details, see

select from pick list. Click button to change the **Serial Port Pick Details**, see Section 9.5.2. **View** button displays the **Serial Port Edit** page for the selected

serial port, see Section 9.5.3.

**Enabled:** Select *true* to have the NovaStar 5 Map Display driver manage the unit.

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### User groups

The **User groups** table shows the user groups currently assigned to the map display. Clicking on any of the column heading buttons will reorder the user groups in the **User groups List**, numerically or alphabetically, by that detail. Click **Details:** button to change the User Group List details and display order, see Section 10.3.1. Click **Assign/Remove groups** button to open **User Group Assignment** window, see Section 10.3.3. Changes made to user group assignments will update this page when the assignment window is closed. Click **List** button to show all user groups, see Section 10.3. Click **Add** button to add a user group, see Section 10.3.4. Click **Edit** button to edit the user group, see Section 10.3.5.

**Control**:

Select *single* to control Map Display unit selected by edit page. Select *all* to

control all enabled Map Display units in system.

Click the **Lamps off** button to turn off all lamps on selected units. Click the **Lamps on** button to turn on all lamps on selected units. Click the **Lamps flash** button to flash all lamps on selected units.

### 3.9.5 Map Display Point List

The **Point list** displays the list of point and data analysis whose alarm triggers will turn on or flash lamps. When an Map Display unit is first defined, no point records will be assigned. Click on the table column headers to resort the table for this column; first ascending, then descending. Click on the **Choose details...** button to change the details and display order. Click on a table field to edit the text. Click **Add** to add an new point; the point list add panel is opened, see Figure 3.9.5. Click **Edit** to edit an existing point; the point list edit panel is opened, see Figure 3.9.6.

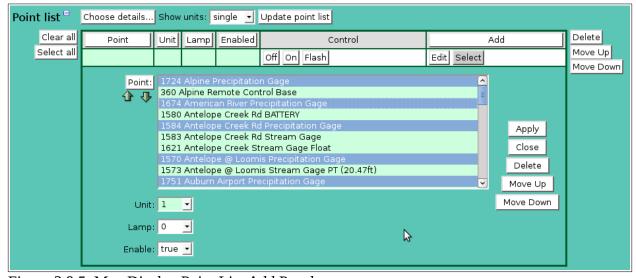


Figure 3.9.5. Map Display Point List Add Panel

Point:

Select points to add to the Map Display point list from the pick list. Hold down the [Ctrl] key and click to select multiple points. Hold down the [Shift] key and click to select points from last selected to current selection. Click button to change **Point Pick Details** and order, see Section 3.1.2.

**Button Action** 

Decrease pick list length.

Increase pick list length.

Click the **Apply** button to add all selected points to the map display point list. The point list add panel will change to the point list edit panel for the last point added. You will then need to assign

the proper lamp number to the each point. First click **Clear all** to de-select all points except the one shown in the edit panel.

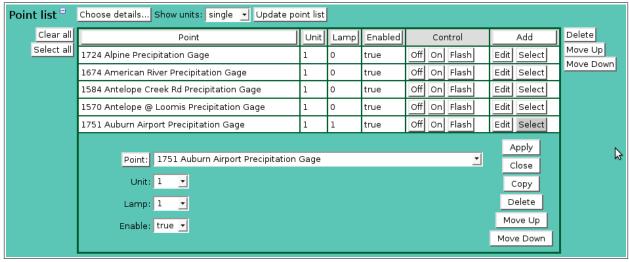


Figure 3.9.6. Map Display Point List Edit Panel

**Point:** Select point to add to the Map Display point list.

Click button to change Point Pick Details and order, see Section 3.1.2.

**Unit:** Select Map Display unit number from pick list.

**Lamp:** Select Map Display lamp number from pick list. Range: 0 - 99. **Enable:** Select *true* to enable use of this point in the Map Display unit.

### 3.9.6 Map Display Delete

To delete an Map Display unit from the **Map Display List**, click **Edit** on that Map Display unit's row in the table and then click **Delete** from the **Map Display Edit** screen to view the **Map Display Delete** page. The **Map Display Delete** page prompts you to click the **Delete** button again to confirm that the Map Display unit should be deleted.

### 3.9.7 Map Display Lamp On Alarm Trigger

The Map Display will turn on lamps in response to alarm triggers. To control map display lamps based on point data report values, create an alarm group with alarm triggers that have the Map display lamp on action assigned, see Section 4.7.11. A point that has an Map display lamp on alarm trigger action must be defined in the Map Display point list for it to control a lamp.

In the example in Figure 3.9.7, a rise alarm trigger is assigned to points in an alarm group. When the rise criteria of 0.03 inches in 15 minutes is met, the Map display lamp on alarm action is executed, see **Alarm Trigger Edit** in section 4.5.4. This action turns on a lamp assigned to the point that triggered the alarm. The reset interval will reset the alarm after 15 minutes of no rain. The Map display lamp on alarm reset turns off the lamp assigned to the point that triggered the alarm. Set **Hidden** *true* to prevent the alarm display and alarm flag assignment to the data reports that meet the alarm criteria. Set **When met** to *true* to turn the lamp on when the alarm criteria is met. Set **When reset** to *true* to turn the lamp off when the reset criteria is met.

#### 3.9.8 Map Display Lamp Flash Alarm Trigger

The Map Display will flash lamps in response to alarm triggers. To control map display lamps based on point data report values, create an alarm group with alarm triggers that have the Map display lamp flash action assigned, see Section 4.7.10. A point that has an Map display lamp flash alarm trigger action must be defined in the Map Display point list for it to control a lamp.

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Alarm Trigg	jer Edit	OK A	pply	Back	Сору	Delete	Bottom
* Required field	** Must be uni	que					
Identification	n <sup>=</sup>						
Table row:	218						
** Name:	Rain gauges la	mp on					
Description:							
							.:#
User groups	Assign/Remo	ve groups	List				
Details	Name De	scription	Add				
	All All sy	stem users	Edit				
Limits =							
* Туре:	rise 🛨 Vi	ew List					
Limit:	0.03	Interva	al: 15	minutes	•		
Reset:	0	Interva	al: 15	minutes	•		
Threshold:		Whe	en: no	ne	<u> </u>		
Actions =							
Nova score:	1 No hydrolog	c activity		√iew	List		
Action only:	true 🕶						
When met:	true 🕶 When	reset: true	e <u>▼</u>				
Message:							
							.::
Action list	Assign/Remove	e actions	List				
Details	Name Ac	tion Ado					
	Lamp on nsla	mpon Edit					

Figure 3.9.7. Map Display Lamp On Alarm Trigger

In the example in Figure 3.9.8, a rise alarm trigger is assigned to points in an alarm group. When the rise criteria of 2 inches in 6 hours is met, the Map display lamp flash alarm action is executed, see **Alarm Trigger Edit** in section 4.5.4. This action flashes a lamp assigned to the point that triggered the alarm. The reset interval will reset the alarm after 15 minutes of rain less than or equal to 0.04 inches. The Map display lamp flash alarm reset stops the lamp flashing assigned to the point that triggered the alarm. The lamp may still be on if the lamp on alarm criteria is still met. Set **Hidden** *false* to display the alarm and add the alarm flag assignment to the data reports that meet the alarm criteria. Set **When met** to *true* to flash the lamp when the alarm criteria is met. Set **When reset** to *true* to stop the lamp flash when the reset criteria is met.

Alarm Trigg	jer Edit	ок	Apply	Back	Сору	Delete		Bottom
* Required field : ** Must be unique								
Identificatio	n <sup>=</sup>							
Table row:	219							
** Name:	Rain gauges la	mp flas	sh					
Description:								
								.::
User groups	Assign/Remo	ve gro	ups List	1				
Details	Name De	scriptio	n Add	i				
	All All sys	stem us	sers Edit					
Limits =								
* Type:	rise ▼ Vie	ew Lis	t					
Limit:				hours	<b>▼</b>			
Reset:				5 minutes	<u> </u>			
Threshold:		_	When: no		<u>−</u>		b	
Actions =								
	3 Significant hy	/drologi	c activity	View	List			
Action only:								
When met:	true 🛨 When	reset:	true 🔻					
Message:								
								!
Action list =	Assign/Remove	action	s List					
Details	Name		Action	Add				
	Lamp flash	$\overline{}$	nslampflas					
	Main console -	beep \	warning	Edit				

Figure 3.9.8. Map Display Lamp Flash Alarm Trigger

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# 4 Alarms: Alarm Groups, Alarm Triggers, and Alarm Actions

One of NoveStar5's main features is its ability to detect and announce alarm conditions. New data values stored in the database are checked against alarm criteria assigned to each data point included in an alarm group. Non-status points are typically checked for upper and lower limits, and rise and fall rates of change. Each line of a status sensor data report is tested for a status state or a change in state. NovaStar 5 can also monitor a data reporting time limit, so that if new data is not stored in the database within the limit, the point meets an alarm condition.

Users are able to configure alarms in NovaStar 5 using *alarm groups* to allow inputs from similar sensors to be evaluated for alarm conditions. For example, an alarm group could be defined that included maximum rate-of-change criteria for stage sensors throughout a monitored area. In NovaStar 5, the criteria that qualify data for alarm activation are called *alarm triggers*. An alarm group can include more than one alarm trigger, and when an alarm condition is triggered, NovaStar 5 can be configured to take any number of associated *alarm actions* intended to alert appropriate personnel to the alarm condition. Notification of an alarm condition can occur by telephone, pager, email, voice dialer, etc.

Alarms in NovaStar 5 have associated *alarm states*, not all of which are mutually exclusive. At the most basic level, NovaStar 5 alarms are either active, or off. When a data report meets an alarm group's criteria, the alarm is made active. The alarm remains active until it is BOTH acknowledged and reset, at which time the alarm state returns to off. The reset is an automatic operation, independent of acknowledgement, and occurs when data report values meet the criteria that have been established for reset during alarm configuration. Therefore, a precipitation alarm remains active for as long as the precipitation values are above the alarm criteria for precipitation, and the NovaStar 5 alarm database table correctly accounts for the duration of the alarm condition associated with database values. Acknowledging the alarm suspends NovaStar 5's alarm actions related to the alarm condition. This prevents NovaStar 5's alarm actions from becoming a nuisance after you are aware of an alarm condition. Figure 4.1 depicts the independent function of the acknowledgement and reset processes for alarm deactivation.

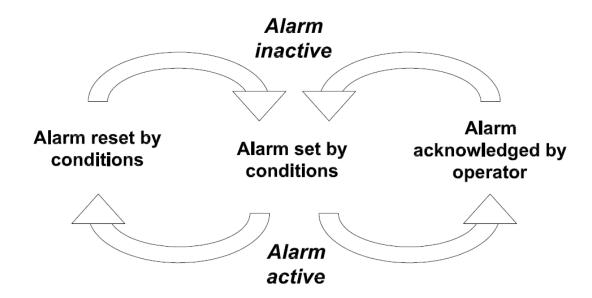


Figure 4.1.1. Alarm activation and deactivation logic

When a user selects the **Alarms** menu option, the **Active Alarm List** page appears, and a subordinate menu of Alarm commands becomes available: **Active Alarm List**, **Historic Alarm List**, **Alarm Group List**, **Alarm Trigger List**, **Alarm Action List**, and **Alarm Contact List**.

#### 4.1 Active Alarm List

When you click on the **Alarms** menu list option, the **Active Alarm List** page is displayed. There will be **No active alarms** listed unless NovaStar 5 has detected an alarm condition associated with an incoming data stream. The **Active Alarm List** page always reports the status of the system alarms, whether there are active alarm(s) or not, by indicating either that **Alarms are enabled** or that **Alarms are disabled**.

Four buttons options are available on the **Active Alarm List** page above the alarm list. These buttons **Acknowledge** alarms, **Disable** or **Enable Alarms, Mute** or **Restore** audible active alarms, or set alarm display **Options**.

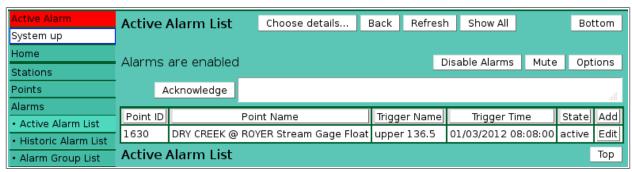


Figure 4.1.2. Active Alarm List

# Acknowledge alarms

When you **Acknowledge** an active alarm or alarms, NovaStar 5 suspends the alarm actions associated with that alarm. The alarm remains active until it is reset. This prevents the alarm actions generated by an active alarm from becoming a nuisance during an alarm condition.

#### Mute or Restore audible alarms

**Mute** Click button to silence the audible alarm on this workstation. This neither

acknowledges an active alarm nor disables other alarm actions associated with

other active alarms. The audible beeping of an active alarm is silenced.

**Restore** Click button to restore the audible alarm on this workstation.

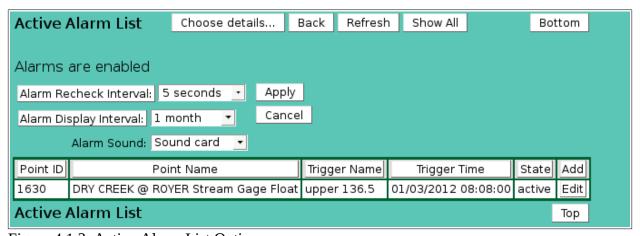


Figure 4.1.3. Active Alarm List Options

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### Alarm display options

**Alarm Recheck Interval:** Select the alarm check interval. All pages will check for new alarms at this interval. Select none to disable alarm checking. Click the button to alternate between interval selection from a pick list or from time interval fields.

**Alarm Display Interval:** Select the active alarm display period. Click the button to alternate between interval selection from a pick list or from time interval fields.

**Alarm Sound:** Select the type of audible alarm on your workstation. This does not affect the

console alarm unless your workstation is the console.

Console beep: use the workstation buzzer.

*Sound card*: use the workstation sound card and speakers.

*None*: no audible alarm

**Apply** Click button to save changes to active alarm display options. **Cancel** Click button to close display options tool without saving changes.

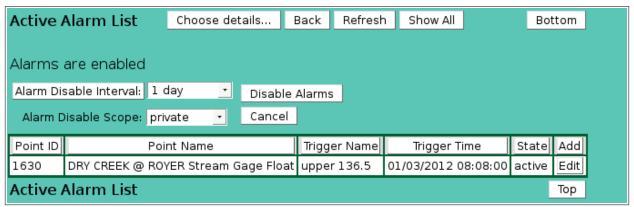


Figure 4.1.4. Active Alarm List Disable Alarms

### Alarm disable options

It is possible to **Disable Alarms** to prevent new active alarms from initiating alarm actions that could become a nuisance during an emergency, for example, as widespread precipitation triggers alarms at one station after another. When alarms are disabled, NovaStar 5's data checking for alarm criteria continues and new alarms are logged in the database without starting new alarm actions. Data will still be logged in the database and available for review and response planning, but once an active alarm condition has been acknowledged, it is potentially unhelpful for NovaStar 5 to continue alarm actions related to new active alarms.

**Alarm Disable Interval:** Select the alarm disable interval. Alarms will no longer show on your workstation until the disable interval has passed. Click the button to alternate between interval selection from a pick list or from time interval fields.

**Alarm Disable Scope:** Select the scope of the alarm disable (only available for *administrator*). *private*: alarms disabled on your workstation only.

system: alarms are disabled on the system for everyone.

**Disable Alarms** Click button to disable alarms.

**Cancel** Click button to close disable alarm tool without saving changes.

Disabling system alarms modifies the alarms\_enable record in the configuration table, see Section 9.1. The record value is set to false (alarms disabled) and the options field is set to the alarms re-enable time. The Active Alarm List will show the alarms disabled state and the reenable time.



Figure 4.1.5. Active Alarm List Enable Alarms

### Alarm enable options

Clicking on the **Enable Alarms** buttons will restore alarm actions. When alarms are enabled, alarm actions are taken when the alarm checking determines that the alarm criteria are met, reset, or both. In other words, NovaStar 5 will activate alarms when a data report meets the criteria for resetting an alarm as well as for setting an alarm. This notification indicates that data values are "returning to normal," given reset criteria that depend upon the alarm trigger type. See Section 4.5 for information about alarm triggers.

**Alarm Enable Scope:** Select the scope of the alarm enable (only available for *administrator*).

private: alarms enabled on your workstation only.

system: alarms are enabled on the system for everyone.

**Enable Alarms** Click button to enable alarms.

**Cancel** Click button to close enable alarm tool without saving changes.

The **Active Alarm List** page shows all of the active alarms occurring in the NovaStar 5 system. Clicking on any of the column heading buttons will reorder the active alarms in the **Active Alarm List**, numerically or alphabetically, by that detail. You can customize the appearance of the **Active Alarm List** using the **Choose details...** button to access the **Active Alarm List Details** page.

Users may wish to **Add** or **Edit** active alarms for system testing, training or response simulations or for other reasons; but unless there is at least one active alarm, there is no access to the **Add** or **Edit** buttons. To create an active alarm and access these capabilities, you may edit an historic alarm and reset its alarm state to active. Or, set up an alarm group with triggers that you know will create an active alarm. Then, the **Add** button at the upper right-hand corner of the **Active Alarm List** table can be used to create a new active alarm using the **Active Alarm Add** page. Or, click the **Edit** button associated with an existing active alarm to use that active alarm as a copy template for creating a new active alarm. The **Copy** button provided on the template active alarm's **Active Alarm Edit** page accesses the **Active Alarm Copy** page and allows you to create a new active alarm as described below.

#### 4.1.1 Active Alarm List Details

The check boxes on **Active Alarm List Details** page control the items, organization, sort order, and limit the records displayed on the List page.

### Select the details to display

Check the box to the left of a detail to display. Details are displayed in the order shown. Check the Order by box for the detail to sort first. Check Reverse for a descending sort.

Check the Then by box for the detail to sort second. Check Reverse for a descending sort.

Check the second Then by box for the detail to sort third. Check Reverse for a descending sort.

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Active Alarm List Details OK Cancel Botton						Bottom	
Select the details t	o displa	v					
Detail	Order by		Then by	Reverse	Then by	Reverse	Move Up
✓ Point ID							Move Down
✓ Point name							Select All
✓ Trigger name							
✓ Alarm time	<b>✓</b>						Reset
✓ State							OK Cancel
☐ Table row number							
☐ Point row number							
☐ Point tagname							
☐ Point line							
☐ Device type							
☐ Station ID							
☐ Station name							
☐ Station type name							
☐ Trigger time							
☐ Trigger value							
☐ Trigger interval							
☐ Trigger action							
☐ Ack time							
☐ Ack user							
☐ Ack message							
☐ Reset time							
Reset user							
☐ Reset value							
☐ Reset interval							
□ Туре							
☐ Group							
Select the limits for the display							
Alarm Point: All Poi	nts						
Alarm Trigger: All Alarm Triggers							
Alarm States: All Active Alarms							
User Group: □ All User Groups ▼							
Active Alarm List Details OK Cancel Top							

Figure 4.1.6. Active Alarm List Details

Button	Action

Move Up Move the selected detail up one row.

Move Down Move the selected detail down one row.

Select All Select all details.

Reset Reset to default details.

OK Return to previous page with new details selected.

Cancel Return to previous page with no changes.

### Select the limits for the display

**Alarm Point:** Limit display to alarms assigned to the point(s). Click **Alarm Point:** button to change **Alarm Point Pick Details** and order.

**Button Action** 

• Reset pick list to single select.

Decrease pick list length.

Increase pick list length.

Expand pick list to multiple select.Collapse pick list to single select.

Alarm Trigger: Limit display to alarms assigned to the alarm trigger(s). Click Alarm Trigger:

button to change Alarm Trigger Pick Details and order.

Alarm States: Limit display to alarms with selected alarm state.

**User Group:** Limit display to alarms assigned to the user group(s). Click **User Group:** button

to change **User Group Pick Details** and order.

### 4.1.2 Active Alarm Add/Copy

The **Active Alarm Add** page and the **Active Alarm Copy** page allow users to create new active alarms. They function in the same way. The **Active Alarm Copy** page is most convenient when the new active alarm will share several parameters with the template active alarm. To access the **Active Alarm Copy** page, click on the **Edit** button in the template active alarm's row in the **Active Alarm List** table. You will reach the **Active Alarm Edit** page. Click on the **Copy** button to reach the **Active Alarm Copy** page.

The **Active Alarm Add/Copy** page(s) allow you to enter the new active alarm parameters. The **Active Alarm Edit** page provides the same input fields as the **Active Alarm Add** and the **Active Alarm Copy** pages, and these are described in Section 4.1.3.

### 4.1.3 Active Alarm Edit

When you click on the **Edit** button associated with any active alarm defined in the **Active Alarm List** page, or when you click **Apply** from the **Active Alarm Add** or **Active Alarm Copy** pages to create a new alarm, you reach the **Active Alarm Edit** page. The **Active Alarm Edit** page allows users to **Edit** active alarm parameters or to add an active alarm with many of the same parameters as the template active alarm using the **Copy** button. The alarm parameters are grouped under **Identification**, **Trigger**, **Acknowledgement**, and **Reset**.

#### Identification

**Table index:** Field can not be modified; it is assigned automatically when a record is added.

**Type:** Select the alarm type, see Table 4.1.1.

Table 4.1.1. Alarm Type Description

**Data Type** Description

Point Alarm triggered by alarm group criteria.

System Alarm triggered by system criteria such as **Data Collection Stopped**.

**State:** Select the alarm state from the pick list, see Table 4.1.2. Click **State:** button to

change the Alarm State Pick Details, see Section 4.9.2. View button displays the

**Alarm State Edit** page for the selected state, see Section 4.9.4. **List** button

displays the **Alarm State List** page, see Section 4.9.

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Active Alarm Edit	ок	Apply	Back	Сору	Delete		Bottom
* Required field ** Must be unio	que						
Identification =							
Table row: 5408							
* Type: Point 💌							
* State: ack 🔻 View	List						
Point: 1607 CIRBY CR	.@ LORI	ETTO Stre	am Gage	Float		•	View List
* Time: 12/02/2012 07	:36:27	MM/dd	/уууу НН:	mm:ss			
Trigger <sup>=</sup>							
Trigger: upper 142.7					√ View	List	
* Time: 12/02/2012 07	:36:27	MM/dd	/уууу НН:	mm:ss			
* Value: 142.77							
Message:							.::
Acknowledgement <sup>□</sup>							
Time: 12/02/2012 07:	36:42	MM/dd/	уууу нн:	mm:ss			
User: rob							
Message:							#
Reset <sup>□</sup>							
Time: 12/02/2012 13:	03:47	MM/dd/	уууу НН:	mm:ss			
Value: 142.14	Inte	erval: 0	seconds	•			
User:							
Active Alarm Edit	ок	Apply	Back	Сору	Delete		Тор

Figure 4.1.7. Active Alarm Edit

Table 4.1.2. Alarm State Description

Data Type	Description
Off	Alarm is no longer active because of acknowledgement and reset.
Active	Alarm is active.
Ack	Alarm has been acknowledged but not reset.
Hidden	Alarm is not displayed in active alarm list.
Reset	Alarm has been reset but not acknowledged.

**Point:** Select the point assigned to the active alarm from the pick list.

Click button to change the **Point Pick Details**, see Section 3.1.2.

**View** button displays the **Point Edit** page for the selected point, see Section 3.1.4.

**List** button displays the **Point List** page, see Section 3.1.

**Time:** Date and time the alarm was triggered. Use the date and time format displayed to

the right of the time field. Click the button to assign the current time.

Trigger

**Trigger:** Select the alarm trigger assigned to the active alarm from the pick list.

Click button to change the **Alarm Trigger Pick Details**, see Section 4.5.2. **View** button displays the **Alarm Trigger Edit** page for the selected point, see

Section 4.5.4.

**List** button displays the **Alarm Trigger List** page, see Section 4.5.

**Time:** Date and time of data report that triggered alarm. Use the date and time format

displayed to the right of the time field. Click the button to assign the current time.

**Value:** Point data scaled value or change in scaled value that triggered the alarm.

**Interval:** Time interval used to compute the change in scaled value that triggered the alarm.

Click the button to alternate between interval selection from a pick list or from

time interval fields.

**Message:** Message copied from trigger. Max: 1000 characters.

### Acknowledgement

The acknowledgement fields are set by the NovaStar 5 system when an alarm is acknowledged.

**Time:** Time alarm was acknowledged. Use the date and time format displayed to the

right of the time field. Click button to assign the current time.

**User:** Name of the user who acknowledged the alarm. Click button to assign your login

user name.

**Message:** Message entered by acknowledging user to describe any actions taken.

#### Reset

The reset fields are set by the NovaStar 5 system when an alarm is reset.

**Time:** Time alarm was reset. Use the date and time format displayed to the right of the

time field. Click button to assign the current time.

**Value:** Point data scaled value or change in scaled value that reset the alarm.

**Interval:** Time interval used to compute the change in scaled value that reset the alarm.

Click the button to alternate between interval selection from a pick list or from

time interval fields.

**User:** Name of user who reset the alarm. Click button to assign your login user name.

### 4.1.4 Active Alarm Delete

To delete an active alarm from the **Active Alarm List**, click **Edit** on that active alarm's row in the table and then click **Delete** from the **Active Alarm Edit** screen to view the **Active Alarm Delete** page. The **Active Alarm Delete** page prompts you to click the **Delete** button again to confirm that the active alarm should be deleted.

# 4.2 Historic Alarm Request

When you click on the **Historic Alarm List** menu command, the **Historic Alarm Request** page is displayed.

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Network mode	Historic Alarm Request OK Cancel Refresh Bottom
Home	
Stations	- - Select Display Time <sup>=</sup>
Points	
Alarms	Starting Time: January 🕶 1 🕶 2012 🕶 00:00 🛨 Reset Time
Active Alarm List	Ending Time: January ▼ 13 ▼ 2012 ▼ 14:00 ▼ Current ▼
Historic Alarm List	
Alarm Request	
Alarm Group List	Historic Alarm Request OK Cancel Refresh Top

Figure 4.2.1. Historic Alarm Request

**Starting Time:** Select the starting time for the historic alarm display. Click **Reset Time** to start

of day for ending time. Note: the starting time must be before the ending time.

**Ending Time:** Select the ending time for the historic alarm display. Select **Current** to set the ending time to the current time.

Click the **OK** button to display the historic alarms for the selected time period.

### 4.2.1 Historic Alarm List

The **Historic Alarm List** shows all the alarms that have been logged into the NovaStar 5 historic alarm database table for the time period selected by the **Historic Alarm Request** page. Clicking on any of the column heading buttons will reorder the historic alarms in the **Historic Alarm List**, numerically or alphabetically, by that detail. You can customize the appearance of the **Historic Alarm List** page using the **Choose details...** button to access the **Historic Alarm List Details** page, see Section 4.2.2.

System up	Histori	C Alarm List Choose details	Back Refres	sh	Bot	tom
Home	Point ID	Point Name	Trigger Name	Trigger Time	State	Add
Stations	1607	CIRBY CR.@ LORETTO Stream Gage Float	rise 1 in 1 hour	03/24/2011 13:17:25	off	Edit
Points	1607	CIRBY CR.@ LORETTO Stream Gage Float	upper 142.7	03/24/2011 13:17:25	off	Edit
Alarms	1626	CHAMPION OAKS Stream Gage PT (20.47ft)	upper 151	03/24/2011 14:29:48	off	Edit
Active Alarm List	1626	CHAMPION OAKS Stream Gage PT (20.47ft)	rise 1 in 1 hour	03/24/2011 14:29:48	off	Edit
Historic Alarm List	1607	CIRBY CR.@ LORETTO Stream Gage Float	upper 144.7	03/24/2011 14:51:07	off	Edit
Alarm Request	1626	CHAMPION OAKS Stream Gage PT (20.47ft)	upper 153	03/24/2011 16:00:03	off	Edit
* Alarm List	1554	Crocker Ranch Rd Stream Gage PT (20.47ft)	rise 1 in 1 hour	03/24/2011 16:05:09	off	Edit
Alarm Group List	1554	Crocker Ranch Rd Stream Gage PT (20.47ft)	upper 86	03/24/2011 16:50:23	off	Edit
Alarm Trigger List	297	Indian Cr.Rd. Precp Stream Gage PT (25.5ft)	upper 175	03/24/2011 16:56:29	off	Edit
Alarm Action List	297	Indian Cr.Rd. Precp Stream Gage PT (25.5ft)	rise 1 in 1 hour	03/24/2011 16:56:29	off	Edit
Alarm Pager List	1623	CIRBY CREEK @ TINA Stream Gage PT (20.47ft)	upper 129.3	03/24/2011 17:17:53	off	Edit
Data	1627	Saugsted Park Stream Gage PT (25.5ft)	upper 126.5	03/24/2011 17:49:36	off	Edit
Forecast	1623	CIRBY CREEK @ TINA Stream Gage PT (20.47ft)	upper 129.3	03/24/2011 18:18:03	off	Edit
System	1623	CIRBY CREEK @ TINA Stream Gage PT (20.47ft)	upper 129.3	03/24/2011 19:18:13	off	Edit
Users	1623	CIRBY CREEK @ TINA Stream Gage PT (20.47ft)	upper 129.3	03/24/2011 20:18:23	off	Edit
Tabular Data	1627	Saugsted Park Stream Gage PT (25.5ft)	upper 128.5	03/24/2011 22:19:36	off	Edit
Report Data	Historia	Alarm List	•			Тор
Plot Data	HISCOIN	- Aldrin List			_	.56

Figure 4.2.2. Historic Alarm List

A user might wish to create historic alarms to test the system or create examples for training or other purposes. Use the **Add** button at the upper right-hand corner of the **Historic Alarm List** table to create a new historic alarm using the **Historic Alarm Add** page. Or, click the **Edit** button associated with an existing historic alarm to use that historic alarm as a copy template for creating a new historic alarm. The **Copy** button provided on the template historic alarm's

**Historic Alarm Edit** page accesses the **Historic Alarm Copy** page and allows you to create a new historic alarm as described below.

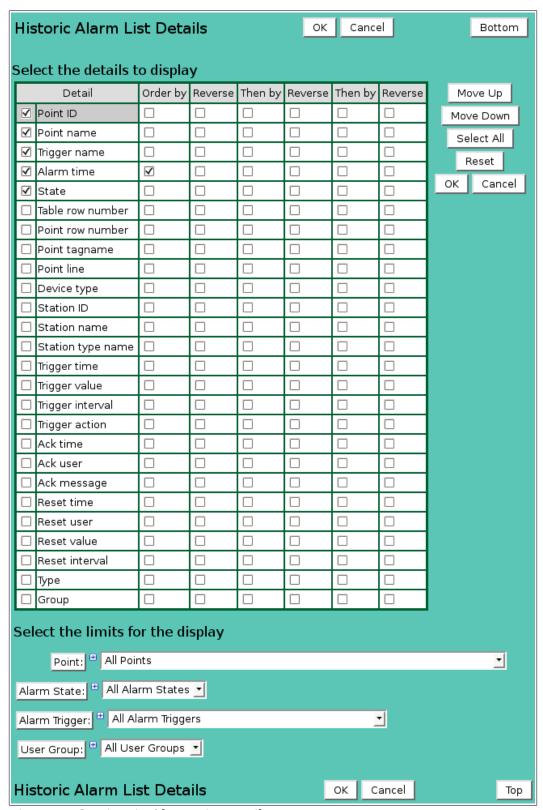


Figure 4.2.3. Historic Alarm List Details

#### 4.2.2 Historic Alarm List Details

The check boxes on **Historic Alarm List Details** page control the items, organization, sort order, and limit the records displayed on the List page.

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## Select the details to display

Check the box to the left of a detail to display. Details are displayed in the order shown.

Check the Order by box for the detail to sort first. Check Reverse for a descending sort.

Check the Then by box for the detail to sort second. Check Reverse for a descending sort.

Check the second Then by box for the detail to sort third. Check Reverse for a descending sort.

**Button** Action

Move Up Move the selected detail up one row.

Move Down Move the selected detail down one row.

Select All Select all details.

Reset Reset to default details.

OK Return to previous page with new details selected.

Cancel Return to previous page with no changes.

## Select the limits for the display

**Alarm Point:** Limit display to alarms assigned to the point(s). Click **Alarm Point:** button to change **Alarm Point Pick Details** and order.

**Button Action** 

Reset pick list to single select.

Decrease pick list length.Increase pick list length.

Expand pick list to multiple select.

Collapse pick list to single select.

Alarm Trigger: Limit display to alarms assigned to the alarm trigger(s). Click Alarm Trigger:

button to change Alarm Trigger Pick Details and order.

**Alarm States:** Limit display to alarms with selected alarm state.

**User Group:** Limit display to alarms assigned to the user group(s). Click **User Group:** button

to change **User Group Pick Details** and order.

## 4.2.3 Historic Alarm Add/Copy

The **Historic Alarm Add** page and the **Historic Alarm Copy** page allow users to create new historic alarms. They function in the same way. The **Historic Alarm Copy** page is most convenient when the new historic alarm will share several parameters with the template historic alarm. To access the **Historic Alarm Copy** page, click on the **Edit** button in the template historic alarm's row in the **Historic Alarm List** table. You will reach the **Historic Alarm Edit** page. Click on the **Copy** button to reach the **Historic Alarm Copy** page.

The **Historic Alarm Add/Copy** page(s) allow you to enter the new historic alarm parameters. The **Historic Alarm Edit** page provides the same input fields as the **Historic Alarm Add** and the **Historic Alarm Copy** pages, and these are described in Section 4.2.4.

### 4.2.4 Historic Alarm Edit

When you click on the **Edit** button associated with any historic alarm defined in the **Historic Alarm List** page, or when you click **Apply** from the **Historic Alarm Add** or **Historic Alarm Copy** pages to create a new alarm, you reach the **Historic Alarm Edit** page. The **Historic Alarm Edit** page allows users to **Edit** historic alarm parameters or to add an historic alarm with many of the same parameters as the template historic alarm using the **Copy** button. Historic alarm parameters are the same as active alarm parameters, see Section 4.1.3 for a description of these parameters.

## 4.2.5 Historic Alarm Delete

To delete an historic alarm from the **Historic Alarm List**, click **Edit** on that historic alarm's row in the table and then click **Delete** from the **Historic Alarm Edit** screen to view the **Historic Alarm Delete** page. The **Historic Alarm Delete** page prompts you to click the **Delete** button again to confirm that the historic alarm should be deleted.

Historic Ala	rm Edit	ок	Apply	Back	Сору	Delete		Bot	tom
* Required field	** Must be uni	que							
Identification	n =								
Table row:	5408								
* Type:	Point <u></u>								
* State:	off <u>▼</u> Viev	List							
Point:	1607 CIRBY CR	.@ LORE	TTO Stre	am Gage	Float			✓ View	List
* Time:	12/02/2012 07	:36:27	MM/dd	/уууу НН	:mm:ss				
Trigger <sup>=</sup>									
Trigger:	upper 142.7					√lew	List		
* Time:	12/02/2012 07	:36:27	MM/dd	/уууу НН	:mm:ss				
* Value:	142.77								
Message:									
									.::i
Acknowledge	ement =								
Time:	12/02/2012 07	:36:42	MM/dd/	уууу НН:	mm:ss				
User:	rob								
Message:									
									.::
Reset <sup>□</sup>									
Time:	12/03/2012 01	:36:00	MM/dd/	уууу НН:	mm:ss				
Value:	140	Inte	rval: 0 :	seconds	▼				
User:									
Historic Ala	rm Edit	ок	Apply	Back	Сору	Delete			Тор

Figure 4.2.4. Historic Alarm Edit

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## 4.3 Alarm Group List

When you click on the **Alarm Group List** menu command, you reach the **Alarm Group List** page. Alarm groups are used to organize database points that can be assigned similar alarm criteria. When you first begin to configure NovaStar 5, no alarm groups will appear on the **Alarm Group List** page. Click the **Add** button at the upper right-hand corner of the **Alarm Group List** table to define an alarm group using the **Alarm Group Add** page. See Section 4.3.3. You can also create a new alarm group based on an existing template alarm group using the **Alarm Group Copy** page. See Section 4.3.3.



Figure 4.3.1. Alarm Group List

The **Alarm Group List** shows all of the alarm groups currently defined in the NovaStar 5 system and can show details about each alarm. Clicking on any of the column heading buttons will reorder the alarm groups in the **Alarm Group List**, numerically or alphabetically, by that detail. You can customize the appearance of the **Alarm Group List** using the **Choose details...** button to access the **Alarm Group List Details** page, see Section 4.3.1.

### 4.3.1 Alarm Group List Details

The check boxes on **Alarm Group List Details** page control the items, organization, sort order, and limit the records displayed on the associated **List** page.

## Select the details to display

Check the box to the left of a detail to display. Details are displayed in the order shown.

Check the Order by box for the detail to sort first. Check Reverse for a descending sort.

Check the Then by box for the detail to sort second. Check Reverse for a descending sort.

Check the second Then by box for the detail to sort third. Check Reverse for a descending sort.

**Button** Action

Move the selected detail up one row. Move Up Move Down Move the selected detail down one row.

Select All Select all details.

Reset to default details. Reset

Return to previous page with new details selected. OK

Return to previous page with no changes. Cancel

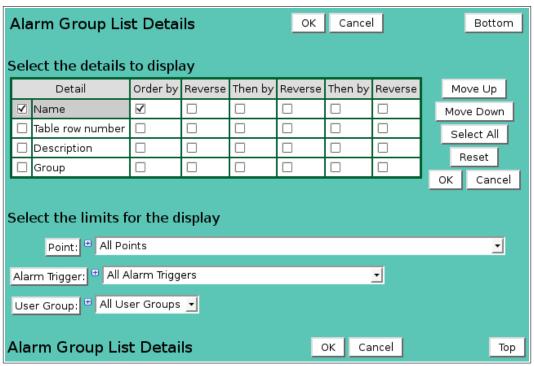


Figure 4.3.2. Alarm Group List Details

### Select the limits for the display

Point: Limit display to alarm groups assigned to the point(s). Click **Point:** button to change **Point Pick Details** and order.

#### **Button Action**

Reset pick list to single select. ⑸

1 Decrease pick list length.

⇩ Increase pick list length.

+Expand pick list to multiple select.

Collapse pick list to single select.

**Alarm Trigger:** Limit display to alarm groups assigned to the alarm trigger(s). Click **Alarm** 

**Trigger:** button to change **Alarm Trigger Pick Details** and order.

**User Group:** Limit display to alarm groups assigned to the user group(s). Click **User Group:** 

button to change User Group Pick Details and order.

### 4.3.2 Alarm Group Pick Detail

The check boxes on **Alarm Group Pick Details** page control the items, organization, sort order, and limit the records displayed on the pick list.

## Select the details to display

Check the box to the left of a detail to display. Details are displayed in the order shown. Check the Order by box for the detail to sort first. Check Reverse for a descending sort. Check the Then by box for the detail to sort second. Check Reverse for a descending sort.

**Page 150** A102722 Check the second Then by box for the detail to sort third. Check Reverse for a descending sort.

**Button** Action

Move Up Move the selected detail up one row.

Move Down Move the selected detail down one row.

Select All Select all details.

Reset to default details.

OK Return to previous page with new details selected.

Cancel Return to previous page with no changes.

## Select the limits for the display

**Point:** Limit display to alarm groups assigned to the point(s). Click **Point:** button to change **Point Pick Details** and order.

#### **Button Action**

Reset pick list to single select.

Decrease pick list length.

Increase pick list length.

Expand pick list to multiple select.

Collapse pick list to single select.

Alarm Trigger: Limit display to alarm groups assigned to the alarm trigger(s). Click Alarm

**Trigger:** button to change **Alarm Trigger Pick Details** and order.

**User Group:** Limit display to alarm groups assigned to the user group(s). Click **User Group:** 

button to change User Group Pick Details and order.



Figure 4.3.3. Alarm Group Pick Detail

## 4.3.3 Alarm Group Add/Copy

The **Alarm Group Add** page and the **Alarm Group Copy** page allow users to create new alarm groups. They function in the same way. The **Alarm Group Copy** page is most convenient when the new alarm group will share points and triggers from the template alarm group. To access the **Alarm Group Copy** page, click on the **Edit** button in the template alarm group's row in the

**Alarm Group List** table. You will reach the **Alarm Group Edit** page. Click on the **Copy** button to reach the **Alarm Group Copy** page.

The **Alarm Group Add/Copy** page(s) prompt you to enter the new alarm group name that is unique to the NovaStar5 system. The **Alarm Group Edit** page provides the same input fields as the **Alarm Group Add** and the **Alarm Group Copy** pages, and these are described in Section 4.3.4.

## 4.3.4 Alarm Group Edit

When you click on the **Edit** button associated with any alarm group defined in the **Alarm Group List**, or when you click **Apply** from the **Alarm Group Add** or **Alarm Group Copy** pages to create a new alarm group, you reach the **Alarm Group Edit** page. The alarm group parameters that are edited or input using the **Alarm Group Edit** page are grouped under **Identification**, **Point List**, and **Alarm trigger list** headings.

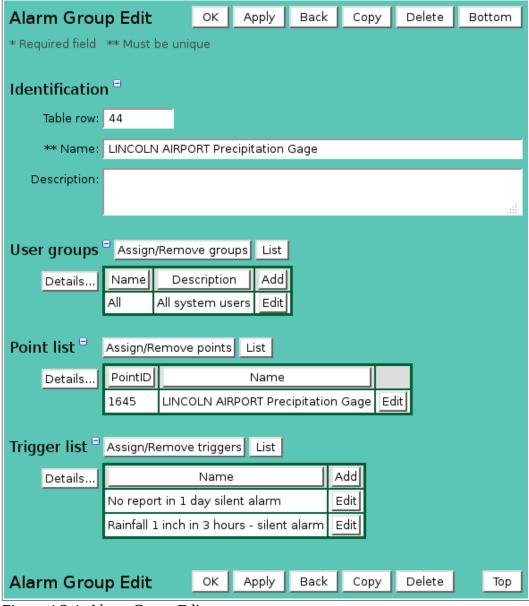


Figure 4.3.4. Alarm Group Edit

#### Identification

**Table index:** Field can not be modified; it is assigned automatically when a record is added.

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**Name:** Alarm group name. Max: 100 characters.

**Description:** Enter additional information describing alarm group. Max: 1000 characters.

## User groups

The **User groups** table shows the user groups currently assigned to the alarm group. Clicking on any of the column heading buttons will reorder the user groups in the **User groups List**, numerically or alphabetically, by that detail. Click **Details:** button to change the User Group List details and display order, see Section 10.3.1. Click **Assign/Remove groups** button to open **User Group Assignment** window, see Section 10.3.3. Changes made to user group assignments will update this page when the assignment window is closed. Click **List** button to show all user groups, see Section 10.3. Click **Add** button to add a user group, see Section 10.3.4. Click **Edit** button to edit the user group, see Section 10.3.5.

#### Point list

The **Point list** table shows all the points currently associated with the alarm group and can show details about each point. Clicking on any of the column heading buttons will reorder the points in the **Point list**, numerically or alphabetically, by that detail. Click the **Details:** button to change the **Alarm Group Point List** details and display order, see Section 3.1.1. Click **Assign/Remove points** button to open **Alarm Group Point Assignment** window, see Section 4.3.5. Changes made to point assignments will update this page when the assignment window is closed. Click **List** button to show all points, see Section 3.1. Click on the **Edit** button on any alarm trigger's row in the **Point list** table to view or edit the defining attributes of that point on its **Point Edit** page. The **Point Edit** page is described in Section 3.4.

## Trigger list

The **Trigger list** shows all the alarm triggers currently associated with the alarm group and can show details about each alarm. Clicking on any of the column heading buttons will reorder the alarm triggers in the **Trigger list**, numerically or alphabetically, by that detail. Click the **Details:** button to change the **Alarm Group Trigger List** details and display order, see Section 4.5. Click **Assign/Remove triggers** button to open **Alarm Group Trigger Assignment** window, see Section 4.3.6. Changes made to trigger assignments will update this page when the assignment window is closed. Click **List** button to show all alarm triggers, see Section 4.5.1. Click the **Add** button at the right side of the **Trigger list** table to access the **Alarm Trigger Add** page. See Section 4.5.3. The **Alarm Trigger Add** page can be used to create a alarm trigger, but you must click **OK** to return to the **Alarm Group Edit** screen to assign the alarm trigger to the alarm group. Click on the **Edit** button on any alarm trigger's row in the **Trigger list** table to view or edit the defining attributes of that alarm trigger on its **Alarm Trigger Edit** page. The **Alarm Trigger Edit** page is described in Section 4.5.4.

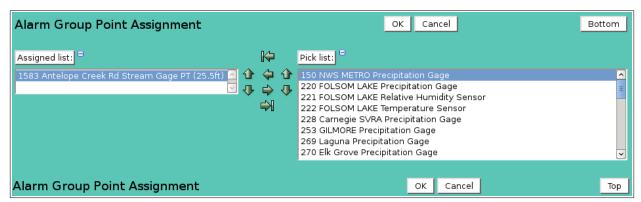


Figure 4.3.5. Alarm Group Point Assignment

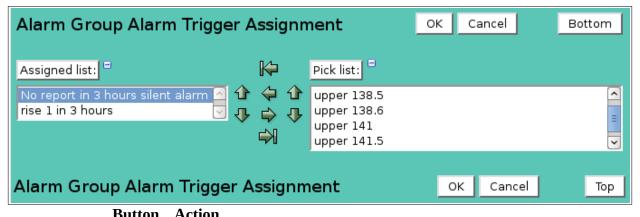
### 4.3.5 Alarm Group Point Assignment

The **Alarm Group Point Assignment** window is opened when the **Assign/Remove points** button is clicked. The window is divided into two lists, the *Assigned list* and the *Pick list*. The points available for assignment are shown in the *Pick list*. Click on the arrow buttons to move points from the *Pick list* to the *Assigned list* add assignments. Click on the arrow buttons to move points from the *Assigned list* to the *Pick list* remove assignments. Click the **OK** button to save the assignment changes and close the window. Click **Cancel** to abandone changes and close the window. Click either the *Assigned list* or *Pick list* buttons to change **Alarm Group Point Pick Details** and order, see Section 3.1.3.

Button	Action
H	Move all from pick list to assigned list.
<b>\( \rightarrow</b>	Move from pick list to assigned list.
$\Rightarrow$	Move from assigned list to pick list.
$\Rightarrow$	Move all from assigned list to pick list.
<b>û</b>	Decrease pick list length.
₽	Increase pick list length.
+	Expand pick list to multiple select.
	Collapse pick list to single select.

## 4.3.6 Alarm Group Trigger Assignment

The **Alarm Group Trigger Assignment** window is opened when the **Assign/Remove triggers** button is clicked. The window is divided into two lists, the *Assigned list* and the *Pick list*.



Dutton	ACUOII
H	Move all from pick list to assigned list.
<b>\( \rightarrow</b>	Move from pick list to assigned list.
$\Rightarrow$	Move from assigned list to pick list.
$\Rightarrow$	Move all from assigned list to pick list.
1	Decrease pick list length.
₽	Increase pick list length.
+	Expand pick list to multiple select.
$oldsymbol{\exists}$	Collapse pick list to single select.

### 4.3.7 Alarm Group Delete

To delete an alarm group from the **Alarm Group List**, click **Edit** on that alarm group's row in the table and then click **Delete** from the **Alarm Group Edit** screen to view the **Alarm Group Delete** page. The **Alarm Group Delete** page prompts you to click the **Delete** button again to confirm that the alarm group should be deleted.

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#### 4.4 Alarm Point List

When you click on the **Alarm Point List** menu command, you reach the **Alarm Point List** page. The alarm point list displays the alarm groups and alarm triggers assigned to points. Click the **Add** button at the upper right-hand corner of the **Alarm Point List** table to define an alarm trigger using the **Alarm Trigger Add** page. See Section 4.5.3. You can also create a new alarm trigger based on an existing alarm trigger using the **Alarm Trigger Copy** page. See Section 4.5.3.



Figure 4.4.1. Alarm Point List

Clicking on any of the column heading buttons will reorder the alarm triggers in the **Alarm Point List** page, numerically or alphabetically, by that detail. Click on the **Edit** button on any alarm trigger's row in the **Alarm Point List** table to view or edit the defining attributes of that alarm trigger on the **Alarm Trigger Edit** page.

You can customize the appearance of the **Alarm Point List** using the **Choose details...** button to access the **Alarm Point List Details** page.

## 4.4.1 Alarm Point List Details

The check boxes on **Alarm Point List Details** page control the items, organization, sort order, and limit the records displayed on the associated **List** page.

## Select the details to display

Check the box to the left of a detail to display. Details are displayed in the order shown.

Check the Order by box for the detail to sort first. Check Reverse for a descending sort.

Check the Then by box for the detail to sort second. Check Reverse for a descending sort.

Check the second Then by box for the detail to sort third. Check Reverse for a descending sort.

Alarm Point List Details					Cancel		Bottom
Select the details to	_			_		_	
Detail	Order by		-		Then by		
Point ID	<b>V</b>						Move Down
☑ Name							Select All
✓ Alarm group name							Reset
✓ Alarm trigger name  □ Table row number							OK Cancel
☐ Tagname ☐ Line							
☐ Remote ID							
☐ Point type ☐ Station ID							
Station name							
☐ Station type							
☐ Station type							
Station remote tag					П		
☐ Alarm group row							
☐ Alarm trigger row							
Group							
							•
Select the limits fo	r the dis	play					
Station: All Stat	ions			-1			
Point type: 🖰 All Poin	t Types		▼				
Point: 🖰 All Poin	ts					▼	
Alarm Group: All Alarm Groups							
Alarm Trigger:   All Alarm Triggers							
User Group: All Use	r Groups ַ	·					
Alarm Point List I	Details			Ok	Can	cel	Тор

Figure 4.4.2. Alarm Point List Details

**Button** Action

Move Up Move the selected detail up one row.

Move Down Move the selected detail down one row.

Select All Select all details.

Reset Reset to default details.

OK Return to previous page with new details selected.

Cancel Return to previous page with no changes.

# Select the limits for the display

**Station:** Limit display to alarm point alarms assigned to the station(s). Click **Station:** 

button to change **Station Pick Details** and order.

**Button Action** 

• Reset pick list to single select.

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Decrease pick list length.Increase pick list length.

Expand pick list to multiple select.

Collapse pick list to single select.

**Point type:** Limit display to alarm point triggers assigned to the point type(s). Click **Point** 

**type:** button to change **Point Type Pick Details** and order.

**Point:** Limit display to alarm point triggers assigned to the point(s). Click **Point:** button

to change Point Pick Details and order.

**Alarm Group:** Limit display to point triggers assigned to the alarm group(s). Click **Alarm** 

Group: button to change Alarm Group Pick Details and order.

**Alarm Trigger:** Limit display to point triggers assigned to the alarm trigger(s). Click **Alarm** 

Trigger: button to change Alarm Trigger Pick Details and order.

**User Group:** Limit display to point triggers assigned to the user group(s). Click **User Group:** 

button to change **User Group Pick Details** and order.

## 4.5 Alarm Trigger List

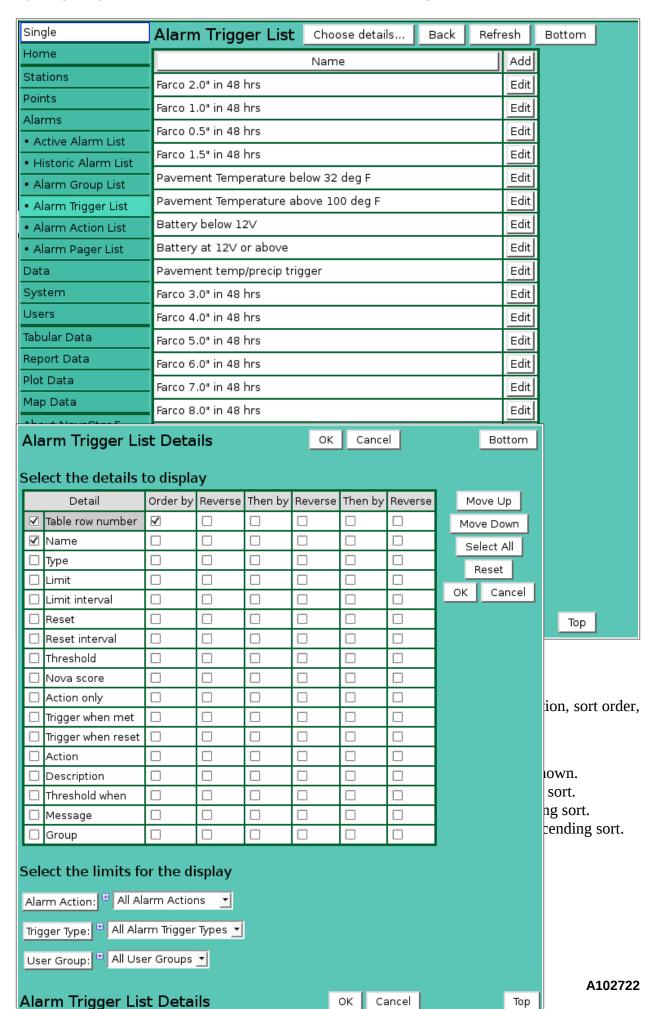
Alarm triggers are the criteria developed by users to define when NovaStar 5 will activate an alarm and associated alarm actions in response to incoming data. The development of appropriate alarm triggers requires judgment and may be altered in response to experience and to accommodate the requirements of emergency responders. The ideal alarm triggers do not create frequent nuisance alarms when circumstances do not warrant response, but also do not fail to provide notification when appropriate. Due to variations in the relationship between monitored data values and the outcomes of interest, it can be difficult to find the correct balance in alarm trigger criteria. For example, precipitation monitoring that strives to provide early warning of potential flooding relies on data reports of measured rainfall at monitored locations. The relationship between that data and actual flooding can be determined after the fact, but is the result of the combination of rainfall distribution (both in space and over time), antecedent ground conditions, rainfall intensity, and flood routing characteristics of the watershed. Not all of these variables have a simple relationship to the monitored data.

Multiple alarm triggers can be assigned to an alarm group. For example, typically an alarm group of precipitation data points are configured to provide alarm notification in the event of heavy rain, but also when data reports are not being received or polled on the expected schedule, etc.

When you click on the **Alarm Trigger List** menu command, you reach the **Alarm Trigger List** page. When you first begin to configure NovaStar 5, no alarm triggers will appear on the **Alarm Trigger List** page. Click the **Add** button at the upper right-hand corner of the **Alarm Trigger List** table to define an alarm trigger using the **Alarm Trigger Add** page. See Section 4.5.3. You can also create a new alarm trigger based on an existing template alarm trigger using the **Alarm Trigger Copy** page. See Section 4.5.3.

The **Alarm Trigger List** shows all of the alarm triggers currently defined in the NovaStar 5 system and can show details about each alarm. Clicking on any of the column heading buttons will reorder the alarm triggers in the **Alarm Trigger List** page, numerically or alphabetically, by that detail. Click on the **Edit** button on any alarm trigger's row in the **Alarm Trigger List** table to view or edit the defining attributes of that alarm trigger on the **Alarm Trigger Edit** page.

You can customize the appearance of the **Alarm Trigger List** using the **Choose details...** button to access the **Alarm Trigger List Details** page.



**Button** Action

Move Up Move the selected detail up one row.

Move Down Move the selected detail down one row.

Select All Select all details.

Reset Reset to default details.

OK Return to previous page with new details selected.

Cancel Return to previous page with no changes.

## Select the limits for the display

Alarm Action: Limit display to alarm triggers assigned to the alarm action(s). Click Alarm

Action: button to change Alarm Action Pick Details and order.

**Button Action** 

Reset pick list to single select.
 Decrease pick list length.
 Increase pick list length.

Increase pick list length.
Expand pick list to multiple select.
Collapse pick list to single select.

**Trigger Type:** Limit display to alarm triggers assigned to the alarm trigger type(s). Click

**Trigger Type:** button to change **Alarm Trigger Type Pick Details** and order.

**User Group:** Limit display to alarm triggers assigned to the user group(s). Click **User Group:** 

button to change User Group Pick Details and order.

## 4.5.2 Alarm Trigger Pick Detail

The check boxes on **Alarm Trigger Pick Details** page control the items, organization, sort order, and limit the records displayed on the pick list.

## Select the details to display

Check the box to the left of a detail to display. Details are displayed in the order shown. Check the Order by box for the detail to sort first. Check Reverse for a descending sort. Check the Then by box for the detail to sort second. Check Reverse for a descending sort. Check the second Then by box for the detail to sort third. Check Reverse for a descending sort.

**Button** Action

Move Up Move the selected detail up one row.

Move Down Move the selected detail down one row.

Select All Select all details.

Reset to default details.

OK Return to previous page with new details selected.

Cancel Return to previous page with no changes.

Alarm Trigger Pi	ОК	Canc	el	Bottom			
Select the details to display							
Detail	Order by	Reverse	Then by	Reverse	Then by	Reverse	Move Up
✓ Name	✓						Move Down
□ Туре							Select All
☐ Limit							Reset
☐ Limit interval							
Reset							OK Cancel
☐ Reset interval							
☐ Threshold							
☐ Nova score							
☐ Action only							
☐ Trigger when met							
☐ Trigger when reset							
☐ Table row number							
Select the limits for the display  Alarm Action:   All Alarm Actions							
Trigger Type:   All Alarm Trigger Types   Trigger Types							
User Group: # All Use	er Groups	•					
Alarm Trigger Pic	k Deta	ils			ок с	ancel	Тор

Figure 4.5.3. Alarm Trigger Pick Details

## Select the limits for the display

**Alarm Action:** Limit display to alarm triggers assigned to the alarm action(s). Click **Alarm Action:** button to change **Alarm Action Pick Details** and order.

#### **Button Action**

Reset pick list to single select.

Decrease pick list length.

increase pick list length.

Expand pick list to multiple select.

Collapse pick list to single select.

**Trigger Type:** Limit display to alarm triggers assigned to the alarm trigger type(s). Click

**Trigger Type:** button to change **Alarm Trigger Type Pick Details** and order.

**User Group:** Limit display to alarm triggers assigned to the user group(s). Click **User Group:** 

button to change **User Group Pick Details** and order.

## 4.5.3 Alarm Trigger Add/Copy

The **Alarm Trigger Add** page and the **Alarm Trigger Copy** page allow users to create new alarm triggers. They function in the same way. The **Alarm Trigger Copy** page is most convenient when the new alarm trigger will share several parameters with the template alarm trigger. To access the **Alarm Trigger Copy** page, click on the **Edit** button in the template alarm trigger's row in the **Alarm Trigger List** table. You will reach the **Alarm Trigger Edit** page. Click on the **Copy** button to reach the **Alarm Trigger Copy** page.

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The **Alarm Trigger Add** /**Copy** page(s) allow you to enter the new alarm trigger parameters. The **Alarm Trigger Edit** page provides the same input fields as the **Alarm Trigger Add** and the **Alarm Trigger Copy** pages, and these are described in Section 4.5.4.

## 4.5.4 Alarm Trigger Edit

When you click on the **Edit** button associated with any alarm trigger defined in the **Alarm Trigger List**, or when you click **Apply** from the **Alarm Trigger Add** or **Alarm Trigger Copy** pages to create a new alarm trigger, you reach the **Alarm Trigger Edit** page. The alarm trigger parameters that are edited or input using the **Alarm Trigger Edit** page are described here.

Alarm Trigg	er Edit	ОК	Apply	Back	Сору	Delete	Bottom
* Required field	** Must be u	nique					
Identification	n =						
Table row:	1						
** Name:	Rainfall 2 inc	hes in 1	hour				
Description:							
							.::
User groups	Assign/Ren	nove gro	ups List				
Details		scription roups	Add Edit				

Figure 4.5.4. Alarm Trigger Edit Identification

## Identification

**Table index:** Field can not be modified; it is assigned automatically when a record is added.

**Name:** Alarm trigger name. Max: 100 characters.

**Description:** Enter additional information describing alarm trigger. Max: 1000 characters.

## User groups

The **User groups** table shows the user groups currently assigned to the alarm trigger. Clicking on any of the column heading buttons will reorder the user groups in the **User groups List**, numerically or alphabetically, by that detail. Click **Details:** button to change the User Group List details and display order, see Section 10.3.1. Click **Assign/Remove groups** button to open **User Group Assignment** window, see Section 10.3.3. Changes made to user group assignments will update this page when the assignment window is closed. Click **List** button to show all user groups, see Section 10.3. Click **Add** button to add a user group, see Section 10.3.4. Click **Edit** button to edit the user group, see Section 10.3.5.

Limits =				
* Type:	rise 🛨	View List		
Limit:	2	Interval:	1 hour	▼
Reset:	0	Interval:	1 hour	<b>T</b>
Threshold:	0	When:	none	•

Figure 4.5.5. Alarm Trigger Edit Limits

#### Limits

Type:

Select alarm trigger type from pick list. The NovaStar 5 system provides nine alarm trigger types that are described in Section 4.6. Click button to change the **Alarm Trigger Type Pick Details**, see Section 4.6.2. **View** button displays the **Alarm Trigger Type Edit** page for the selected alarm trigger type, see Section 4.6.4. **List** button displays the **Alarm Trigger Type List** page, see Section 4.6.

If you change the selection in the **Type** drop-down list, the trigger parameter fields displayed will change to match the alarm trigger type.

Limit:

Numeric value at which an alarm will activate.

**Interval:** 

For rate-of-change alarm trigger types (rise or fall), you must also enter the interval. The alarm is activated when a new data report stored in the database changes by at least the alarm limit over the specified time period interval. No report (norpt) interval alarm trigger types only show the **Interval** field. Click the button to alternate between interval selection from a pick list or from time interval fields.

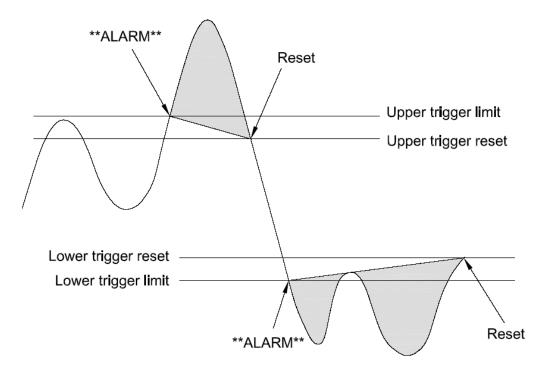
Reset:

Numeric value at which an alarm will reset.

**Interval:** 

For rate-of-change alarm trigger types (rise or fall), you must also enter the interval. The alarm is reset when a new data report stored in the database changes by at least the reset limit over the specified time period interval. Click the button to alternate between interval selection from a pick list or from time interval fields.

A **Reset** value is entered to prevent minor fluctuations near the alarm limit from producing nuisance alarms for alarms using upper and lower limit criteria. An alarm remains active until the reset value is crossed by new data stored in the database. If the reset value is blank or equal to the limit, any value below the limit causes a reset. No report (norpt) interval alarm trigger types do not have reset values or intervals. Figure 4.5.5 demonstrates the use of reset values.



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Figure 4.5.6. Alarm Trigger Limit and Alarm Reset Logic

**Threshold:** This value is entered for rate-of-change alarm trigger types (rise or fall). When a threshold is set, the new data value must meet or cross the threshold value before this alarm checking is done.

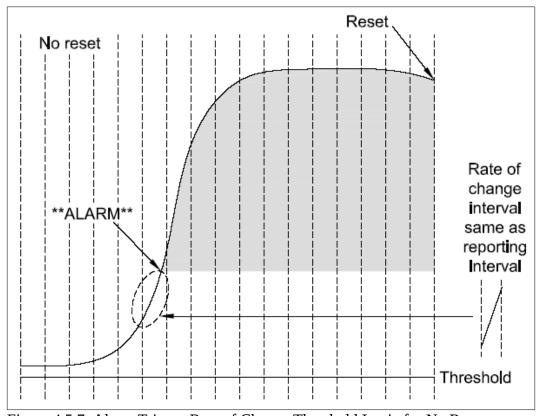


Figure 4.5.7. Alarm Trigger Rate of Change Threshold Logic for No Reset

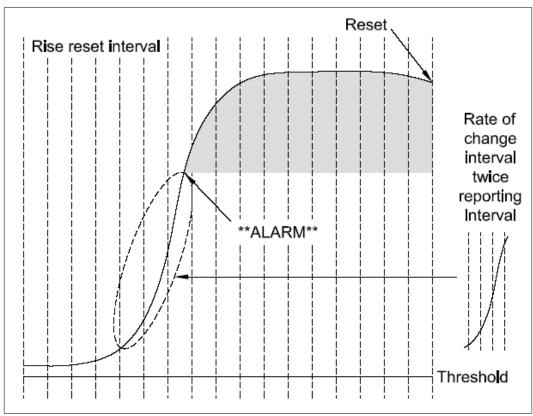


Figure 4.5.8. Alarm Trigger Rate of Change Threshold Logic for Rise Reset Interval

When:

Direction threshold must be passed. *none*: no threshold used; *at or above*: value must meet or rise above threshold; *above*: value must rise above threshold. *at or below*: value must meet or fall below threshold; *below*: value must fall below threshold.

Rise and fall alarm checking does not compute rate of change from the last report to the new report. It checks the change in value over the time period. Rise and fall alarms must specify the period over which the change is checked. A greater change and longer interval acts as a filter to prevent smaller fluctuations from sounding alarms. The alarm is reset when the data value drops by the reset limit over the reset interval. If the reset is zero (0) or blank, any decrease in the data value will cause a reset. Figure 4.5.6 shows the relationship between the threshold value and the alarm reset function.

Actions <sup>□</sup>	
Nova score: 3 Significant hydrologic activity 🗾 Edit List	
Hidden: salse <u>▼</u>	
When met: true ▼ When reset: false ▼	
Message:	
	::

Figure 4.5.9. Alarm Trigger Edit Actions

#### Actions

Nova Score:

Select nova score from pick list to assign to data reports meeting alarm trigger criteria. Click button to change the **Nova Score Pick Details**, see Section 9.3.2. **View** button displays the **Nova Score Edit** page for the selected nova score, see Section 9.3.3. **List** button displays the **Nova Score List** page, see Section 9.3.

A nova score can be assigned to an alarm trigger to help categorize the alarm trigger based upon a judgment about the relative severity of the data report values that trigger the alarm. The nova score value is stored with the data report value and can be used to highlight data values in reports and on maps. The higher the nova score value, the "hotter" the background color. The **View** button to the left of the drop-down list accesses the **Nova Score Edit** page, while the **List** button accesses the **Nova Score List**, see Section 9.3.

Hidden:

Select *true* to prevent NovaStar 5 from displaying this alarm and setting the alarm flag in the data report. This is useful when alarm triggers are used to set nova score values, control a map display LED, or export data. Displaying these alarms makes it time consuming to search for significant alarms. Hidden alarms can be displayed in the **Historic Alarm List** by selecting the *hidden* alarm state detail.

**When met:** Select *true* to execute alarm actions when alarm criteria are met. **When reset:** Select *true* to execute alarm actions when alarm criteria are reset.

**Message:** A message can be entered that will be included when alarm notifications occur as

a result of the associated alarm trigger. Max: 1000 characters.

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Figure 4.5.10. Alarm Trigger Edit Action List

#### **Action list**

The **Action l**ist shows all the alarm actions currently associated with the alarm trigger and can show details about each alarm action. Clicking on any of the column heading buttons will reorder the alarm actions in the Action list, numerically or alphabetically, by that detail. Click the **Details:** button to change the Alarm **Trigger** Action List details and display order, see Section 4.7.1. Click **Assign/Remove actions** button to open **Alarm Trigger Action Assignment** window, see Section 4.5.5. Changes made to action assignments will update this page when the assignment window is closed. Click **List** button to show all alarm actions, see Section 4.7.1. Click the **Add** button at the right side of the **Action list** table to access the **Alarm Action Add** page. See Section 4.7.3. The **Alarm Action Add** page can be used to create an alarm action, but you must click **OK** to return to the **Alarm Trigger Edit** screen to assign the alarm action to the alarm trigger. Click on the Edit button on any alarm action's row in the Action list table to view or edit the parameters of that alarm action on its Alarm Action Edit page, see Section 4.7.4.

## 4.5.5 Alarm Trigger Action Assignment

The **Alarm Trigger Action Assignment** window is opened when the **Assign/Remove actions** button is clicked. The window is divided into two lists, the *Assigned list* and the *Pick list*. The actions available for assignment are shown in the *Pick list*. Click on the arrow buttons to move actions from the *Pick list* to the *Assigned list* add assignments. Click on the arrow buttons to move actions from the *Assigned list* to the *Pick list* remove assignments.

Click the **OK** button to save the assignment changes and close the window. Click **Cancel** to abandone changes and close the window. Click either the *Assigned list* or *Pick list* buttons to change **Alarm Trigger Action Pick Details** and order, see Section 4.7.2.



Figure 4.5.11. Alarm Trigger Action Assignment

Button	Action
H	Move all from pick list to assigned list.
<b>4</b>	Move from pick list to assigned list.
$\Rightarrow$	Move from assigned list to pick list.
	Move all from assigned list to pick list.
<b>1</b>	Decrease pick list length.
₽	Increase pick list length.
$\pm$	Expand pick list to multiple select.
8	Collapse pick list to single select.

Alarm trigger test =							
	Point:	1015 Yellow Pine Precipitation Gage	✓ View				
		Test					

Figure 4.5.12. Alarm Trigger Edit Trigger Test

## **Alarm Trigger Test**

The alarm trigger can be tested by triggering an alarm for the point selected.

**Point:** Select point for the alarm trigger test from the pick list.

Click button to change **Point Pick Details** and order, see Section 3.1.2.

**View** button displays the **Point Edit** page for the selected point, see Section 3.1.4.

Click the **Test** button to trigger the test alarm.

### 4.5.6 Alarm Trigger Delete

To delete an alarm trigger from the **Alarm Trigger List**, click **Edit** on that alarm trigger's row in the table and then click **Delete** from the **Alarm Trigger Edit** screen to view the **Alarm Trigger Delete** page. The **Alarm Trigger Delete** page prompts you to click the **Delete** button again to confirm that the alarm trigger should be deleted.

## 4.6 Alarm Trigger Type List

An *alarm trigger type* specifies the type of criteria that will be used to evaluate data for an alarm condition. Alarm trigger types prepare NovaStar 5 to evaluate data for the kinds of changes that would indicate a need to activate an alarm. For most users, the alarm trigger types preloaded into NovaStar 5 will be sufficient to include all of the possibilities associated with checking incoming data streams for alarm conditions. Although the creation of additional alarm trigger types is unnecessary, NovaStar 5 allows users to rename the alarm trigger types to either reflect the use of a different language or so that the alarm trigger type names are easy to remember. The available alarm trigger types are described in Table 4.6.1. below.

Table 4.6.1. Alarm Trigger Type Descriptions

Alarm Trigger Type	Description
Upper	Limit alarm activates when data meets or exceeds the upper
	limit value
Lower	Limit alarm activates when data meets or falls below the
	lower limit value
Rise	Alarm activates when data value rises by limit over period
Fall	Alarm activates when data value falls by limit over period
Norpt	Alarm activates when data does not report within period
At	Alarm activates when a data value matches the value
System	Alarm activates when NovaStar 5 detects a system failure.
	System alarms are not related to point report values. They are
	used by the NovaStar 5 system to alert you when a data
	collection port or backup computer system problem is
	encountered.
Rptcnt	Alarm activates when report count over period is met

**Trigger Type List** display button is found on the **Alarm Trigger Edit** page under the **Alarms** heading in the command menu of the *Registered user Home page*. When you click on the

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**Trigger Type List** option, the **Alarm Trigger Type List** page is displayed. The **Edit** button at the right side of each alarm trigger type in the **Alarm Trigger Type List** can be used to access the **Alarm Trigger Type Edit** page to alter the nomenclature associated with the alarm trigger type numbers that are used by the NovaStar 5 system.

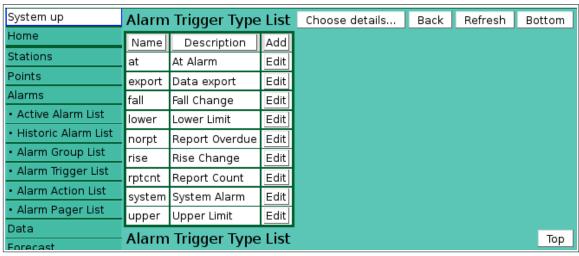


Figure 4.6.1. Alarm Trigger Type List

The **Alarm Trigger Type List** shows all of the alarm trigger types that are predefined for your system. Clicking on any of the column heading buttons will reorder the alarm trigger types in the **Alarm Trigger Type List**, numerically or alphabetically, by that detail. You can customize the appearance of the **Alarm Trigger list** using the **Choose Details...** button to access the **Alarm Trigger List Details** page, see Section 4.6.1.

Although you can use the **Add** button at the upper right-hand corner of the **Alarm Trigger Type List** page to access the **Alarm Trigger Type Add** page and create new alarm trigger types, the NovaStar 5 system is not configured to utilize alarm trigger types beyond those that have been predefined.

To delete an alarm trigger type from the **Alarm Trigger Type List**, click the **Edit** button on that alarm trigger type's row in the table to access the **Alarm Trigger Type Edit** page. Click on the **Delete** button to view the **Alarm Trigger Type Delete** page. You will be prompted to confirm that you wish to delete the alarm trigger type by clicking on the **Delete** button again. Deleting predefined alarm trigger types is not recommended. You cannot delete an alarm trigger type that is assigned to an alarm trigger.

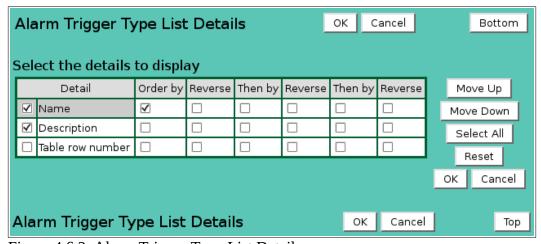


Figure 4.6.2. Alarm Trigger Type List Details

## 4.6.1 Alarm Trigger Type List Details

The check boxes on **Alarm Trigger Type List Details** page control the items, organization, sort order, and limit the records displayed on the associated **List** page.

## Select the details to display

Check the box to the left of a detail to display. Details are displayed in the order shown.

Check the Order by box for the detail to sort first. Check Reverse for a descending sort.

Check the Then by box for the detail to sort second. Check Reverse for a descending sort.

Check the second Then by box for the detail to sort third. Check Reverse for a descending sort.

**Button** Action

Move Up Move the selected detail up one row.

Move Down Move the selected detail down one row.

Select All Select all details.

Reset to default details.

OK Return to previous page with new details selected.

Cancel Return to previous page with no changes.

## 4.6.2 Alarm Trigger Type Pick Detail

The check boxes on **Alarm Trigger Type Pick Details** page control the items, organization, sort order, and limit the records displayed on the pick list.



Figure 4.6.3. Alarm Trigger Type Pick Details

### Select the details to display

Check the box to the left of a detail to display. Details are displayed in the order shown.

Check the Order by box for the detail to sort first. Check Reverse for a descending sort.

Check the Then by box for the detail to sort second. Check Reverse for a descending sort.

Check the second Then by box for the detail to sort third. Check Reverse for a descending sort.

**Button** Action

Move Up Move the selected detail up one row.

Move Down Move the selected detail down one row.

Select All Select all details.

Reset to default details.

OK Return to previous page with new details selected.

Cancel Return to previous page with no changes.

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#### 4.7 Alarm Action List

An *alarm action* describes a response that the NovaStar 5 system can execute in association with an active alarm. Each alarm action is assigned a number that is used internally by the NovaStar 5 system to implement specific processes assigned to specific trigger types. When you click on the **Alarm Action List** menu subcommand, the **Alarm Action List** page is displayed. The **Alarm Action List** shows all of the alarm actions that are predefined for your system. Clicking on any of the column heading buttons will reorder the alarm action types in the **Alarm Action List**, numerically or alphabetically, by that detail. The **Choose details...** button allows you to specify what information is displayed by the **Alarm Action List** page using the **Alarm Action List Details** page, see Section 4.7.1.

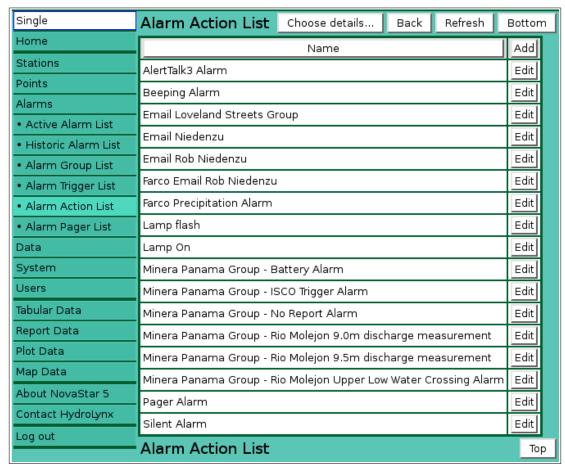


Figure 4.7.1. Alarm Action List

#### 4.7.1 Alarm Action List Details

The check boxes on **Alarm Action List Details** page control the items, organization, sort order, and limit the records displayed on the associated **List** page.

### Select the details to display

Check the box to the left of a detail to display. Details are displayed in the order shown.

Check the Order by box for the detail to sort first. Check Reverse for a descending sort.

Check the Then by box for the detail to sort second. Check Reverse for a descending sort.

Check the second Then by box for the detail to sort third. Check Reverse for a descending sort.

**Button** Action

Move Up Move the selected detail up one row.

Move Down Move the selected detail down one row.

Select All Select all details.

Reset to default details.

OK Return to previous page with new details selected.

Cancel Return to previous page with no changes.

## Select the limits for the display

**Alarm Contact:** Limit display to alarm actions assigned to the alarm contact(s). Click **Alarm Contact:** button to change **Alarm Contact Pick Details** and order.

## **Button Action**

Reset pick list to single select.

Decrease pick list length.

Increase pick list length.

Expand pick list to multiple select.

Collapse pick list to single select.

**User Group:** Limit display to alarm actions assigned to the user group(s). Click **User Group:** button to change **User Group Pick Details** and order.

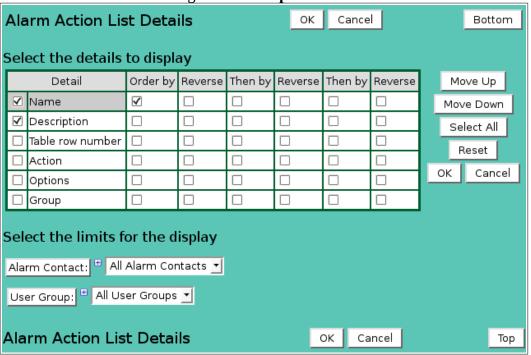


Figure 4.7.2. Alarm Action List Details

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#### 4.7.2 Alarm Action Pick Detail

The check boxes on **Alarm Action Pick Details** page control the items, organization, sort order, and limit the records displayed on the pick list.

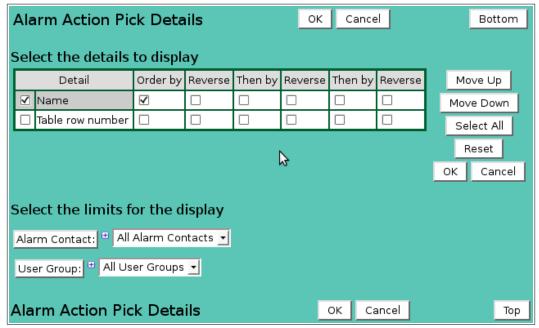


Figure 4.7.3. Alarm Action Pick Details

## Select the details to display

Check the box to the left of a detail to display. Details are displayed in the order shown.

Check the Order by box for the detail to sort first. Check Reverse for a descending sort.

Check the Then by box for the detail to sort second. Check Reverse for a descending sort.

Check the second Then by box for the detail to sort third. Check Reverse for a descending sort.

#### **Button** Action

Move Up Move the selected detail up one row. Move the selected detail down one row. Move Down

Select All Select all details.

Reset Reset to default details.

OK Return to previous page with new details selected.

Return to previous page with no changes. Cancel

### Select the limits for the display

**Alarm Contact:** Limit display to alarm actions assigned to the alarm contact(s). Click **Alarm** 

**Contact:** button to change **Alarm Contact Pick Details** and order.

### **Button Action**

Reset pick list to single select. ⑸

1 Decrease pick list length.

₩. Increase pick list length.

 $\left( \mathbf{+}\right)$ Expand pick list to multiple select.

Collapse pick list to single select.

**User Group:** Limit display to alarm actions assigned to the user group(s). Click **User Group:** button to change User Group Pick Details and order.

### 4.7.3 Alarm Action Add/Copy

The Alarm Action Add page and the Alarm Action Copy page allow users to create new alarm actions. They function in the same way. The **Alarm Action Copy** page is most convenient when

the new alarm action will share several parameters with the template alarm action. To access the **Alarm Action Copy** page, click on the **Edit** button in the template alarm action's row in the **Alarm Action List** table. You will reach the **Alarm Action Edit** page. Click on the **Copy** button to reach the **Alarm Action Copy** page.

The **Alarm Action Add** /**Copy** page(s) allow you to enter the new alarm action parameters. The **Alarm Action Edit** page provides the same input fields as the **Alarm Action Add** and the **Alarm Action Copy** pages, and these are described in Section 4.7.4.

Alarm Actio	n Edit	ок	Apply	Back	Сору	Delete	Bottom
* Required field	** Must be u	ınique					
Identification	n =						
Table row:	5						
** Name:	Email alarm						
Description:	Send email	alarm me	ssage				
							.::
User groups	Assign/Rer	nove grou	ıps List				
Details	Name De	scription	Add				
	All All	groups	Edit				

Figure 4.7.4. Alarm Action Edit Identification

## 4.7.4 Alarm Action Edit

When you click on the **Edit** button associated with any alarm action defined in the **Alarm Action List**, or when you click **Apply** from the **Alarm Action Add** or **Alarm Action Copy** pages to create a new alarm action, you reach the **Alarm Action Edit** page. The alarm action parameters that are edited or input using the **Alarm Action Edit** page are described here.

### Identification

**Table index:** Field can not be modified; it is assigned automatically when a record is added.

**Name:** Alarm action name. Max: 100 characters.

**Description:** Enter additional information describing alarm action. Max: 1000 characters.

## User groups

The **User groups** table shows the user groups currently assigned to the alarm action. Clicking on any of the column heading buttons will reorder the user groups in the **User groups List**, numerically or alphabetically, by that detail. Click **Details:** button to change the User Group List details and display order, see Section 10.3.1. Click **Assign/Remove groups** button to open User Group Assignment window, see Section 10.3.3. Changes made to user group assignments will update this page when the assignment window is closed. Click **List** button to show all user groups, see Section 10.3. Click **Add** button to add a user group, see Section 10.3.4. Click **Edit** button to edit the user group, see Section 10.3.5.

Action =			
Type:	Send email	▼ Reset	

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Figure 4.7.5. Alarm Action Edit Type

**Type:** Select the alarm action type from the pick list.

Click **Reset** button to set default alarm action parameters.

### 4.7.5 Alarm Action Custom

User defined alarm action. Alarm action is executed when an alarm is triggered or reset.

Action =			
Туре:	Custom	Reset	
Command:	nsdataexport		
Options:			

Figure 4.7.6. Alarm Action Custom

**Command:** Custom alarm command name. Command scripts must be stored in /usr/ns/cus.

**Options:** Command arguments passed to command.

### 4.7.6 Alarm Action AlertTalk1

Alert talk 1 alarm action. Alert talk 1 is an alarm dialer that is triggered by a control signal on a serial port. The alarm dialer has up to 4 programmable alarm messages and dialing lists.

Action =			
Туре:	Alert talk 1	Reset	
Command:	nsadasl		
* Modem name	: /dev/adas1	/dev/adas1 ▼ View Reset	

Figure 4.7.7. Alarm Action AlertTalk1

**Command:** nsadas1

**Modem name:** Enter serial port name connected to the Alert talk 1 alarm dialer (e.g. /dev/adas1) or select from pick list. Click button to change the **Serial Port Pick Details**, see Section 9.5.2. **View** button displays the **Serial Port Edit** page for the selected serial port, see Section 9.5.3. **Reset** button resets communication parameters to serial port table parameters.

#### 4.7.7 Alarm Action Alert talk 3 Alarm

Alert talk 3 alarm action. Alert talk 3 is an alarm dialer with pre-recorded messages. It is controlled by the NovaStar 5 AlertTalk3 driver. Alarm messages are encoded and sent to the dialer for speaking by this alarm trigger.

Action =		
Туре:	Alert talk 3 alarm	Reset
Command:	nsadas3alarm	
On acknowledge	true 🛨	

Figure 4.7.8. Alarm Action AlertTalk3 Alarm

**Command:** nsadasalarm

**On acknowledge:** Select *true* to update the alert talk 3 alarm dialert alarm messages when an alarm is acknowledged.

## 4.7.8 Alarm Action Alert talk 3 Update

Alert talk 3 point update action. Alert talk 3 is an alarm dialer with pre-recorded messages. It is controlled by the NovaStar 5 AlertTalk3 driver. Point data values are encoded and sent to the dialer for speaking by this alarm trigger.

Action =		
Type:	Alert talk 3 update	Reset
Command:	nsadas3update	

Figure 4.7.9. Alarm Action AlertTalk3 Update

**Command:** nsadasupdate

### 4.7.9 Alarm Action Console Alarm

Audible alarm on console computer. Acknowledging the alarm or disabling alarms for system will stop the audible sound.

Action =				
Туре:	Console alarm	<u>▼</u> Reset Sou	und type: Beep	▼ Play
Command:	nsconsolebeep			
Beep interval:	2 seconds	Frequency: 1000 Hz Le	ength: 200 millis	econds
On acknowledge	true 🔻			

Figure 4.7.10. Alarm Action Console Beep Alarm

**Sound type:** *Beep* uses console buzzer. *Wave file* sends the select wave file to the sound card.

**Sound file:** Select the alarm sound from the pick list. Click **Play** to hear the sound file.

**Command:** nsconsolebeep

**Beep interval:** Number seconds to beep, default 2 seconds.

**Frequency:** Beep frequency, default 100 Hz.

**Hz Length:** Beep length in milliseconds, default 200 milliseconds.

**On acknowledge:** Select *true* to cancel console alarm sound when acknowledged.

Action =			
Туре:	Console alarm	Reset   Sound type:   Wave file   Sound file:   alar	m.wav 👤 Play
Command:	nsconsolebeep		
Beep interval:	2 seconds		
On acknowledge	true 🕶		

Figure 4.7.11. Alarm Action Console Wave File Alarm

## 4.7.10 Alarm Action Map Display Lamp Flash

Map display command to flash lamp when alarm criteria met.

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Action =		
Туре:	Map display lamp flash ▼ Reset	
Command:	nslampflash	

Figure 4.7.12. Alarm Action Map Display Lamp Flash

**Command:** nslampflash

## 4.7.11 Alarm Action Map Display Lamp On

Map display command to turn on lamp when alarm criteria met.

Action =			
Туре:	Map display lamp on	Reset	
Command:	nslampon		

Figure 4.7.13. Alarm Action Map Display Lamp On

**Command:** nslampon

## 4.7.12 Alarm Action Pager Analog

Analog pager alarm action. Alarm pager telephone number dialed and is followed by the point ID that triggered the alarm. System alarms send digits in message field. Pages are sent for each telephone number in the pager list.

Action =	
Type: P	Pager analog Reset
Command: r	nspageranalog
* Modem name:	/dev/mdm1 /dev/mdm1 _ View Reset
Baud rate: 2	2400 Parity: None Data bits: 8 Stop bits: 1
Dial timeout: 3	30 seconds 🔽 Dial attempts: 3 🛨
Page wait: 1	10 seconds Page delay: 2 seconds

Figure 4.7.14. Alarm Action Pager Analog

Command: nspageranalog

**Modem name:** Enter telephone modem name (e.g. /dev/mdm1) or select from pick list. Click

button to change the **Serial Port Pick Details**, see Section 9.5.2. **View** button displays the **Serial Port Edit** page for the selected serial port, see Section 9.5.3. **Reset** button resets communication parameters to serial port table parameters.

**Baud Rate:** 300, 1200, 2400, 4800, 9600, 19200, 38400.

**Parity:** None, Odd, Even, Mark or Space.

**Data bits:** 5, 6, 7 or 8. **Stop bits:** 1 or 2.

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**Dial timeout:** Modem dial connect timeout. Click the button to alternate between interval

selection from a pick list or from time interval fields.

**Dial attempts:** Maximum number of dial attempts before the effort is discontinued.

**Page wait:** Delay after dialing the pager service before keying the message. Click the button

to alternate between interval selection from a pick list or from time interval fields.

**Page delay:** Delay before dialing the next pager. Click the button to alternate between interval

selection from a pick list or from time interval fields.

## 4.7.13 Alarm Action Pager Digital

Digital pager alarm action. Pager service is dialed, login name sent, then pager telephone numbers sent with alarm message. Pages are sent for each telephone number in the pager list. For point alarms, the point ID, name, alarm value and interval are encoded in email message followed by the alarm trigger message. For system alarms only the alarm message is sent.

Action =
Type: Pager digital ▼ Reset
Command: nspagerdigital
* Modem name: /dev/mdm1 /dev/mdm1 _ View Reset
Service number: 5551212
Baud rate: 2400 Parity: None Data bits: 8 Stop bits: 1
Dial timeout: 10 seconds ▼ Dial attempts: 3 ▼
Login attempts: 1 🛨 Login prompt: Login: Login name: novastar
Page attempts: 1 T Pager prompt: Pager:
Message prompt: Message: Message received: OK

Figure 4.7.15. Alarm Action Pager Digital

**Command:** nspagerdigital

Modem name: Enter telephone modem name (e.g. /dev/mdm1) or select from pick list. Click

button to change the **Serial Port Pick Details**, see Section 9.5.2. **View** button displays the **Serial Port Edit** page for the selected serial port, see Section 9.5.3. **Reset** button resets communication parameters to serial port table parameters.

**Service:** Telephone number dialed to connect to pager service.

**Baud Rate:** 300, 1200, 2400, 4800, 9600, 19200, 38400.

**Parity:** None, Odd, Even, Mark or Space.

**Data bits:** 5, 6, 7 or 8. **Stop bits:** 1 or 2.

Dial timeout: Modem dial connect timeout. Click the button to alternate between interval

selection from a pick list or from time interval fields.

**Dial attempts:** Maximum number of dial attempts before the effort is discontinued.

**Login attempts:** Maximum number of login attempts before the effort is discontinued.

**Login prompt:** Login prompt characters sent by pager service. Respond with login name.

**Login name:** Login name sent to pager service after receiving login prompt.

**Page attempts:** Maximum number of page attempts before the effort is discontinued.

**Pager prompt:** Pager prompt sent by pager service. Respond with pager number.

**Message prompt:** Message prompt sent by pager service. Respond with pager message.

**Message received:** Message received sent by pager service. Page is successful after receiving this string.

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## 4.7.14 Alarm Action Pager Taps

TAPS pager alarm action. Pager service is dialed, TAPS login name sent, then pager telephone numbers sent with alarm message. Pages are sent for each telephone number in the pager list. For point alarms, the point ID, name, alarm value and interval are encoded in email message followed by the alarm trigger message. For system alarms only the alarm message is sent.

Action =	
Type: Pager taps <u>▼</u> Reset	
Command: nspagertaps	
* Modem name: /dev/mdm1 /dev/mdm1 View Reset	
Service number: 5551212	
Baud rate: 2400 Parity: None Data bits: 8 Stop bits: 1	
Dial timeout: 10 seconds ▼ Dial attempts: 3 ▼	
Login attempts: 1 <u>*</u>	
Page attempts: 1 •	

Figure 4.7.16. Alarm Action Pager Taps

**Command:** nspagertaps

Modem name: Enter telephone modem name (e.g. /dev/mdm1) or select from pick list. Click

button to change the **Serial Port Pick Details**, see Section 9.5.2. **View** button displays the **Serial Port Edit** page for the selected serial port, see Section 9.5.3. **Reset** button resets communication parameters to serial port table parameters.

**Service:** Telephone number dialed to connect to pager service.

**Baud Rate:** 300, 1200, 2400, 4800, 9600, 19200, 38400.

**Parity:** None, Odd, Even, Mark or Space.

**Data bits:** 5, 6, 7 or 8. **Stop bits:** 1 or 2.

**Dial timeout:** Modem dial connect timeout. Click the button to alternate between interval

selection from a pick list or from time interval fields.

**Dial attempts:** Maximum number of dial attempts before the effort is discontinued. **Login attempts:** Maximum number of login attempts before the effort is discontinued. **Page attempts:** Maximum number of page attempts before the effort is discontinued.

#### 4.7.15 Alarm Action Send Email

Email alarm action. Emails are sent to the email addresses in the contact list. The emails will be from the address and with the email subject defined for this alarm action. For point alarms, the point ID, name, alarm value and interval are encoded in email message followed by the alarm trigger message. For system alarms only the alarm message is sent.

Action =		
Туре:	Send email	Reset
Command:	nsalarmemail	
Email from:	NovaStar5a	
Email subject:	NovaStar alarm	
Email server:	mail.hydrolynx.com	
Message:	after 🛨	

Figure 4.7.17. Alarm Action Send Email

**Command:** nspageremail. **Email from:** Email from address. **Email subject:** Email subject.

**Email server:** Local ntwork SMTP email server name.

**Message:** Position of alarm trigger message with alarm details.

*after* puts alarm trigger message after alarm details. *before* puts alarm trigger message before alarm details.

none does not print the alarm trigger message.

only print alarm trigger message, do not print alarm details.

### 4.7.16 Alarm Action Silent Alarm

Visual alarm action, no sound. Active alarm bar will be shown at top of menu bar on all NovaStar5 pages. Disabling alarms privately will prevent the display of the active alarm bar.



Figure 4.7.18. Alarm Action Silent Alarm

**Command:** warning.

**Sound file:** The alarm sound file will be *silent*. Choosing any other sound file will change the

alarm action to sound alarm. Click **Play** to hear the sound file.

#### 4.7.17 Alarm Action Sound Alarm

Visual and audible alarm action. Active alarm bar will be shown at top of menu bar and sound file will play for all NovaStar5 pages. Acknowledging the alarm or disabling alarms privately will stop the display of the active alarm bar and the audible sound. Clicking **Mute** on the **Active Alarm List** page, see Section 4.1 will stop the alarm sound but leave on the alarm bar display.

Action =					
Туре:	Sound alarm	▼ Reset	Sound file:	alarm.wav	▼ Play
Command:	warning				

Figure 4.7.19. Alarm Action Sound Alarm

**Command:** warning.

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**Sound file:** Select the alarm sound file will be *silent*. Choosing the *silent* sound file will change the alarm action to *silent alarm*. Click **Play** to hear the sound file.



Figure 4.7.20. Alarm Action Edit Contact list

## 4.7.18 Alarm Action Contact List

The **Contact list** shows all the alarm contacts currently assigned to the alarm action and can show details about each alarm contact. Clicking on any of the column heading buttons will reorder the alarm contacts in the contact list, numerically or alphabetically, by that detail. Click the **Details:** button to change the **Alarm Action Contact List** details and display order, see Section 4.7.1. Click **Assign/Remove contacts** button to open **Alarm Action Contact Assignment** window, see Section 4.7.19. Changes made to contact assignments will update this page when the assignment window is closed. Click **List** button to show all alarm contacts, see Section 4.8.1. Click the **Add** button at the right side of the **Contact list** table to access the **Alarm Contact Add** page. See Section 4.8.3. The **Alarm Contact Add** page can be used to create an alarm contact, but you must click **OK** to return to the **Alarm Action Edit** screen to assign the alarm contact to the alarm action. Click on the **Edit** button on any alarm contact's row in the contact list table to view or edit the parameters of that alarm contact on its **Alarm Contact Edit** page, see Section 4.8.4.



Figure 4.7.21. Alarm Action Contact Assignment

## 4.7.19 Alarm Action Contact Assignment

The **Alarm Action Contact Assignment** window is opened when the **Assign/Remove contacts** button is clicked. The window is divided into two lists, the *Assigned list* and the *Pick list*. The contacts available for assignment are shown in the *Pick list*. Click on the arrow buttons to move contacts from the *Pick list* to the *Assigned list* add assignments. Click on the arrow buttons to move contacts from the *Assigned list* to the *Pick list* remove assignments. Click the **OK** button to save the assignment changes and close the window. Click **Cancel** to abandone changes and close the window. Click either the *Assigned list* or *Pick list* buttons to change **Alarm Action Contact Pick Details** and order, see Section 4.8.2.

Button	Action
H	Move all from pick list to assigned list.
<b>\( \rightarrow</b>	Move from pick list to assigned list.
$\Rightarrow$	Move from assigned list to pick list.
$\Rightarrow$	Move all from assigned list to pick list.
1	Decrease pick list length.

Increase pick list length.
Expand pick list to multiple select.
Collapse pick list to single select.

## 4.7.20 Alarm Action Log

Click the View log file button to display the log file for this alarm action. The log file will show the time stampled activity logged by this alarm action. It can be used to verify the alarm action is working properly. The **Log File Display** page is displayed, see Section 9.6.2.



Figure 4.7.22. Alarm Action View Log File

## 4.7.21 Alarm Action Delete

To delete an alarm action from the **Alarm Action List**, click the **Edit** button on that alarm action's row in the table to access the **Alarm Action Edit** page. Click on the **Delete** button to view the **Alarm Action Delete** page. You will be prompted to confirm that you wish to delete the alarm action by clicking on the **Delete** button again.

## 4.8 Alarm Contact List

An *alarm contact entry* specifies the contact information that will be used to notify a user of an alarm condition. When you click on the **Alarm Contact List** option, the **Alarm Contact List** page is displayed.

Single	Alarm Pager List	Pager List Choose details.		Back Refresh			Bottom	
Home	Name		Pager			A	\dd	
Stations	Bill Hange		HangeB@ci.loveland.co.us				E	dit
Points	Hydrolynx - David Leader emai	1	dleader@hydrolynx.com				E	dit
Alarms	· ·		Carlos.Sanchez@minerapanama.com				) E	dit
Active Alarm List	Minera Panama - Daphne Boso	uez work email	Daphne.Bosquez@minerapanama.com					dit
Historic Alarm List     .	Minera Panama - Franklin Hern		-		·			dit
Alarm Group List						•	_	dit
Alarm Trigger List			hernan.castro@minerapanama.com					dit
Alarm Action List	<u> </u>		Jose.Simmonds@minerapanama.com					-
Alarm Pager List			9566939250@txt.att.net					dit
Data	· ·		3077604818@vtext.com				-	dit
System	TriHydro - Robert Stine work email		rstine@trihydro.com				E	dit
Users	TriHydro - Steve Linse work email		slinse@trihydro.com				E	dit
Tabular Data	TriHydro - Twing work email		ctwing@trihydro.com				E	dit
Report Data	WET - Erik Carlson work email		ecarlson@water-and-earth.com				E	dit
Plot Data	WET - Kate Malers work email		kmaler	s@w	vater-and-ea	arth.com	E	dit
Map Data	WET - Markus Ritsch text		970443	3339	9@txt.att.n	et	E	dit
About NovaStar 5	WET - Markus Ritsch work emai	1	mlritsc	h@w	vater-and-ea	arth.com	E	dit
Contact HydroLynx	WET - Rich Spotts work email		rspotts	@wa	ater-and-ear	th.com	E	dit
Log out	WET - Rob Niedenzu home em	ail			msn.com			dit
	WET - Rob Niedenzu work emai			_		earth.com		dit
					_			
	Alarm Pager List							op

Figure 4.8.1. Alarm Contact List

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The **Alarm Contact List** shows all of the alarm contact entries that are predefined for your system. Clicking on any of the column heading buttons will reorder the alarm contact entries in the **Alarm Contact List**, numerically or alphabetically, by that detail. The **Choose details...** button allows you to specify what information is displayed by the **Alarm Contact List** page using the **Alarm Contact List Details** page, see Section 4.8.1.

### 4.8.1 Alarm Contact List Details

The check boxes on **Alarm Contact List Details** page control the items, organization, sort order, and limit the records displayed on the associated **List** page.

# Select the details to display

Reset

Check the box to the left of a detail to display. Details are displayed in the order shown. Check the Order by box for the detail to sort first. Check Reverse for a descending sort. Check the Then by box for the detail to sort second. Check Reverse for a descending sort. Check the second Then by box for the detail to sort third. Check Reverse for a descending sort.

ButtonActionMove UpMove the selected detail up one row.Move DownMove the selected detail down one row.Select AllSelect all details.

OK Return to previous page with new details selected.

Cancel Return to previous page with no changes.

Reset to default details.

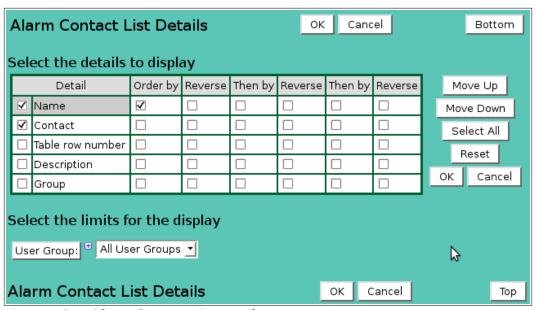


Figure 4.8.2. Alarm Contact List Details

# Select the limits for the display

**User Group:** Limit display to alarm contacts assigned to the user group(s). Click **User Group:** button to change **User Group Pick Details** and order.

Button Action

Reset pick list to single select.

Decrease pick list length.

Increase pick list length.

Expand pick list to multiple select.

Collapse pick list to single select.

#### 4.8.2 Alarm Contact Pick Detail

The check boxes on **Alarm Contact Pick Details** page control the items, organization, sort order, and limit the records displayed on the pick list.

# Select the details to display

Check the box to the left of a detail to display. Details are displayed in the order shown.

Check the Order by box for the detail to sort first. Check Reverse for a descending sort.

Check the Then by box for the detail to sort second. Check Reverse for a descending sort.

Check the second Then by box for the detail to sort third. Check Reverse for a descending sort.

**Button** Action

Move Up Move the selected detail up one row.

Move Down Move the selected detail down one row.

Select All Select all details.

Reset to default details.

OK Return to previous page with new details selected.

Cancel Return to previous page with no changes.

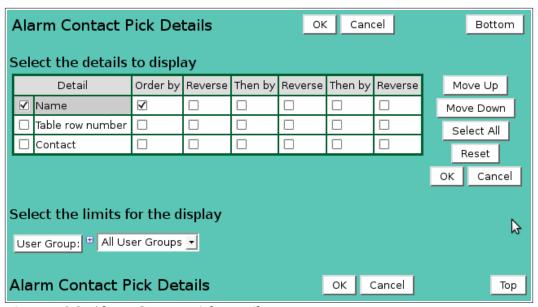


Figure 4.8.3. Alarm Contact Pick Details

### Select the limits for the display

**User Group:** Limit display to alarm contacts assigned to the user group(s). Click **User Group:** button to change **User Group Pick Details** and order.

# Button Action

Reset pick list to single select.

Decrease pick list length.

Increase pick list length.Expand pick list to multiple select.

Collapse pick list to single select.

# 4.8.3 Alarm Contact Add/Copy

The **Alarm Contact Add** page and the **Alarm Contact Copy** page allow users to create new alarm contacts. They function in the same way. The **Alarm Contact Copy** page is most convenient when the new alarm contact will share several parameters with the template alarm contact. To access the **Alarm Contact Copy** page, click on the **Edit** button in the template alarm

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contact's row in the **Alarm Contact List** table. You will reach the **Alarm Contact Edit** page. Click on the **Copy** button to reach the **Alarm Contact Copy** page.

The **Alarm Contact Add** /**Copy** page(s) allow you to enter the new alarm contact parameters. The **Alarm Contact Edit** page provides the same input fields as the **Alarm Contact Add** and the **Alarm Contact Copy** pages, and these are described in Section 4.8.2.

### 4.8.4 Alarm Contact Edit

When you click on the **Edit** button associated with any alarm contact defined in the **Alarm Contact List**, or when you click **Apply** from the **Alarm Contact Add** or **Alarm Contact Copy** pages to create a new alarm contact, you reach the **Alarm Contact Edit** page. The alarm contact parameters that are edited or input using the **Alarm Contact Edit** page are described here.

## Identification

**Table index:** Field can not be modified; it is assigned automatically when a record is added.

**Name:** Alarm action name. Max: 100 characters.

**Contact:** Contact telephone number or email address. Max: 100 characters.

**Description:** Enter additional information describing alarm action. Max: 1000 characters.

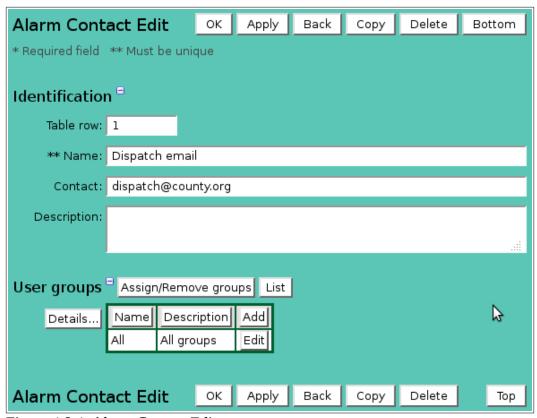


Figure 4.8.4. Alarm Contact Edit

### User groups

The **User groups** table shows the user groups currently assigned to the alarm group. Clicking on any of the column heading buttons will reorder the user groups in the **User groups List**, numerically or alphabetically, by that detail. Click **Details:** button to change the User Group List details and display order, see Section 10.3.1. Click **Assign/Remove groups** button to open User Group Assignment window, see Section 10.3.3. Changes made to user group assignments will update this page when the assignment window is closed. Click **List** button to show all user groups, see Section 10.3. Click **Add** button to add a user group, see Section 10.3.4. Click **Edit** button to edit the user group, see Section 10.3.5.

#### 4.8.5 Alarm Contact Delete

To delete an alarm contact from the **Alarm Contact List**, click the **Edit** button on that alarm contact's row in the table to access the **Alarm Contact Edit** page. Click on the **Delete** button to view the **Alarm Contact Delete** page. You will be prompted to confirm that you wish to delete the alarm contact by clicking on the **Delete** button again.

### 4.9 Alarm State List

Each a*larm state* is assigned a number that is used internally by the NovaStar 5 system to manage the system's alarms. When a point's data report meets an alarm record's criteria, the alarm record is made active. The alarm remains active until it is acknowledged and reset, and then the alarm state reverts to off. See Section 4 for a description of the interrelationships between active, acknowledged, reset and inactive alarms.

**Alarm State List** is the final sub-command option available under the **Alarms** heading in the command menu of the *Registered user Home page*. When you click on the **Alarm State List** option, the **Alarm State List** page is displayed. The **Alarm State List** shows all of the alarm states that are predefined for your system. Clicking on any of the column heading buttons will reorder the alarm states in the **Alarm State List**, numerically or alphabetically, by that detail. The **Choose details...** button allows you to specify what information is displayed by the **Alarm State List** page using the **Alarm State List Details** page, see Section 4.9.1.

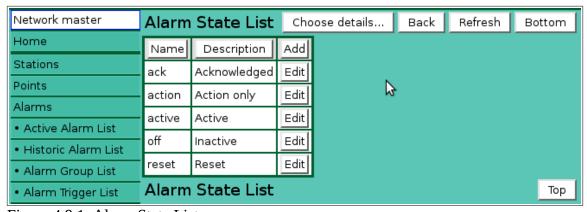


Figure 4.9.1. Alarm State List

Although you can use the **Add** button at the upper right-hand corner of the **Alarm State List** page to access the **Alarm State Add** page and create new alarm states, the present version of the NovaStar 5 system is not configured to utilize alarm states beyond those that have been predefined. Because the numerical assignments preloaded into NovaStar 5 cannot be altered by users, editing the **Alarm State List** is not recommended, except as desired to rename the alarm states to either reflect the use of a different language or so that the alarm state nomenclature is easy to remember.

The **Edit** button at the right side of each alarm state in the **Alarm State List** can be used to access the **Alarm State Edit** page to alter the nomenclature associated with the alarm state numbers that are used by the NovaStar 5 system.

To delete an alarm state from the **Alarm State List**, click the **Edit** button on that alarm state's row in the table to access the **Alarm State Edit** page. Click on the **Delete** button to view the **Alarm State Delete** page. You will be prompted to confirm that you wish to delete the alarm state by clicking on the **Delete** button again. Deleting predefined alarm states is not recommended.

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	Alarm State List Details OK Cancel								Botton	n	
5	Sele	ect the details	to displa	ay							
I		Detail	Order by	Reverse	Then by	Reverse	Then by	Reverse		Move Up	
ı	✓	Name	<b>V</b>						N	love Down	
ı	<	Description							Г	Select All	Ī
ı		Table row number							_	Reset	
									OH	_	el
1	Alarm State List Details OK Cancel Top										

Figure 4.9.2. Alarm State List Details

### 4.9.1 Alarm State List Details

The check boxes on **Alarm State List Details** page control the items, organization, sort order, and limit the records displayed on the associated **List** page.

# Select the details to display

Check the box to the left of a detail to display. Details are displayed in the order shown. Check the Order by box for the detail to sort first. Check Reverse for a descending sort. Check the Then by box for the detail to sort second. Check Reverse for a descending sort. Check the second Then by box for the detail to sort third. Check Reverse for a descending sort.

Button	Action
Move Up	Move the selected detail up one row.
Move Down	Move the selected detail down one row.
Select All	Select all details.
Reset	Reset to default details.
OK	Return to previous page with new details selected.
Cancel	Return to previous page with no changes.

#### 4.9.2 Alarm State Pick Detail

The check boxes on **Alarm State Pick Details** page control the items, organization, sort order, and limit the records displayed on the pick list.

Δ	Alarm State Pick Details OK Cancel							Bottom	
s	elect the details	to displa	ay						
Γ	Detail	Order by	Reverse	Then by	Reverse	Then by	Reverse	T I	Move Up
	✓ Name	<b>✓</b>						М	ove Down
E	☐ Table row number								Select All
L	□ Description								Reset
								ОК	Cancel
Alarm State Pick Details OK Cancel Top									

Figure 4.9.3. Alarm State Pick Details

# Select the details to display

Check the box to the left of a detail to display. Details are displayed in the order shown. Check the Order by box for the detail to sort first. Check Reverse for a descending sort. Check the Then by box for the detail to sort second. Check Reverse for a descending sort. Check the second Then by box for the detail to sort third. Check Reverse for a descending sort.

**Button** Action

Move Up Move the selected detail up one row.

Move Down Move the selected detail down one row.

Select All Select all details.

Reset to default details.

OK Return to previous page with new details selected.

Cancel Return to previous page with no changes.

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# 5 Data

The Data menu contains the data editor, data export and data import NovaStar 5 features. The **Data Edit** page allows operators to view and edit point data reports in the database. The **Data Export** page pushes data reports, maps, and plots to other data servers. The **Data Import** page files data read from imported files from data loggers or other data collection servers.

When you click on the **Data** menu list option, the **Data Edit** page is displayed. The **Data Edit** page allows operators to view and edit point data reports in the database.

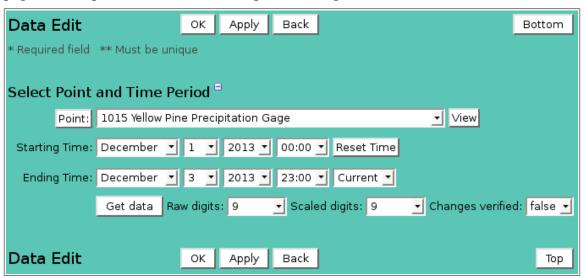


Figure 5.1.1. Data Edit Select

#### 5.1 Data Edit

Select the point and time period to edit.

#### 5.1.1 Data Edit Point and Time Period Selection

Point:

Select point to poll from the pick list. Click button to change **Point Pick Details** and order, see Section 3.1.2. **View** button displays the **Point Edit** page for the selected point, see Section 3.1.4.

**Starting Time:** Select the starting time for the data edit time period. Click **Reset Time** to set time to start of day for ending time. Note: the starting time must be before the ending time.

**Ending Time:** Select the ending time for the data edit time period. Select **Current** to set the ending time to the current time.

The data edit page is best used with a restricted time period. If more data is requested than is needed, too much page scrolling will be required to put the data of interest in view. Long delays may occur as the browser has to manage the underlying data edit controls.

A long data period request may be needed to find the data reports of concern. After the data reports are found, make a shorter data period request to keep the information on page to a minimum for best results.

#### 5.1.2 Data Edit Data List

Get data

Click this button to display the data reports for the time period from the starting time to the ending time, see Figure 5.1.2.

**Raw digits:** Select the number of digits to display to the right of the decimal point. This

selection overrides the default raw digits assigned to the point's point type. Use

the *default* selection to use the point type number of raw decimal digits.

**Scaled digits:** Select the number of digits to display to the right of the decimal point. This

selection overrides the default scaled digits assigned to the point's point type. Use

the *default* selection to use the point type number of scaled decimal digits.

**Changes verified:** Select *true* to insert the verified (E) flag in any data report modified, see data

flags in the edit section below.

Changes made on the data edit page are highlighted in green. These changes are not saved in the database until the Apply or OK buttons are clicked. Click **Apply** to save changes and stay on the data edit page. Click **OK** to save changes and return to the calling page. Click **Back** to return to the calling page without saving changes; if you have made changes you will be warned that your changes will be lost – click **Cancel** to stay on the data edit page or OK to continue and lose the changes.

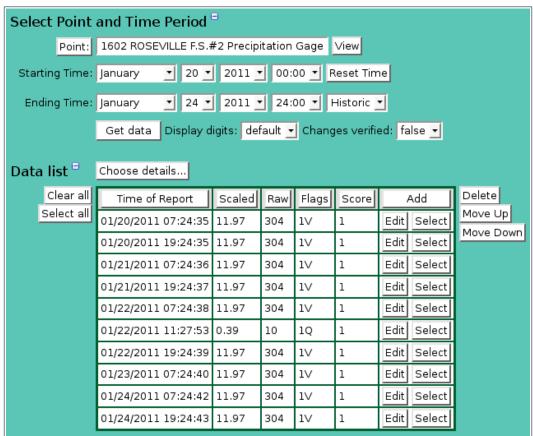


Figure 5.1.2. Data Edit Data List

The **Data List** shows details for the point's data reports for the select time period. Clicking on any of the column heading buttons will reorder the data reports in the **Data List**, numerically or alphabetically, by that detail. This allows you to quickly reorganize the **Data List** to reorder from newest to oldest or find the smallest or greatest numerical value in a column. You can customize the appearance of the **Data List** using the **Choose details...** button to access the **Data Edit List Details** page, see Section 5.1.3.

Click on the **Edit** button for any data report in the **Data List** table to view or edit the all details of the data report, see Section 5.1.4 below.

Data report details can be changed directly in the data list. Click on the table cell to convert the display field to an edit field. Modify the text in text fields or select from a pick list in the list

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fields. Press [Tab] to move to the right in the table; [Shift][Tab] to move left. Click on another cell or on the page background to close the edit field. Any changes made to the cell are copied to the edit panel if opened and are marked with a green backgound. Note that changes are not save to the database until you click the **Apply** or **OK** button.

#### 5.1.3 Data Edit Data List Details

The check boxes on Data Edit **List Details** page control the items, organization, sort order, and limit the records displayed on the associated **List** page.

# Select the details to display

Check the box to the left of a detail to display. Details are displayed in the order shown. Check the Order by box for the detail to sort first. Check Reverse for a descending sort. Check the Then by box for the detail to sort second. Check Reverse for a descending sort. Check the second Then by box for the detail to sort third. Check Reverse for a descending sort.

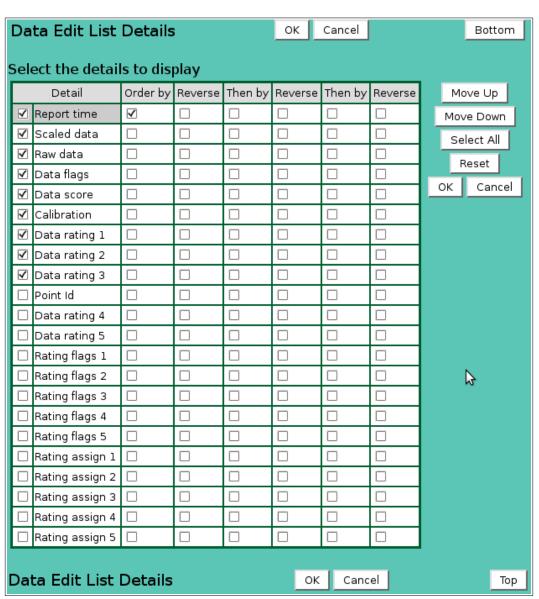


Figure 5.1.3. Data Edit Data List Details

Button	Action
--------	--------

Move Up Move the selected detail up one row.

Move Down Move the selected detail down one row.

Select All Select all details.

Reset Reset to default details.

OK Return to previous page with new details selected.

Cancel Return to previous page with no changes.

### 5.1.4 Data Edit Data List Edit

Click on the **Edit** button for any data report in the **Data List** table to open the edit panel, see Figure 5.1.4. The edit panel shows all the data report fields regardless of the details shown in the list. Changes made in the edit panel will be applied to the row selected when the **Edit** button was clicked and any other row that has the **Select** button grayed. Select or de-select additional rows by clicking the **Select**, **Select all** or **Clear all** buttons.

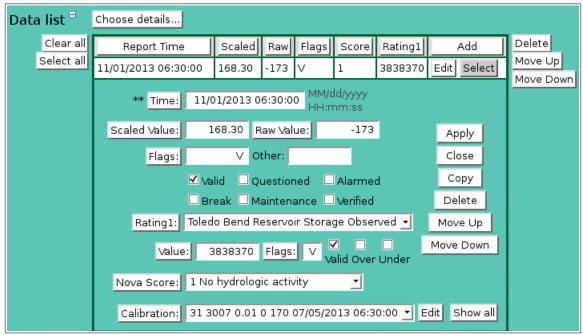


Figure 5.1.4. Data Edit Panel

D	A .•
Button	Action
	A(11011

Clear all Clear selection of all rows in this table.

Select all Select all rows in this table.

Add Opens the edit panel where you can enter the parameters for a new record.

Edit Open the edit panel for this record.

Select Select row for applied changes from the edit panel; first select, then clear select.

Delete Mark selected rows for deletion; first select, then clear select.

Move up Move the selected rows up one row.

Move down Move the selected rows down one row.

Apply Assign changed field values to this and all other selected rows in the table.

Changed fields are highlighted with a blue-green background while unchanged

fields have a white background.

Close the edit panel without saving changes; you will be warned if changes will

be lost by this action.

**Time:** Enter the time of the data report using the format shown in gray under the field.

Click the button to reset to the current time. The data report time must be unique for the point. It is not possible to store more than one data report in the database for a point with the same time. The time must differ by at least one second. If a

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duplicate time is entered, the field will be highlighted in yellow and a error message display warning that the *Time must be unique!* 



Figure 5.1.5. Data Edit Panel Time Error

An empty time field will also generate an error. You must correct the error before your changes can be applied.

**Scaled Value:** Enter the scaled value for the data report. The scaled value is computed from the raw value using the assigned calibration record when the raw value is received and filed by the data collection software.

Click the button to compute the scaled value from raw value (recalibrate) using the selected calibration record. If the recalibration is applied to multiple rows, the scaled value for each row is computed from the raw value of that row using the calibration record assigned to that row.

**Raw Value:** Enter the raw value for the data report. The raw value is the data value received and filed by the data collection software from a remote station.

Click the button to compute the raw value from scaled value (uncalibrate) using the selected calibration record. If the uncalibration is applied to multiple rows, the raw value for each row is computed from the scaled value of that row using the calibration record assigned to that row.

**Flags:** Standard flags assembled from check boxes; field cannot be directly modified.

Valid Data report has been validated by data checking parameters.Questioned Data report has been questioned by data checking parameters.

**Alarmed** Data report has met alarm criteria for an alarm trigger.

**Break** Data report set as the start of a new continuous record by data checking parameters.

**Maintenance** Data report flagged as a maintenance report by an operator.

**Verified** Data report verified by an operator and cannot be changed by revalidation.

**Other:** Non-standard flags such as data collection source.

The rating, flags, and assign fields only appear if the point has rating tables assigned. The data editor cannot be used to assign ratings, see section 3.5. Each point can have up to 5 ratings assigned. The edit field documented below are repeated for each rating assignment starting at 1.

**Rating1:** Select rating assignment from pick list. Click button to change **Data Edit Rating** 

Assign Pick Details and order, see Section 3.5.2. The rating assignment is used to

compute the rating value from scaled data value.

**Value:** Rating value computed by rating table assignment 1.

Click the button to recompute the rating value from the scaled value using the assigned rating table. If the rating recomputation is applied to multiple rows, the rating value for each row is computed from the scaled value of that row using the

rating table assigned to that row.

**Flags:** Rating flags assembled from check boxes; field cannot be directly modified. **Valid** Rating computation is within the lower and upper limits for the assigned table.

Over Rating index or computation exceeded upper limit for the assigned table.

Under Rating index or computation fall below upper limit for the assigned table.

Nova Score: Select nova score from pick list. Click button to change Nova Score Pick Details

and order, see Section 9.3.2. The nova score value is set by alarm triggers assigned to the point. Nova score 1 is assigned by default. The nova score values

are used to hightlight point data values in maps, plots and reports.

**Calibration:** Select calibration from pick list. Click button to change **Data Edit Calibration** 

**Pick Details** and order, see Section 3.4.2. The calibration is used to compute the scaled data value from raw data value. Click **Show all** to show all calibrations assigned to the point in the pick list. By default, only the calibration records effective for the selected time period are shown. Click **Show period** to restore the

calibration pick list to the selected time period.

#### 5.1.5 Data Edit Calibration List Edit

Click **Edit** to change the calibration pick list to the calibration list table, see Figure 5.1.6. Clicking on any of the column heading buttons will reorder the calibration records in the **Calibration List**, numerically or alphabetically, by that detail. Click on the **Calibration list:** button to change the details displayed, see Section 3.4.2. Click **Show all** to show all calibrations assigned to the point in the calibration list. By default, only the calibration records effective for the selected time period are shown. Click **Show period** to restore the calibration list to the selected time period.

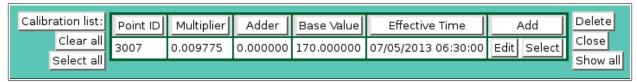


Figure 5.1.6. Data Edit Calibration List

lost by this action.

Button	Action
Clear all	Clear selection of all rows in this table.
Select all	Select all rows in this table.
Add	Opens the edit panel where you can enter the parameters for a new record.
Edit	Open the edit panel for this record.
Select	Select row for applied changes from the edit panel; first select, then clear select.
Delete	Mark selected rows for deletion; first select, then clear select.
Move up	Move the selected rows up one row.
Move down	Move the selected rows down one row.
Apply	Assign changed field values to this and all other selected rows in the table.
	Changed fields are highlighted with a blue-green background while unchanged
	fields have a white background.
Close	Close edit panel without saving changes; you will be warned if changes will be

Click on the **Edit** button for any calibration record in the **Calibration List** table to open the edit panel, see Figure 5.1.7. The edit panel shows all the calibration record fields regardless of the details shown in the list. Changes made in the edit panel will be applied to the row selected when the **Edit** button was clicked and any other row that has the **Select** button grayed. Select or deselect additional rows by clicking the **Select**, **Select all** or **Clear all** buttons.

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Click the **Add** button to add a new calibration record to the point; the edit panel is opened with default fields. It is easier to copy an exising calibration record, rather than adding a new record. Click the **Edit** button to open the edit panel, click **Copy** get a new record. With both the **Add** and **Copy** operations you will have to enter a unique time for the calibration record. Click **Apply** to save changes.

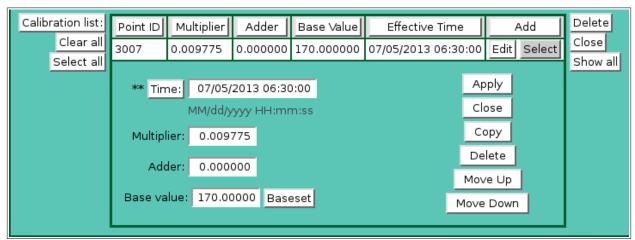


Figure 5.1.7. Data Edit Calibration Edit

Time:

Enter the time of the calibration record using the format shown in gray under the field. Click the button to reset to the current time. The calibration record time must be unique for the point. It is not possible to store more than one calibration record in the database for a point with the same time. The time must differ by at least one second. If a duplicate time is entered, the field will be highlighted in yellow and a error message display warning that the *Time must be unique!* 

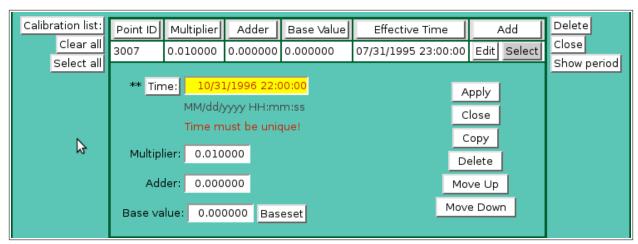


Figure 5.1.8. Data Edit Panel Time Error

An empty time field will also generate an error. You must correct the error before your changes can be applied.

**Multiplier:** Multiply raw data by this value to compute scaled data. Adder: Add raw data by this value to compute scaled data.

**Base value:** Add this base value to raw data to compute scaled data. Click the Baseset button

to compute the Base value from the scaled and raw values. He computation is:

Base value = Scaled value - (Raw value \* Multiplier + Adder)

If a calibration record has been added then it must be assigned to the data report. Click the **Close** button to change the calibration list table to the calibration pick list. Select the added calibration

in the pick list. Click the **Scaled Value:** button to recalibrate the data report scaled value from the raw value using the newly assigned calibration record.

If multiple data report rows need to be assigned to the new calibration record, click the **Select** button for these rows, then click **Apply** to assign the calibration record and recalibrate the scaled value.

New calibrations and data report recalibrations are not permanently saved in the database until the **Apply** or **OK** buttons are clicked at the top or bottom of the **Data Edit** page.

#### 5.1.6 Data Edit Data List Drift

The **Data Edit** page can be use to assign interpolated scaled data value changes to reports. This may be necessary to adjust data values for a drift in the sensor readings over time. An observed reading must be know at the start and end of the drift period.

- 1. Start by selecting the point and data edit period.
- 2. Select the data reports for the drift period.

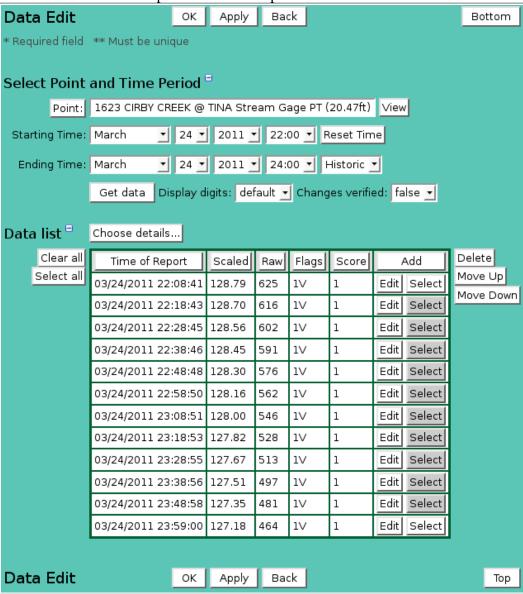


Figure 5.1.9. Data Edit Drift Period Select

3. Click the **Edit** button to display the edit panel for the first data report in the drift period.

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- 4. Changed the **Scaled Value** to the observed value at the start of the drift.
- 5. The check box **Interpolate scaled data changes** will appear. Check this box.
- 6. If the point has assigned ratings, then click the **Rating 1:** button to compute the rating value from the new scaled value.

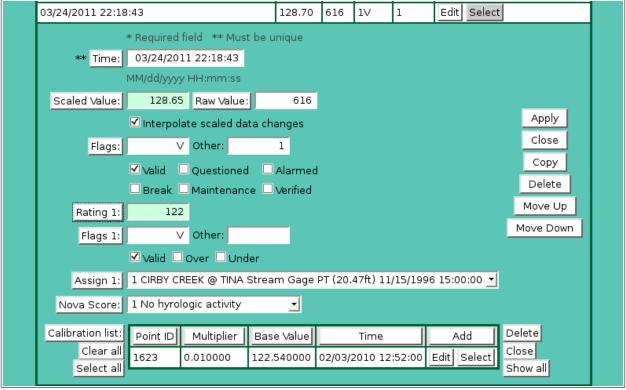


Figure 5.1.10. Data Edit Drift Set Starting Report.

- 7. Click **Apply** to apply this change to the selected data records.
- 8. Click **Close** to close the edit panel.

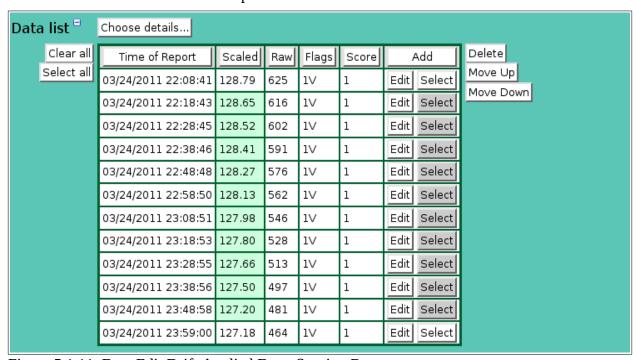


Figure 5.1.11. Data Edit Drift Applied From Starting Report.

- 9. Click the **Edit** button to display the edit panel for the last data report in the drift period.
- 10. Changed the **Scaled Value** to the observed value at the start of the drift.
- 11. The check box **Interpolate scaled data changes** will appear. Check this box.
- 12. If the point has assigned ratings, then click the **Rating 1:** button to compute the rating value from the new scaled value.



Figure 5.1.12. Data Edit Drift Set Ending Report.

- 13. Click **Apply** to apply this change to the selected data records.
- 14. Click **Close** to close the edit panel.

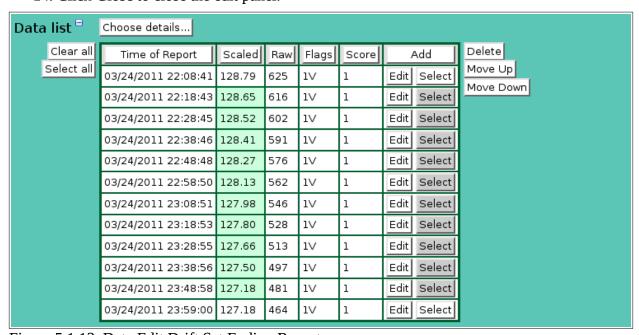


Figure 5.1.13. Data Edit Drift Set Ending Report.

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HydroLynx Systems, Inc.

15. Click Apply at the bottom of the page to save changes in the database.

# 5.2 Data Export List

The **Data Export List** shows the data export records defined in the database. The **Data Export Edit** page allows an operator to create, edit, and delete a data export. Data exports can be organized by the product to export (data reports, records, plots), the method of file transfer, and set up an automatic data export schedule.



Figure 5.2.1. Data Export List

The **Data Export List** page shows all the currently defined data exports and can show details about each data export. Clicking on either column heading button will reorder the data exports in the **Data Export List** by name. You can customize the appearance of the **Data Export List** using the **Details...** button to access the **Data Export List Details** page, see Section 5.2.1.

Click the **Add** button to define a new data export using the **Data Export Add** page. Or, click the **Edit** button associated with an existing data export to use that data export as a copy template for creating a new data export. The **Copy** button provided on the template data export's **Data Export Edit** page accesses the **Data Export Copy** page and allows you to create a new data export.

### 5.2.1 Data Export List Details

The check boxes on **Data Export List Details** page control the items, organization, sort order, and limit the records displayed on the associated **List** page.

### Select the details to display

Check the box to the left of a detail to display. Details are displayed in the order shown.

Check the Order by box for the detail to sort first. Check Reverse for a descending sort.

Check the Then by box for the detail to sort second. Check Reverse for a descending sort.

Check the second Then by box for the detail to sort third. Check Reverse for a descending sort.

**Button** Action

Move Up Move the selected detail up one row.

Move Down Move the selected detail down one row.

Select All Select all details.

Reset to default details.

OK Return to previous page with new details selected.

Cancel Return to previous page with no changes.

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[	Data Export List Details OK Cancel Bottom										
S	Select the details to display										
I		Detail	Order by	Reverse	Then by	Reverse	Then by	Reverse		Move Up	
I	✓	Name	<b>\</b>						M	love Down	
ı		Table index								Select All	
ı		Description									
ı		User name								Reset	
ı		Scope							OK	Cancel	
I		Group									
I		Command									
S	Select the limits for the display  User: All Users  Scope: all										
							•	. (			
L	)a	ta Export	: List D	etails			OK (	Cancel		Тор	

Figure 5.2.2. Data Export List Details

## Select the limits for the display

**User:** Limit display to records assigned to the user(s). Click **User:** button to change

User Pick Details and order.

#### **Button Action**

Reset pick list to single select.

◆ Decrease pick list length.

♣ Increase pick list length.

Expand pick list to multiple select.

Collapse pick list to single select.

**Scope:** Limit display to records with scope: *all*, *public*, *private*.

**User Group:** Limit display to records assigned to the user group(s). Click **User Group:** button

to change User Group Pick Details and order.

### 5.2.2 Data Export Add/Copy

The **Data Export Add** page and the **Data Export Copy** page allow users to create a new data export. They function in the same way. The **Data Export Copy** page is most convenient when the new data export will share several parameters with the template data export. To access the **Data Export Copy** page, click on the **Edit** button in the template data export's row in the **Data Export List** table. You will reach the **Data Export Edit** page. Click on the **Copy** button to reach the **Data Export Copy** page.

The **Data Export Add/Copy** page(s) prompt you to enter a new data export name in the highlighted field, and provide input boxes to define other data export parameters as required.

The **Data Export Edit** page provides the same input fields as the **Data Export Add** and the **Data Export Copy** pages, and these are described in Section 5.2.4.

Data Expor	t Edit	ок	Apply	Back	Сору	Delete	Bottom
* Required field	** Must b	e unique					
Identification	n <sup>=</sup>						
Table row:	1						
** Name:	SHEF Data	Export to I	Nationa	ıl Weathe	r Service		
Description:							
							.::
Owner =			User	group:	S E Assi	gn/Remove	groups List
User:	leader	▼ Reset		Details:	Name	Add	
Scope:	public <u></u>				All user	Edit	

Figure 5.2.3. Data Export Edit Identification

# 5.2.3 Data Export Edit

When you click on the **Edit** button associated with any data export defined in the **Data Export List** page, you reach the **Data Export Edit** page. The **Data Export Edit** page allows users to **Edit** the data export parameters defined for an existing data export, or to add a data export with many of the same parameters as a template data export using the **Copy** button.

#### Identification

**Table index:** Field can not be modified; it is assigned automatically when a record is added.

**Name:** Enter a descriptive name for the data export. Max: 100 characters.

**Description:** Enter additional information describing data export. Max: 1000 characters.

**Owner** 

**User:** Select the record owner from the user list. Click **User:** button change **User Pick** 

**Details** and order, see Section 10.1.2. Click **Reset** to assign your login name.

**Scope:** Select record access: *public*, *private*.

**Access Description** 

Public Everyone can display this record.

Private Only owner, group supervisor, or administrator can display this

record.

### User groups

The **User groups** table shows the user groups currently assigned to the data export. Clicking on any of the column heading buttons will reorder the user groups in the **User groups List**, numerically or alphabetically, by that detail. Click **Details:** button to change the User Group List details and display order, see Section 10.3.1. Click **Assign/Remove groups** button to open **User Group Assignment** window, see Section 10.3.3. Changes made to user group assignments will update this page when the assignment window is closed. Click **List** button to show all user groups, see Section 10.3. Click **Add** button to add a user group, see Section 10.3.4. Click **Edit** button to edit the user group, see Section 10.3.5.

### **5.2.4 Data Export Product List**

The **Product List** displays the data export products created for this data export,see Figure 5.2.4. Data export products are maps, plots, or reports defined in the NovaStar 5 database (see Section 6, 7, and 8). You must create a product before you can add it to a data export record. Multiple products can be assigned to a data export. When a data export record is first defined, no product records will be assigned to the record.

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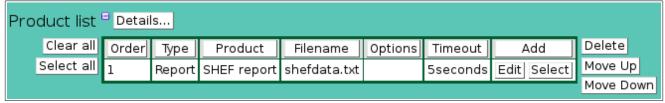


Figure 5.2.4. Data Export Product List

Click on the table column headers to resort the table for this column; first ascending, then descending. Click on the **Details...** button to change the details and display order, see Figure 5.2.5. Click on a table field to edit the text. Click **Add** to add an new product; the product list edit panel is opened. Click **Edit** to edit an existing product; the edit panel is opened, see Figure 5.2.6.

Button	Action
Clear all	Clear selection of all rows in this table.
Select all	Select all rows in this table.
Add	Opens the edit panel where you can enter the parameters for a new record.
Edit	Open the edit panel for this record.
Select	Select row for applied changes from the edit panel; first select, then clear select.
Delete	Mark selected rows for deletion; first select, then clear select.
Move up	Move the selected rows up one row.
Move down	Move the selected rows down one row.
Apply	Assign changed field values to this and all other selected rows in the table.
	Changed fields are highlighted with a blue-green background while unchanged
	fields have a white background.
Close	Close the edit panel without saving changes; you will be warned if changes will
	be lost by this action.

# **Data Export Product List Details**

The check boxes on **Data Export Product List Details** page control the items, organization, sort order, and limit the records displayed on the associated **List** page.

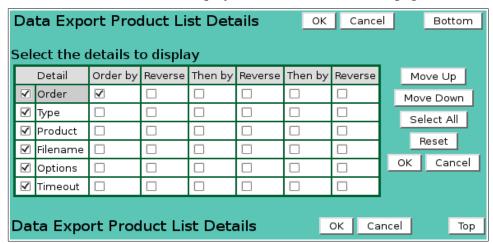


Figure 5.2.5. Data Export Product List Details

## Select the details to display

Check the box to the left of a detail to display. Details are displayed in the order shown. Check the Order by box for the detail to sort first. Check Reverse for a descending sort. Check the Then by box for the detail to sort second. Check Reverse for a descending sort. Check the second Then by box for the detail to sort third. Check Reverse for a descending sort.

**Button** Action

Move Up Move the selected detail up one row.

Move Down Move the selected detail down one row.

Select All Select all details.

Reset Reset to default details.

OK Return to previous page with new details selected.

Cancel Return to previous page with no changes.



Figure 5.2.6. Data Export Product Edit Panel

# **Product list parameters**

**Type:** Product type: *Map*, *Plot*, *or Report*.

**Map:** Displayed when *Map* product type is selected. Click button to modify the map

pick details. Select the map to export.

**Plot:** Displayed when *Plot* product type is selected. Click button to modify the plot pick

details. Select the plot to export.

**Report:** Displayed when *Report* product type is selected. Click button to modify the report

pick details. Select the report to export.

**File name:** Enter the file name for the product when it is made. The location of the file is

determined by the data export action.

**Options:** Enter command options to control how the product is made by the data display

pages mapDataDisplay, plotDataDisplay, reportDataDisplay (see Appendix B).

The default command options used are:

Label	Value	Description
exportPage	true	No header, footer, menu on page.
showDataLink	false	No drill down links for data readouts.
9	\$	

**Timeout:** Select the product creation timeout. The data export is canceled if the product

cannot be made with in the timeout interval. Click the button to alternate between interval selection from a pick list or from time interval fields. Default: 60 seconds.

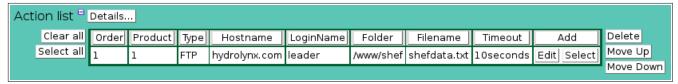


Figure 5.2.7. Data Export Action List

# 5.2.5 Data Export Action List

The **Action List** displays the data export actions to deliver the products to local or remote servers,see Figure 5.2.7. Data export actions are None, COPY, FTP, LFTP, PFTP, SFTP.

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Multiple actions can be assigned to each product. When a data export record is first defined, no action records will be assigned to the record.

Click on the table column headers to resort the table for this column; first ascending, then descending. Click on the **Details...** button to change the details and display order, see Figure 5.2.8. Click on a table field to edit the text. Click **Add** to add an new action; the action list edit panel is opened. Click **Edit** to edit an existing action; the edit panel is opened, see Figure 5.2.9.

Button	Action
Clear all	Clear selection of all rows in this table.
Select all	Select all rows in this table.
Add	Opens the edit panel where you can enter the parameters for a new record.
Edit	Open the edit panel for this record.
Select	Select row for applied changes from the edit panel; first select, then clear select.
Delete	Mark selected rows for deletion; first select, then clear select.
Move up	Move the selected rows up one row.
Move down	Move the selected rows down one row.
Apply	Assign changed field values to this and all other selected rows in the table.
	Changed fields are highlighted with a blue-green background while unchanged
	fields have a white background.
Close	Close the edit panel without saving changes; you will be warned if changes will
	be lost by this action.

# **Data Export Action List Details**

The check boxes on **Data Export Action List Details** page control the items, organization, sort order, and limit the records displayed on the associated **List** page.

# Select the details to display

Check the box to the left of a detail to display. Details are displayed in the order shown. Check the Order by box for the detail to sort first. Check Reverse for a descending sort. Check the Then by box for the detail to sort second. Check Reverse for a descending sort. Check the second Then by box for the detail to sort third. Check Reverse for a descending sort.



Figure 5.2.8. Data Export Action List Details

Button	Action
Move Up	Move the selected detail up one row.
Move Down	Move the selected detail down one row.
Select All	Select all details.

Reset to default details.

OK Return to previous page with new details selected.

Cancel Return to previous page with no changes.



Figure 5.2.9. Data Export Action Edit Panel

# **Action list parameters**

**Product:** Select the product for this action from the data export product list above.

**Type:** Select how the product is sent to the local or remote server:

Type	Description					
	No action. Product is left in file name defined for action.					
	The file is copied using a shared file system. The destination folder and file name are required.					
	Copy the product file with file transfer protocol. The destination host name, login name, password, folder and file name are required.					
	Copy the product file with sophisticated file transfer protocol. The destination host name, login name, password, folder and file name are required.					
	Copy the product file with passive file transfer protocol. The destination host name, login name, password, folder and file name are required.					
	Copy the product file with secured file transfer protocol. The destination host name, login name, password, folder and file name are required.					

**Host name:** Enter the destination host name as a URL or IP address

**Login name:** Enter the login name for the destination host. **Password:** Enter the password for the login name.

**Folder:** Enter the destination folder for the file transfer. If blank then the home folder is

used.

**File name:** Enter the file name for the destination file. If blank then the product file name is

used.

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#### Timeout:

Select the file transfer timeout. The data export is canceled if the product cannot be transferred with in the timeout interval. Click the button to alternate between interval selection from a pick list or from time interval fields. Default: 60 seconds.

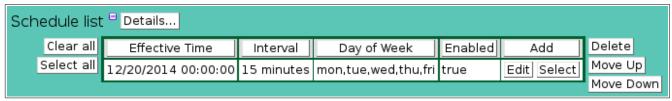


Figure 5.2.10. Data Export Schedule List

# 5.2.6 Data Export Schedule List

The **Schedule List** displays the data export schedules to deliver the products to local or remote servers, see Figure 5.2.10. When a data export record is first defined, no schedule records will be assigned to the record. Data export schedules are stored in the cron system file: /etc/cron.d/novastar5-dataexport

Click on the table column headers to resort the table for this column; first ascending, then descending. Click on the **Details...** button to change the details and display order, see Figure 5.2.11. Click on a table field to edit the text. Click **Add** to add an new schedule; the schedule list edit panel is opened. Click **Edit** to edit an existing schedule; the edit panel is opened, see Figure 5.2.12.

Button	Schedule
Clear all	Clear selection of all rows in this table.
Select all	Select all rows in this table.
Add	Opens the edit panel where you can enter the parameters for a new record.
Edit	Open the edit panel for this record.
Select	Select row for applied changes from the edit panel; first select, then clear select.
Delete	Mark selected rows for deletion; first select, then clear select.
Move up	Move the selected rows up one row.
Move down	Move the selected rows down one row.
Apply	Assign changed field values to this and all other selected rows in the table.
	Changed fields are highlighted with a blue-green background while unchanged
	fields have a white background.
Close	Close the edit panel without saving changes; you will be warned if changes will
	be lost by this action.

### **Data Export Schedule List Details**

The check boxes on **Data Export Schedule List Details** page control the items, organization, sort order, and limit the records displayed on the associated **List** page.

### Select the details to display

Check the box to the left of a detail to display. Details are displayed in the order shown. Check the Order by box for the detail to sort first. Check Reverse for a descending sort. Check the Then by box for the detail to sort second. Check Reverse for a descending sort.

Check the second Then by box for the detail to sort third. Check Reverse for a descending sort.

Data Export Schedule List Details OK Cancel						Bottor	n			
Sel	Select the details to display									
	Detail	Order by	Reverse	Then by	Reverse	Then by	Reverse		Move Up	
✓	Effective time							П	Move Down Select All	
✓	Interval									
✓	Day of week									
✓	Enabled								Reset	
								L	OK Cance	اد
Da	Data Export Schedule List Details OK Cancel Top									

Figure 5.2.11. Data Export Schedule List Details

**Button** Action

Move Up Move the selected detail up one row.

Move Down Move the selected detail down one row.

Select All Select all details.

Reset Reset to default details.

OK Return to previous page with new details selected.

Cancel Return to previous page with no changes.



Figure 5.2.12. Data Export Schedule Edit Panel

#### **Schedule list parameters**

**Effective time:** Enter the time for the next scheduled action. If a past time is entered, the scheduler will adjust the time to the next scheduled time based on the schedule **Interval**. The default if no value is entered for the **Effective time** is the current time. Click the button to assign the current time.

**Interval:** Enter how often you want the scheduled action to execute. Enter the numeric value for the interval in the input box and the use the drop-down list to select the interval unit (minutes, hours, days, etc.). Click the **Interval** button to display a list of intervals to pick from. Click the **Interval** button again to display the interval value and time units.

**Day of Week:** Enter the days of the week on which you want the scheduled action to execute. Click the **Day of Week** button to display a multiple choice pick list for days of the week. If you want the scheduled action to execute only on Fridays, set your schedule **Interval** to 1 day and select only Friday from the **Day of Week** list. Multiple days can be selected from the list by depressing the Ctrl button on your keyboard while selecting from the list with the mouse.

**Enabled:** Select *true* to execute the data export at the scheduled time. Select *false* to leave the data export in the configuration list but do not execute it.

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# 5.2.7 Data Export Command

**Command:** Enter the data e

Enter the data export command to be executed manually or at the scheduled time. The default data export command is:

nsdataexport -G#

where # is the data export record index (see Table row above). Click the **View** button to display a script command file. Click the **Upload** button to upload a new command script file to the NovaStar 5 system. Click the **Remove** button to delete a command script file. Click **Reset** to assign the default data export command.

# 5.2.8 Data Export Command Upload

Data export script files can be uploaded from your workstation to the NovaStar 5 system. They are placed in the /local/bin folder of the browser which is linked to the /usr/ns/cus folder for command execution by the scheduler. The command ownership and execute permissions are set by the upload process. Click the **Upload** button to start the process.



Figure 5.2.13. Data Export Command Upload Start

Click the **Browse** button to open the file browser on your workstation.

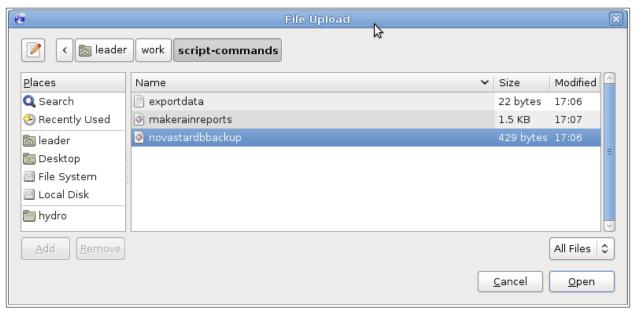


Figure 5.2.14. Data Export Command Upload File Selection

Select the command script file from you workstation folder and click the **Open** button.

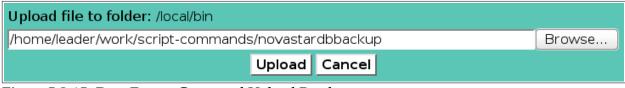
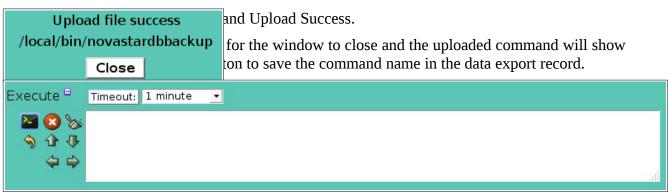


Figure 5.2.15. Data Export Command Upload Ready

The workstation file name and path will be displayed in the upload window. Click the **Upload** button to upload this file to the NovaStar 5 system. When the upload is finished the Upload file success window is displayed.



fields. Default: 60 seconds.

Click the **Run command** button to execute the data export command; activity is shown in the display window.

Button	Action
<b>2</b>	Run command; display activity in command display window.
<b>S</b>	Stop command.
<b>&amp;</b>	Clear display window.
<b>⑤</b> <b>1</b>	Reset display window size to default.
<b>û</b>	Decrease display window height.
₽	Increase display window height.
<b>\( \begin{array}{c} \\ \eq \end{array} \end{array} \end{array}</b>	Decrease display window width.
$\Rightarrow$	Increase display window width.

# 5.2.10 Data Export Delete

To delete a data export from the **Data Export List**, click **Edit** on that record's event's row in the **Data Export List** table and then click **Delete** from the **Data Export Edit** screen. You will be prompted by the **Data Export Delete** page to click the **Delete** button again to confirm that you wish to delete the record. If you click the **Delete** button a second time, the record will be deleted from the Data Export List. Automatic execution of a data export can be suspended without deleting the record by setting the schedule **Enabled** state to *false*.

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# 6 Maps

A *map* in NovaStar 5 is a background image overlain by a group of map points that specify data values to be displayed. Each map has a number and a unique name that should help describe the combination of background image and point display for that map. The same background image may be used beneath the display of many different data sets.

NovaStar 5 can display map background images saved in the following formats:

- 1. Joint Photographic Experts Group Format \*.jpeg and \*.jpg
- 2. Graphics Interchange Format \*.gif
- 3. Portable Network Graphics Format \*.png

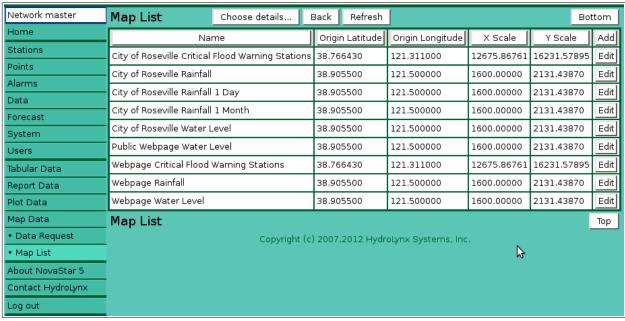


Figure 6.1.1. Map List

# 6.1 Map List

When you click on the **Map Data** menu list option, **Data Request** and **Map List** menu choices appear. Click **Map List** to display the **Map List** page. When you first begin to configure NovaStar 5, no maps will appear on the **Map List** page. Click the **Add** button at the upper right-hand corner of the **Map List** table to define a new map using the **Map Add** page. See Section 6.1.3. You can also create a new map based on an existing template map using the **Map Copy** page. See Section 6.1.5.

The **Map List** table shows all of the maps that have been defined for your system and can show map details including the map **Table row number**, **Number**, **Name**, **Origin latitude**, **Origin longitude**, **X Scale**, **Y Scale** and **Image** path. Clicking on any of the column heading buttons will reorder the maps in the **Map List**, numerically or alphabetically, by that detail. The **Choose details...** button allows you to specify what information is displayed by the **Map List** page using the **Map List Details** page, see Section 6.1.1.

Click on the **Edit** button on any map's row in the **Map List** table to view or edit the defining attributes of that map on the **Map Edit** page, described in Section 6.1.4 below.

## 6.1.1 Map List Details

The check boxes on **Map List Details** page control the items, organization, sort order, and limit the records displayed on the associated **List** page.

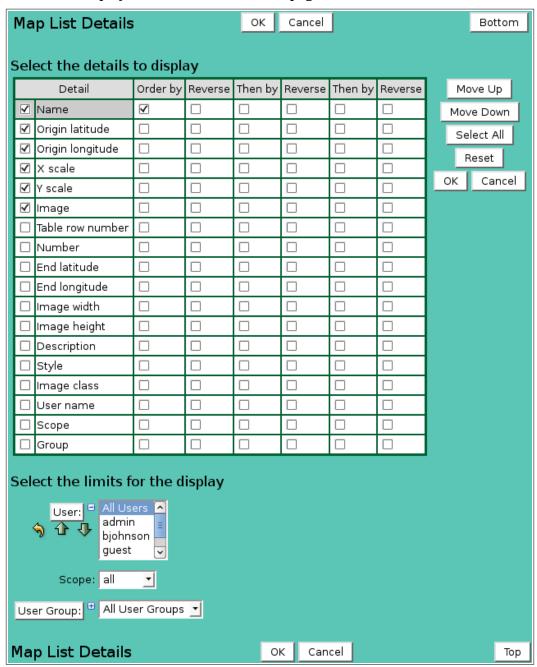


Figure 6.1.2. Map List Details

### Select the details to display

Check the box to the left of a detail to display. Details are displayed in the order shown.

Check the Order by box for the detail to sort first. Check Reverse for a descending sort.

Check the Then by box for the detail to sort second. Check Reverse for a descending sort.

Check the second Then by box for the detail to sort third. Check Reverse for a descending sort.

**Button** Action

Move Up Move the selected detail up one row.

Move Down Move the selected detail down one row.

Select All Select all details.

Reset Reset to default details.

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OK Return to previous page with new details selected.

Cancel Return to previous page with no changes.

## Select the limits for the display

**User:** Limit display to maps assigned to the user(s). Click **User:** button to change **User** 

**Pick Details** and order.

**Button Action** 

Reset pick list to single select.

Decrease pick list length.

♣ Increase pick list length.♣ Expand pick list to multiple

Expand pick list to multiple select.Collapse pick list to single select.

**Scope:** Limit display to maps with scope: *all*, *public*, *private*.

**User Group:** Limit display to maps assigned to the user group(s). Click **User Group:** button to

change User Group Pick Details and order.



Figure 6.1.3. Map Pick Details

# 6.1.2 Map Pick Detail

The check boxes on **Map Pick Details** page control the items, organization, sort order, and limit the records displayed on the pick list.

## Select the details to display

Check the box to the left of a detail to display. Details are displayed in the order shown.

Check the Order by box for the detail to sort first. Check Reverse for a descending sort.

Check the Then by box for the detail to sort second. Check Reverse for a descending sort.

Check the second Then by box for the detail to sort third. Check Reverse for a descending sort.

**Button** Action

Move Up Move the selected detail up one row.

Move Down Move the selected detail down one row.

Select All Select all details.

Reset Reset to default details.

OK Return to previous page with new details selected.

Cancel Return to previous page with no changes.

# Select the limits for the display

**User:** Limit display to maps assigned to the user(s). Click **User:** button to change **User** 

**Pick Details** and order.

### **Button Action**

Reset pick list to single select.

Decrease pick list length.

♣ Increase pick list length.

Expand pick list to multiple select.
Collapse pick list to single select.

**Scope:** Limit display to maps with scope: *all*, *public*, *private*.

User Group: Limit display to maps assigned to the user group(s). Click User Group: button to

change User Group Pick Details and order.

Map Add	ОК	Apply Back	Display	Bottom
* Required field	** Must be unique			
	t the errors highlig	ghted below.		
Identificatio	n 🖱			
Table row:	Will be as	signed by system.		
** Number:	Number	is a required field.		
* Name:				
	Name is a required fie	ld.		
Description:				
Owner <sup>□</sup>				
User:	▼ Reset			
Scope:	public •			
User groups	Assign/Remove gro	ups List		
Details	Name Description			
	No user groups assign	ed to map		
Location =	Decimal degrees	→ Pixels per d	ogroo 🕶	
		- Pixels per u		
Latitude *Top:	*Bo	ttom:	*Height:	Y scale:
Longitude *Left:	*	Right:	*Width:	X scale:
	9	Compute Bottom/Righ	Read image size	Compute map scale

Figure 6.1.4. Map Add

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# **6.1.3** Map Add

The **Map Add** page allows users to create a new map by entering, at a minimum, a unique map **Number** and **Name**. All other map parameters are described in the **Map Edit** page section below. Click the **Apply** button to save the map to the database and convert your page to the **Map Edit** page. The **OK** button will also save the map then return you to the **Map List** page.

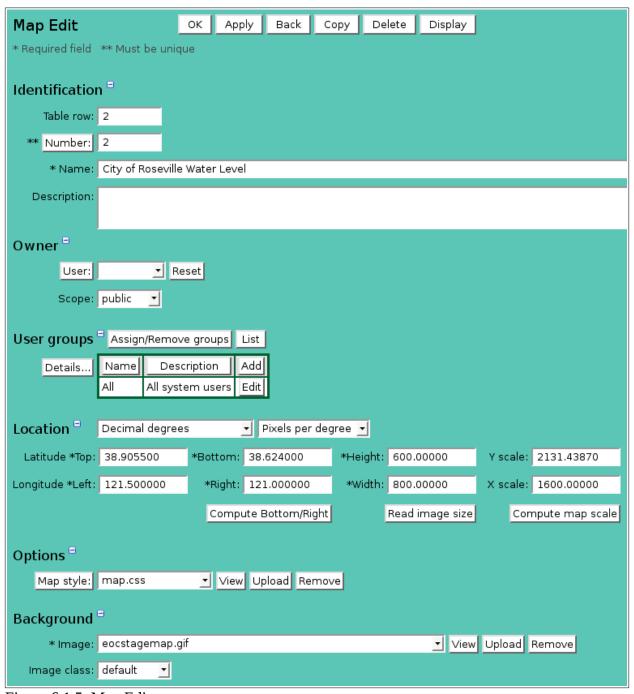


Figure 6.1.5. Map Edit

### **6.1.4 Map Edit**

When you click on the **Edit** button associated with any map defined in the **Map List** table, or when you click **Apply** from the **Map Add** or **Map Copy** pages to create a new map, you reach the **Map Edit** page. The map parameters that are edited or input using the **Map Edit** page are grouped under **Identification**, **Location**, **Options**, **Background**, **Annotation list** and **Point list** headings.

### Identification

Map identification is used to organize and describe maps in the system and provide information for map pick lists.

**Table index:** Field can not be modified; it is assigned automatically when a record is added. **Number:** Map number must be unique for each map. Map numbering does not have to be

sequential. Click on the **Number:** button to assign the next available map number.

**Name:** Map name must be unique for each map and should describe the map background

and map points that are displayed, including the data analysis options that have

been selected for that map points. Max: 100 characters.

**Description:** This descriptive field does not display on map data display pages. Use it to

describe the map functionality. Max: 1000 characters.

**Owner** 

**User:** Select the map owner from the user list. Click **User:** button change **User Pick** 

**Details** and order, see Section 10.1.2. Click **Reset** to assign your login name.

**Scope:** Select map access: *public*, *private*.

**Access Description** 

Public Everyone can display this map.

Private Only owner, group supervisor, or administrator can display this map.

# User groups

The **User groups** table shows the user groups currently assigned to the map. Clicking on any of the column heading buttons will reorder the user groups in the **User groups List**, numerically or alphabetically, by that detail. Click **Details:** button to change the User Group List details and display order, see Section 10.3.1. Click **Assign/Remove groups** button to open User Group Assignment window, see Section 10.3.3. Changes made to user group assignments will update this page when the assignment window is closed. Click **List** button to show all user groups, see Section 10.3. Click **Add** button to add a user group, see Section 10.3.4. Click **Edit** button to edit the user group, see Section 10.3.5.

Location	Decimal degrees	_	Pixels per degre	e <u>•</u>				
Latitude *Top:	38.90550	*Bottom:	38.62400	*Height:	600.00000	Y scale:	2131.43870	
Longitude *Left:	121.50000	*Right:	121.00000	*Width:	800.0000	X scale:	1600.00000	
	Close scale wiza	rd Comput	e map Bottom/Ri	ght Compu	ite map scale R	ead image s	size	

# Location

The **Location** parameters allow NovaStar 5 to correctly display map point data, based on the latitude and longitude provided during station configuration, on the background image, by locating and scaling the background image.

Latitude (positive in the northern hemisphere, negative in the southern) and **Longitude** (can be either positive or negative in the western hemisphere, as long as you are consistent) of the map origin (the upper left hand corner of the map) are entered. The sign convention used for longitude values must be consistent with those entered for stations in order for data to appear on maps. Latitude and longitude can be displayed and entered as *decimal degrees* or in *degrees*, *minutes and seconds*. Select the display method for latitude and longitude using the drop-down list. Separate the degrees, minutes or seconds with a colon (:); seconds may have a decimal fraction. The X and Y scale values can be display end entered as *Pixels per degree* or *Degrees per pixel*.

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Click the **Show scale wizard** button for help in computing the X and Y scale values. The wizard will let you enter the top and bottom latitude, left and right longitude, and map image height and width. Click the Compute map Bottom/Right button to compute the bottom latitude, right longitude from the top latitude, left longitude, height, width, Y and X scale values. Click the Compute map scale button to compute the X and Y scale values. Click the Close scale wizard button to return to the normal display.

**Latitude Top:** Latitude for the map top border. Latitude for the map bottom border. **Bottom: Longitude Left:** Longitude for the map left border. Right: Longitude for the map right border. Height: Map background height in pixels.

Width: Map background width in pixels. Click the **Read image size** button to get the

image file height and width. Enter a different image size to force the background

image display size for a map data display.

Vertical scaling factor to position annotations and points on the map data display. Y scale: X scale:

Horizontal scaling factor to position annotations and points on the map data

display.

The map scale is determined by dividing the dimensions of the map image, in pixels, by the corresponding dimension of the map in decimal degrees. The scale value represents the number of pixels per degree for that map image. The scale can be displayed in pixels per degree or degrees per pixel. Select the display method with the drop-down list.

Y scale =	vertical map dimension (height) in pixels					
	Difference in longitude between the map top border and bottom border					
X scale =	horizontal map dimension (width) in pixels					
	Difference in longitude between the map left border and right border					

# **Options**

Map point readouts and annotations are drawn with the default styles for the NovaStar5 server. Select a custom map style from **Map style** list. The style files are Cascading Style Sheets and are stored in the folder: /tomcat/local/styles. Click the **View** button to display the style file on your browser. Click **Upload** button to add a style sheet file to your server. Click **Remove** button to remove a style sheet file from your server. Click **OK** to acknowledge the file removal.



To create a new style sheet:

1. Select the default style sheet and click the **View** button.

/\* map.css: NovaStar 5 custom map style sheet \*/

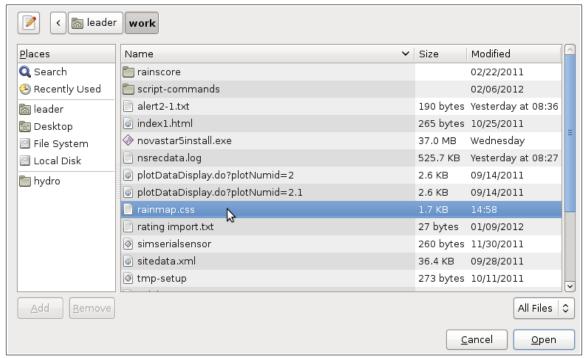
```
a.maprain0,a.maprain1,a.maprain2,a.maprain3,a.maprain4,a.maprain5 {
 color:black;font-size:20pt;font-weight:bold;
 padding-left:2px;padding-right:2px;
 padding-top:Opx;padding-bottom:Opx;
 border-color:#00ccff;border-width:3px;border-style:inset;height:1
a.mapstage0,a.mapstage1,a.mapstage2,a.mapstage3,a.mapstage4,a.mapstage5 {
 color:black;font-size:20pt;font-weight:bold;
 padding-left:2px;padding-right:2px;
 padding-top:Opx;padding-bottom:Opx;
 border-color:#0044ff;border-width:3px;border-style:inset;height:1
td.maprainO,td.maprain1,td.maprain2,td.maprain3,td.maprain4,td.maprain5,
td.mapstage0,td.mapstage1,td.mapstage2,td.mapstage3,td.mapstage4,td.mapstage5 {
 color:black;font-size:10pt;font-weight:normal;white-space:nowrap;
 font-family:sans-serif, Verdana, Arial, Helvetica;
 background-color:#fffffff;padding:3px;text-align:left;
a.maprainO,td.maprainO {background-color:#cccccc;}
a.maprainl,td.maprainl {background-color:#ffffff;}
a.maprain2,td.maprain2 {background-color:#44ff44;}
a.maprain3,td.maprain3 {background-color:#ffff44;}
a.maprain4,td.maprain4 {background-color:#ff44ff;}
a.maprain5,td.maprain5 {background-color:#ff4444;}
a.mapstage0,td.mapstage0 {background-color:#cccccc;}
a.mapstagel,td.mapstagel {background-color:#00ffff;border-color:#4444ff;}
a.mapstage2,td.mapstage2 {background-color:#44ff44;border-color:#448844;}
a.mapstage3,td.mapstage3 {background-color:#ffff44;border-color:#ff8844;}
a.mapstage4,td.mapstage4 {background-color:#ff44ff;border-color:#884488;}
a.mapstage5,td.mapstage5 {background-color:#ff4444;border-color:#884444;}
a.maplabel {
 color:black;font-size:10pt;font-weight:bold;
2. Using the browser File menu select Save As or Save Page As to write the default map style
```

- sheet (map.css) to a folder on your workstation.
- 3. Use a text editor to modify the styles in your local file.
- 4. Return to the **Map Edit** page.
- 5. Click the **Upload** button to the right of the Map style to open the Upload file window.



6. Select your modified local file.

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7. Click the Upload button on the Upload file select window.



9. The uploaded file is shown in the select list.

## **Background**

Select the map background image file name in the **Image** select box. Image file names are read from the folder: /tomcat/local/images. Choose the *Other*... option at the end of the image select list to enter the full address of an image stored on an external server, for example: http://myserver/images/myimage.png. Click **View** button to display the image file on the browser. Click **Upload** button to add a map background image to your server. Click **Remove** button to remove a map background image from your server. Click **OK** to acknowledge the file removal.

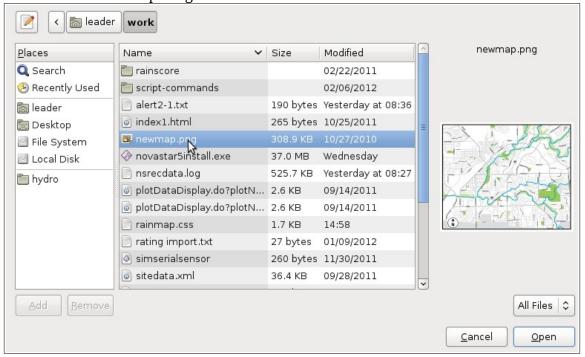
1	cino van		
	Background		
	*Image:	eocstagemap.gif View Uplo	oad Remove
	Image class:	default <u>▼</u>	

To upload a map background image:

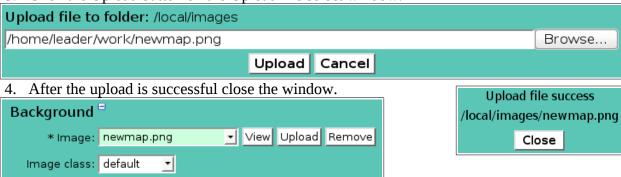
1. Click the **Upload** button to the right of the image pick list.

Upload file to folder: /local/images	
	Browse
Upload Cancel	

2. Select the new map image file.



3. Click the Upload button on the Upload file select window.



5. The uploaded file is shown in the select list.

Select the Image class for the map background. The image class list is read from the Map style file. This class can set image properties such as border thickness, type and color. The default image class is mapimage. The mapimage class from the default map style sheet is:

```
/* Map background image class position:relative; is required! text-decoration:none; is required! border:0px solid black; Change for a colored border around the map image. */ div.mapimage {position:relative;} a.mapimage {text-decoration:none;} img.mapimage {border:0px solid black;}
```

For example to draw a 2 pixel width blue border around a map image change the style to: img.mapimage {border:2px solid blue;}

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#### 6.1.5 Map Annotation List

The **Annotation List** displays the map annotation records assigned to the map being edited, see Figure 6.1.6. Map annotations are text strings, markers, or image files that are displayed on top of the map background at the pixel position defined in the table columns: Left and Top. If links are assigned to a map annotation, the active link area can be extended to the pixel lengths by the columns: Width and Height. A marker precedes annotation text. Text overwrites an image. When a map is first defined, no map annotation records will be assigned to the map.

Click on the table column headers to resort the table for this column; first ascending, then descending. Click on the **Choose details...** button to change the details and display order, see Figure 6.1.7. Click on a table field to edit the text. Click **Add** to add an new annotation; the annotation list edit panel is opened. Click **Edit** to edit an existing annotation; the edit panel is opened, see Figure 6.1.8.

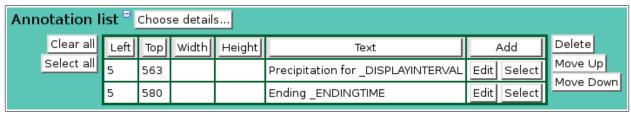


Figure 6.1.6. Map Annotation List

Button	Action
Clear all	Clear selection of all rows in this table.
Select all	Select all rows in this table.
Add	Opens the edit panel where you can enter the parameters for a new record.
Edit	Open the edit panel for this record.
Select	Select row for applied changes from the edit panel; first select, then clear select.
Delete	Mark selected rows for deletion; first select, then clear select.
Move up	Move the selected rows up one row.
Move down	Move the selected rows down one row.
Apply	Assign changed field values to this and all other selected rows in the table.
	Changed fields are highlighted with a blue-green background while unchanged
	fields have a white background.
Close	Close the edit panel without saving changes; you will be warned if changes will

### **Map Annotation List Details**

be lost by this action.

The check boxes on **Map Annotation List Details** page control the items, organization, sort order, and limit the records displayed on the associated **List** page.

## Select the details to display

Check the box to the left of a detail to display. Details are displayed in the order shown. Check the Order by box for the detail to sort first. Check Reverse for a descending sort. Check the Then by box for the detail to sort second. Check Reverse for a descending sort. Check the second Then by box for the detail to sort third. Check Reverse for a descending sort.

ı	Map Annotation List Details					ок	ancel		Bottom	
S	el	ect the det	ails to d	isplay						
l		Detail	Order by	Reverse	Then by	Reverse	Then by	Reverse	М	love Up
l	✓	Left							Мо	ve Down
l	✓	Тор							S	elect All
L	✓	Width								Reset
l	✓	Height							_	
l	✓	Text							OK	Cancel
L	✓	Marker								
l	✓	lmage								
ı		Order	<b>✓</b>							
l		Text class								
L		Marker class								
l		Image class								
		Link								
		Link help								
N	1a	p Annotat	ion Lis	t Deta	ils		ОК	Cancel		Тор

Figure 6.1.7. Map Annotation List Details

**Button** Action

Move Up Move the selected detail up one row.

Move Down Move the selected detail down one row.

Select All Select all details.

Reset to default details.

OK Return to previous page with new details selected.

Cancel Return to previous page with no changes.



Figure 6.1.8. Map Annotation Edit Panel

### **Annotation list parameters**

**Left:** Leftmost position of the annotation in pixels right of the left border. **Top:** Topmost position of the annotation in pixels below of the top border.

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Width: Optional width to extend the active link area in pixels for the annotation.Height: Optional height to extend the active link area in pixels for the annotation.

**Text:** Text string for the annotation.

**Text class:** Select a class from the map style sheet to define the text display style. The *default* 

class is *maptext*. This class displays the text annotation in a black, 10 point, bold

font with no border.

/\* Map text class - default for map text annotations.

position:absolute; is required!

background-color:transparent; is recommended \*/
div.maptext {position:absolute;background-color:white;}
a.maptext {color:black;font-size:10pt;font-weight:bold;}

**Parameter:** 

Append selected display parameter key words to the text. These key words are replaced by the map display request parameters: Table 6.1.1. Map Annotation Text Parameters

List label	Parameter key word
Map number	_MAPNUMBER
Map name	_MAPNAME
Ending time	_ENDINGTIME
Display interval	_DISPLAYINTERVAL
Data analysis	_DATAANALYSIS

The example in Figure 6.1.6 with the following text annotations:

Precipitation for \_DISPLAYINTERVAL

Ending \_ENDINGTIME

will display the following text on the map data display:

Precipitation for 1 day Ending 01/22/2010 00:00:00

Marker:

Select a marker to preceed the text in the annotation or *none* for no marker. A marker is a graphical image file stored in the NovaStar 5 or local marker folder (/tomcat/local/markers). The annotation text is placed immediately to the right of the marker. Click the **View** button to display the selected marker on your browser. Right click this button to view the marker in another window or tab. Click the **Upload** button to upload a new marker image to the local marker folder. Click the **Remove** button to delete a marker from the local marker folder. You will have to click **OK** to acknowledge the file removal.

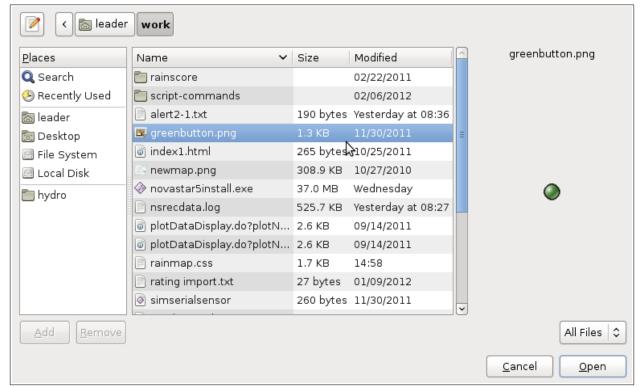
**Marker Class:** Select a class from the map style sheet to define the marker display style. The *default* style is no border and a transparent background.

To upload a marker:

1. Click the **Upload** button to the right of the marker pick list.



2. Select the new map image file.



3. Click the Upload button on the Upload file select window.



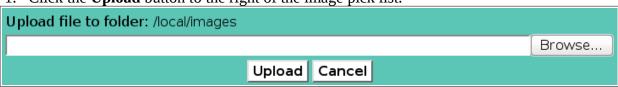
**Image:** 

Select an image file name to display on the map or *none* for no image. An image is a graphical image file stored in the NovaStar 5 or local image folder (/tomcat/local/images). The annotation text is placed on top of the image. Click the **View** button to display the selected image on your browser. Right click this button to view the image in another window or tab. Click the **Upload** button to upload a new image file to the local image folder. Click the **Remove** button to delete an image file from the local image folder. You will have to click **OK** to acknowledge the file removal.

**Image Class:** Select a class from the map style sheet to define the image display style. The *default* style is no border and a transparent background.

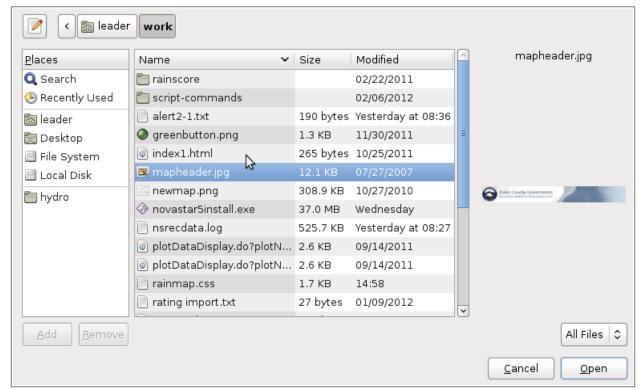
To upload an image:

1. Click the **Upload** button to the right of the image pick list.



2. Select the new map image file.

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3. Click the Upload button on the Upload file select window.



**Link:** Enter an optional hyperlink for this annotation. NovaStar 5 page links can be

entered with no hostname path. For example to display map number 4 from this hyperlink use the link name: mapData.do?mapNumid=4. Otherwise enter the

URL of the hyperlink, for example: http://www.mylink.com/thislink.

**Link help:** Enter the tool tip to display when the mouse hovers over the map annoataion text,

image, or marker.

#### 6.1.6 Map Point List

The **Point List** displays the map point records assigned to the map being edited,see Figure 6.1.9. Map points define the point data analysis and data readout display styles to display on top of the map background. A map point is displayed on the map background as site marker followed by a text data readout in a box to the right of the marker. The site marker is located on the map using the point's station latitude and longitude. The text data readout is positioned relative to the site marker by an X and Y Offset. Hyperlinks are assigned to the map point markers and text data readouts. The default hyperlink displays the data edit page for the point and map request time period.

Click on the table column headers to resort the table for this column; first ascending, then descending. Click on the **Choose details...** button to change the details and display order, see Figure 6.1.10. Click on a table field to edit the text. Click **Add** to add an new point; the point list

add panel is opened, see Figure 6.1.11. Click **Edit** to edit an existing point; the edit panel is opened, see Figure 6.1.12.



Figure 6.1.9. Map Point List

Button	Action
Clear all	Clear selection of all rows in this table.
Select all	Select all rows in this table.
Add	Opens the edit panel where you can enter the parameters for a new record.
Edit	Open the edit panel for this record.
Select	Select row for applied changes from the edit panel; first select, then clear select.
Delete	Mark selected rows for deletion; first select, then clear select.
Move up	Move the selected rows up one row.
Move down	Move the selected rows down one row.
Apply	Assign changed field values to this and all other selected rows in the table.
	Changed fields are highlighted with a blue-green background while unchanged
	fields have a white background.
Close	Close the edit panel without saving changes; you will be warned if changes will
	be lost by this action.

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Map Point List Details  OK Cancel Bottom							
Select the details to							
Detail	Order by	Reverse	Then by	Reverse	Then by	Reverse	Move Up
✓ Order	✓						Move Down
✓ Point							Select All
✓ Analysis							Reset
✓ X Offset							OK Cancel
✓ Y Offset							OK Cancel
▼ Type							
✓ Lower Limit							
✓ Upper Limit							
☐ Label							
☐ Link							
☐ Link Help							
☐ Marker							
☐ Marker Score							
☐ Marker Class							
☐ Marker Class Score							
☐ Marker Missing							
☐ Marker Missing Class							
☐ Text Line							
☐ Text Class							
☐ Text Score							
☐ Show Units							
☐ Display Digits							
☐ Text Missing							
☐ Text Missing Class							
☐ Missing Hide							
Map Point List Det	ails			ОК	Cancel		Тор

Figure 6.1.10. Map Point List Details

### **Map Point List Details**

The check boxes on **Map Point List Details** page control the items, organization, sort order, and limit the records displayed on the associated **List** page.

### Select the details to display

Check the box to the left of a detail to display. Details are displayed in the order shown.

Check the Order by box for the detail to sort first. Check Reverse for a descending sort.

Check the Then by box for the detail to sort second. Check Reverse for a descending sort.

Check the second Then by box for the detail to sort third. Check Reverse for a descending sort.

**Button** Action

Move Up Move the selected detail up one row.

Move Down Move the selected detail down one row.

Select All Select all details.

Reset to default details.

OK Return to previous page with new details selected.

Cancel Return to previous page with no changes.

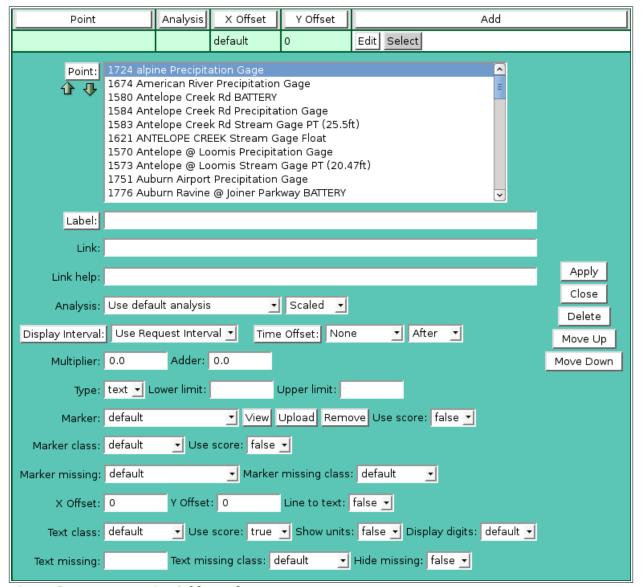


Figure 6.1.11. Map Point Add Panel

#### Point:

Select points to add to the point list from the pick list. Hold down the [Ctrl] key and click to select multiple points. Hold down the [Shift] key and click to select points from last selected to current selection. Click button to change **Point Pick Details** and order, see Section 3.1.2.

#### **Button Action**

- Decrease pick list length.
- Increase pick list length.

Click the **Apply** button to add all selected points to the point list. The point list add panel will change to the point list edit panel for the last point added. You will then need to assign the other parameters to each point. First click **Clear all** to de-select all points except the one shown in the edit panel.

## **Point list parameters**

**Point:** 

Select points to add to the point list from the pick list. Click button to change **Point Pick Details** and order, see Section 3.1.2.

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Label: Enter the tool tip label for a mouse hover over the point marker and data readout. By default the point pick list details are used. Click button to fill in the default label for editing from the point pick details.

1570 Antelope @ Loomis Pre	cipitation Gage	default	0	0	Edit Select
Point: 1570 Ante	ope @ Loomis Precipitation Gage			<u>•</u>	
Label:					
Link:					
Link help:					
Analysis: Use defaul	t analysis 🛨 Scaled 🛨				
Display Interval: Use Requ	est Interval 🗾 Time Offset: No	ne 🔻	After <u>▼</u>		Apply
Multiplier: 0.0	Adder: 0.0				Сору
Type: text 🗾 Lov	wer limit: Upper limit:				Delete
Marker: default	▼ View Upload Rem	ove Use sc	ore: false 🔻		Move Up
Marker class: default	▼ Use score: false ▼				Move Down
Marker missing: default	<u></u> ■ Marker missing clas	s: default	•		
X Offset: 0	Y Offset: 0 Line to text:	false 🛨			
Text class: default	▼ Use score: false ▼ Show units	false 🛨 Di	splay digits:	default 🛨	
Text missing:	Text missing class: default	Hide missing	g: false 🛨		

Figure 6.1.12. Map Point Edit Panel

Link: Enter an optional hyperlink for this point. NovaStar 5 page links can be entered

with no hostname path. For example to display report group number 4 from this hyperlink use the link name: reportData.do?reportNumid=4. Otherwise enter the

URL of the hyperlink, for example: http://www.mylink.com/thislink.

Enter the tool tip for a mouse hover over the right click menu hyperlink for this Link help:

point. The label field above is shown for a mouse over the point marker and data

readout.

Select the data analysis for the point readout. See the data analysis appendix for a **Analysis:** 

> description of the analysis types. Use default analysis will perform the map data request analysis selected. Any other analysis type selected will override the map

data request analysis.

**Analysis Interval:** The *Storm Rainfall* and *Rainfall Intensity* data analysis require an analysis interval. See the data analysis appendix for a description of the analysis interval

use for these analysis types. Click the button to alternate between interval

selection from a pick list or from time interval fields.

	Analysis:	Storm Rainfall	▼ Analysis Interval: 1 day	
--	-----------	----------------	----------------------------	--

Data type: Select the type of data displayed:

Data type	Database information displayed
Scaled	Scaled or analysis value
Raw	Raw data value

Score	Nova score value
Rating1-Rating5	Rating value 1 - 5

**Display Interval:** Select the time interval for the data analysis. The time interval is used to

compute the start time for the data analysis from the end time. Click the button to alternate between interval selection from a pick list or from time interval fields. *Use Request Interval* and *Show Data Reports* will use the map data request

display interval if selected or 1 day by default

**Time Offset:** Select the time offset from the map data request end time for the data analysis

period, default if 0.0 seconds. A positive time offset starts in the future (*After*), a negative time offset starts in the past (Before). Click the Time Offset: button to select from a list of intervals. The time offset direction is selected from the After/Before list. Click the button again to use the time offset fields.

Multiply the data analysis computed value by this constant. Multiplier: Add this constant to the data analysis computed value. Adder:

Select the readout type. The only type supported at this time is *text*. Type:

**Lower limit:** Lower limit for the display of the point readout data.

**Upper limit:** Upper limit for the display of the point readout data. If the lower and upper limits

are defined, a point's readout will not be displayed if the data analysis value is below the lower limit or above the upper limit. Leave these fields blank to display

all point data analysis values.

Select a marker to mark the point's location on the map, *default* is the green circle Marker:

for valid data and red circle for missing data. Select none for no marker. A marker

is a graphical image file stored in the NovaStar 5 or local marker folder

(/tomcat/local/markers). The data readout text is placed immediately to the right of the marker. Click the **View** button to display the selected marker on your browser. Right click this button to view the marker in another window or tab. Click the **Upload** button to upload a new marker image to the local marker folder. See the map annotation marker upload procedure described above. Click the

**Remove** button to delete a marker from the local marker folder.

Use score: Select *true* to change the marker displayed for the data analysis score value. The

> score value (1-5, 0 for missing) is appended to the marker name. For example if the marker name is rain.png, then a score of 1 will display the marker rain1.png, a score of 2 will display the marker rain 2.png, and so on. Missing data will display

the marker rain**0**.png. This feature is *false* by default.

**Marker class:** Select a class from the map style sheet to define the marker display style. The

default style is mapmarker with no border and a transparent background.

Select *true* to change the marker class displayed for the data analysis score value. Use score:

> The score value (1-5, 0 for missing) is appended to the marker class name. For example if the marker class name is mapmarker then a score of 1 will use the class mapmarker1, a score of 2 will use the class mapmarker2, and so on. Missing

data will use the class mapmarker**0**. This feature is *false* by default.

**Marker missing:** Select a marker to mark the point's location on the map when the data is missing, *default* is the red circle. Select *none* for no marker on missing data.

**Marker missing class:** Select a class from the map style sheet to define the marker for missing

data display style. The *default* style *mapmarker* is no border and a transparent

background.

X Offset: Horizontal offset for the data readout text.

Vertical offset for the data readout text. Data is displayed to the right of the site Y Offset:

> marker on a map. The **X Offset** and **Y Offset** allow you to adjust where on the map the data will be displayed. If there are two points for the same station

**Page 228** A102722 displayed on the same map, the data readout text will overlay each other unless the points have different offsets. If the data readout text is too crowded on the map you can use the offsets to reposition the text. A positive X Offset moves the data display to the right, a negative offset moves the data display to the left. A positive Y Offset moves the data display down, a negative offset moves the data display up.

**Special case:** Maps that have 0 for both top latitude and left longitude and 1 for both x and y scale values use the X and Y offsets as the data readout text position relative to the upper left corner of the map background.

Line to text:

Select *true* to draw a line from the marker to the upper left corner of the data readout text. This feature is *false* by default.

**Text Class:** 

Select a class from the map style sheet to define the data readout text display style. The *default* class is *mapdata* in the default map style sheet. This class displays the data readout values in a black, 8 point, bold font surrounded by a 1 pixel black solid border.



```
/* Map readout styles for scores 1-5, 0 for missing data. */
a.mapdata,a.mapdata0,
a.mapdata1,a.mapdata2,a.mapdata3,a.mapdata4,a.mapdata5 {
color:black;font-size:8pt;font-weight: bold;
border-color:black;border-width:1px;border-style:solid;height:1;
```

To change the display style, create a class in the custom map style sheet. In the example below display the data readout values in a black, 20 point, bold font with 2 pixel left and right padding, surrounded by a 3 pixel light-blue inset border.

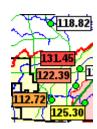
/\* Map rain readout styles for scores 1-5, 0 for missing data. \*/ a.maprain, a.maprain 0,



```
a.maprain1,a.maprain2,a.maprain3,a.maprain4,a.maprain5 {
color:black;font-size:20pt;font-weight:bold;
padding-left:2px;padding-right:2px;
padding-top:0px;padding-bottom:0px;
border-color:#00ccff;border-width:3px;border-style:inset;height:1
```

Use score:

Select *true* to change the text class for the data analysis score value. The score value (1-5, 0 for missing) is appended to the text class name. For example if the text class name is *mapdata*, then a score of 1 will use the class *mapdata*1, a score of 2 will use the class *mapdata2*, and so on. Missing data will use the class *mapdata0*. This feature is *true* by default and is used to change the background color of point text data readouts for the data score.



/\* Map readout background colors for scores \*/ a.mapdata0,td.mapdata0 {color: #888888;background-color:#ffffff;} a.mapdata,td.mapdata,

a.mapdata1,td.mapdata1 {background-color:#ffffff;} /\* white \*/ a.mapdata2,td.mapdata2 {background-color:#ffff44;} /\* yellow \*/ a.mapdata3,td.mapdata3 {background-color:#ffaa44;} /\* orange \*/ a.mapdata4,td.mapdata4 {background-color:#ff8866;} /\* pink \*/ a.mapdata5,td.mapdata5 {background-color:#ff4444;} /\* red \*/



Select *true* to append the data readout abbreviated units to data value. This feature can be used to indicate the sensor type data when multiple sensors for a station are displayed on the same map. This feature is *false* by default.

- **Display digits:** Set the number of decimal digits to display to the right of the decimal point. Select default to use the number of display digits assigned to the point type.
- **Text missing:** Set the missing data string to be displayed. Blank uses the default string "N/A". Do not use a blank string to hide missing data. Instead use the Hide missing feature below.
- **Text missing class:** Select a class from the map style sheet to define the missing data readout text display style. The *default* class is *mapdata* in the default map style sheet. This class displays the data readout values in a black, 8 point, bold font surrounded by a 1 pixel black solid border.

**Hide missing:** Select *true* to prevent the display of missing data. This feature is *false* by default.

## **6.1.7 Map Copy**

The **Map Edit** page allows a user to add a map with all of the same parameters, annotations and points as an existing defined map using the **Copy** button. When you press the **Copy** button on the **Map Edit** page you reach the **Map Copy** page (Figure 48). Copying an existing map is most convenient when the new map will share many parameters with the existing map that is used as a copy template. Once you have assigned a unique map **Number** and **Name** to the copied map, clicking the **Apply** button will create the copied map and access the **Map Edit** page, described in Section 6.1.4.

### 6.1.8 Map Delete

To delete a map from the **Map List**, click **Edit** on that map's row in the table and then click **Delete** from the **Map Edit** screen to view the **Map Delete** page. The **Map Delete** page prompts you to click the **Delete** button again to confirm that the map should be deleted. When a map is deleted, NovaStar 5 will delete all map annotations and points assigned to the map the return to the **Map List** page. Click **Back** to cancel the delete request.

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## 7 Plots

A *plot* in NovaStar 5 is a group of plot panels, annotations, and points used to create one or more plot panels of point data values reportted over a time period. Each plot group has a unique number and name that should describe the information plotted.

Multiple plot panels can be displayed vertically or horizontally on the page. The plot panel title, size, time width, and time offset can be preset or set by request. Predefined plot annotations draw colored lines on the plot at specific levels with colored labels to describe the annotation. Single or multiple plot point data analyses can be drawn on a plot panel using fixed or automatic vertical scaling. The horizontal scale is always a time line. Overlaid point plots can use the left, right, or additional scales with normal or inverted scales. Plotting styles include a line with or without plot points, plot points only, a filled area under the line, bars, a stepped lines, or a filled area under a stepped line. Multiple plot limits can be preset to change the plot or fill color by level.



Figure 7.1.1. Plot List

#### 7.1 Plot List

When you click on the **Plot Data** menu list option, **Data Request** and **Plot List** menu choices appear. Click **Plot List** to display the **Plot List** page. When you first begin to configure NovaStar 5, no plots will appear on the **Plot List** page. Click the **Add** button at the upper right-hand corner of the **Plot List** table to define a new plot using the **Plot Add** page, see Section 7.1.3. You can also create a new plot based on an existing template plot using the **Plot Copy** page, see Section 7.1.5.

The **Plot List** table shows all of the plot groups that have been defined for your system and can show plot group details. Clicking on any of the column heading buttons will reorder the plots in the **Plot List**, numerically or alphabetically, by that detail. The **Choose details...** button allows

you to specify what information is displayed by the **Plot List** page using the **Plot List Details** page, see Section 7.1.1.

Click on the **Edit** button on any plot's row in the **Plot List** table to view or edit the defining attributes of that plot on the **Plot Edit** page, described in Section 7.1.4 below.

#### 7.1.1 Plot List Details

The check boxes on **Plot List Details** page control the items, organization, sort order, and limit the records displayed on the associated **List** page.

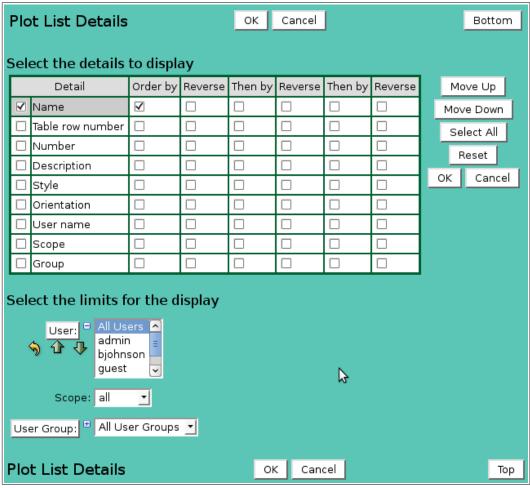


Figure 7.1.2. Plot List Details

## Select the details to display

Check the box to the left of a detail to display. Details are displayed in the order shown.

Check the Order by box for the detail to sort first. Check Reverse for a descending sort.

Check the Then by box for the detail to sort second. Check Reverse for a descending sort.

Check the second Then by box for the detail to sort third. Check Reverse for a descending sort.

**Button** Action

Move Up Move the selected detail up one row.

Move Down Move the selected detail down one row.

Select All Select all details.

Reset to default details.

OK Return to previous page with new details selected.

Cancel Return to previous page with no changes.

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### Select the limits for the display

**User:** Limit display to plots assigned to the user(s). Click **User:** button to change **User** 

**Pick Details** and order.

**Button Action** 

Reset pick list to single select.

Decrease pick list length.

Increase pick list length.

Expand pick list to multiple select.

Collapse pick list to single select.

**Scope:** Limit display to plots with scope: *all*, *public*, *private*.

**User Group:** Limit display to plots assigned to the user group(s). Click **User Group:** button to

change **User Group Pick Details** and order.



Figure 7.1.3. Plot Pick Details

#### 7.1.2 Plot Pick Detail

The check boxes on **Plot Pick Details** page control the items, organization, sort order, and limit the records displayed on the pick list.

### Select the details to display

Check the box to the left of a detail to display. Details are displayed in the order shown.

Check the Order by box for the detail to sort first. Check Reverse for a descending sort.

Check the Then by box for the detail to sort second. Check Reverse for a descending sort.

Check the second Then by box for the detail to sort third. Check Reverse for a descending sort.

**Button** Action

Move Up Move the selected detail up one row.

Move Down Move the selected detail down one row.

Select All Select all details.

Reset to default details.

OK Return to previous page with new details selected.

Cancel Return to previous page with no changes.

## Select the limits for the display

**User:** Limit display to plots assigned to the user(s). Click **User:** button to change **User** 

Pick Details and order.

**Button Action** 

• Reset pick list to single select.

Decrease pick list length.

♣ Increase pick list length.

Expand pick list to multiple select.Collapse pick list to single select.

**Scope:** Limit display to plots with scope: *all*, *public*, *private*.

**User Group:** Limit display to plots assigned to the user group(s). Click **User Group:** button to

change **User Group Pick Details** and order.

Plot Add		ок	Apply	Back	Display	Bott	om		
* Required fi	eld ** Must be u	ınique							
Please correct the errors highlighted below.									
Identification =									
Table r	ow:	Will be ass	igned by	system.					
** Numb	er:	Number is	a require	d field.					
* Nar									
* IVal	Name is a re	quired field	d.						
Descripti	on:								
2.33									
Owner =							.:::		
User: Reset									
Scope: public •									
User groups Assign/Remove groups List									
Details									
	No user grou	ps assigne	d to plot						
Options =									
Plot st	yle: default	_	View Up	load Rer	nove				
Orientati	on: Vertical	-							
Panel list	t <sup>®</sup>								
Annotati	on list								
Point list	. #								
	rrect the erro	rs highlid	ahted ah	ove.					
Plot Add		ок	Apply		Display		Тор		
FIOL Add	•	0.0	~bbiλ	Dack	Display		юр		

Figure 7.1.4. Plot Add

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### **7.1.3 Plot Add**

The **Plot Add** page allows users to create a new plot by entering, at a minimum, a unique plot **Number** and **Name**. All other plot parameters are described in the **Plot Edit** page section 7.1.4. Click the **Apply** button to save the plot to the database and convert your page to the **Plot Edit** page. The **OK** button will also save the plot to the database then return you to the **Plot List** page.

Plot Edit		ок	Apply	Back	Сору	Delete	Display	Bottom
* Required field	** Must be uni	que						
Identification	n =							
Table row:	30							
** Number:	1573							
* Name:	Antelope at Lo	omis W	ater Leve	l				
Description:	Antelope at Lo	omis W	ater Leve	l webpag	e stage pl	ot		
_								.:#
Owner =								
User:		Reset						
Scope:	public <u></u>							
User groups	Assign/Remo	ve grou	ıps List					
Details	Name De	scriptio	Add	]				
	All All sys	stem us	ers Edit	J				
Options = Plot style: default  View Upload Remove								
		_	View Up	loadRe	move			
Orientation:	Vertical <u>▼</u>							
Panel list "								
Annotation list <sup>⊕</sup>								
Point list *								
TOTAL IISC								
Plot Edit		ок	Apply	Back	Сору	Delete	Display	Тор

Figure 7.1.5. Plot Edit

#### 7.1.4 Plot Edit

When you click on the **Edit** button associated with any plot defined in the **Plot List** table, or when you click **Apply** from the **Plot Add** or **Plot Copy** pages to create a new plot, you reach the **Plot Edit** page. The plot parameters that are edited or input using the **Plot Edit** page are grouped under **Identification**, **Options**, **Panel list**, **Annotation list** and **Point list** headings.

#### Identification

Plot identification is used to organize and describe plots in the system and provide information for plot pick lists.

**Table index:** Field can not be modified; it is assigned automatically when a record is added. **Number:** Plot number must be unique for each plot. Plot numbering does not have to be

sequential. Click on button to assign the next available plot number.

**Name:** Plot name must be unique for each plot and should describe the plot information

displayed, including the data analysis options that have been selected for the plot

points. Max: 100 characters.

**Description:** This descriptive field does not display on plot data display pages. Use it to

describe the plot functionality. Max: 1000 characters.

**Owner** 

**User:** Select the plot owner from the user list. Click **User:** button change **User Pick** 

**Details** and order, see Section 10.1.2. Click **Reset** to assign your login name.

**Scope:** Select plot access: *public*, *private*.

**Access Description** 

Public Everyone can display this plot.

Private Only owner, group supervisor, or administrator can display this plot.

### User groups

The **User groups** table shows the user groups currently assigned to the plot. Clicking on any of the column heading buttons will reorder the user groups in the **User groups List**, numerically or alphabetically, by that detail. Click **Details:** button to change the User Group List details and display order, see Section 10.3.1. Click **Assign/Remove groups** button to open User Group Assignment window, see Section 10.3.3. Changes made to user group assignments will update this page when the assignment window is closed. Click **List** button to show all user groups, see Section 10.3. Click **Add** button to add a user group, see Section 10.3.4. Click **Edit** button to edit the user group, see Section 10.3.5.



# **Options**

Plot style:

Plot headings and data lists are drawn with the default styles for the NovaStar5

server. Select a custom plot style from **Plot style** list. The style files are Cascading Style Sheets and are stored in the folder: /tomcat/local/styles.

Click the **View** button to display the style file on your browser. Click the **Upload** button to add a style sheet file to your server.

Click the **Remove** button to remove a style sheet file from your server.

To create a new style sheet:

1. Select the default style sheet and click the **View** button.

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- 2. Using the browser **File** menu select **Save As** or **Save Page As** to write the default plot style sheet (plot.css) to a folder on your workstation.
- 3. Use a text editor to modify the styles in your local file.
- 4. Return to the **Plot Edit** page.
- 5. Click the **Upload** button to the right of the Plot style to open the Upload file window.
- 6. Select your modified local file.
- 7. Click the Upload button on the Upload file select window.
- 8. After the upload is successful close the window.
- 9. Click the Reload button to the right of the Plot style.
- 10. Select the new file in the Plot style select list.

**Orientation:** Select the multiple plot panel orientation: *Vertical* or *Horizontal*.

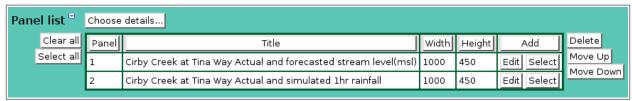


Figure 7.1.6. Plot Panel List

#### 7.1.5 Plot Panel List

The **Panel List** shown on the **Plot Edit** page shows all the plot panel records assigned to the plot being edited, see Figure 7.1.6. Plot panels define the plot title, size, legend display, time anchor, time width and time offset. When a plot is first defined, no plot panel records will be assigned to the plot. You must create at least one plot panel.

Click on the table column headers to resort the table for this column; first ascending, then descending. Click on the **Choose details...** button to change the details and display order, see Figure 7.1.7. Click on a table field to edit the text. Click **Add** to add an new panel; the edit panel is opened. Click **Edit** to edit an existing panel; the edit panel is opened, see Figure 7.1.8.

Button	Action			
Clear all	Clear selection of all rows in this table.			
Select all	Select all rows in this table.			
Add	Opens the edit panel where you can enter the parameters for a new record.			
Edit	Open the edit panel for this record.			
Select	Select row for applied changes from the edit panel; first select, then clear select.			
Delete	Mark selected rows for deletion; first select, then clear select.			
Move up	Move the selected rows up one row.			
Move down	Move the selected rows down one row.			
Apply	Assign changed field values to this and all other selected rows in the table.			
	Changed fields are highlighted with a blue-green background while unchanged			
	fields have a white background.			
Close	Close the edit panel without saving changes; you will be warned if changes will			
	be lost by this action.			

### **Plot Panel List Details**

The check boxes on **Plot Panel List Details** page control the items, organization, sort order, and limit the records displayed on the associated **List** page.

### Select the details to display

Check the box to the left of a detail to display. Details are displayed in the order shown.

Check the Order by box for the detail to sort first. Check Reverse for a descending sort. Check the Then by box for the detail to sort second. Check Reverse for a descending sort. Check the second Then by box for the detail to sort third. Check Reverse for a descending sort.

Plot Panel List Details					ок	Cancel		Bottom		
	<b>⊳</b>									
Se	Select the details to display									
L	Detail	Order by	Reverse	Then by	Reverse	Then by	Reverse	Move Up		
6	✓ Panel	<b>V</b>						Move Down		
6	<b>☑</b> Title							Select All		
E	☑ Title Size							Reset		
E	☑ Width									
E	✓ Height							OK Cancel		
E	✓ Legend									
E	☑ Text Size									
[	Time Anchor									
[	☐ Time Width									
[	☐ Time Offset									
Plot Panel List Details OK Cancel Top										

Figure 7.1.7. Plot Panel List Details

**Button** Action

Move Up Move the selected detail up one row.

Move Down Move the selected detail down one row.

Select All Select all details.

Reset to default details.

OK Return to previous page with new details selected.

Cancel Return to previous page with no changes.

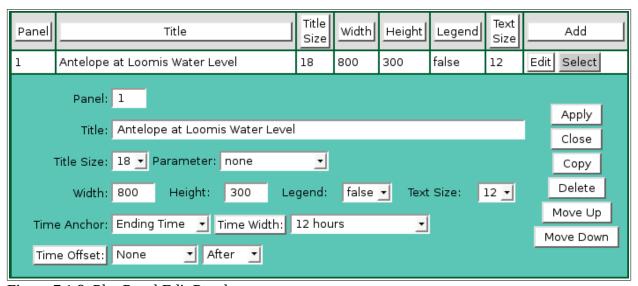


Figure 7.1.8. Plot Panel Edit Panel

### **Panel list parameters**

**Panel:** Panel number, starting at 1.

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**Title:** Plot panel title. The title is centered at the top of the plot image.

**Size:** Plot panel title font size. Default is 18 points.

Width: Panel width in pixels. **Height:** Panel height in pixels.

**Legend:** Select *true* to display legend, *false* for no legend. The plot legend shows the plot

line colors assigned to the plot points.

**Text Size:** Plot panel scale label font size. Default is 12 points.

**Time Anchor:** The plot can use the *Ending Time* or *Starting Time* with the time width to

determine the plot time period.

**Time Width:** The plot panel time period width can be fixed with this parameter. Enter the plot

time width value and time units. Click the button to alternate between interval selection from a pick list or from time interval fields. Enter 0 or select *Use Request Interval* to set the plot panel time period width based on the plot data request parameter (timeWidth) or from the *Starting Time* (startTime) and *Ending* 

*Time* (endTime) parameters.

**Time Offset:** The plot panel time period can be extended by a time offset. The total time width

will be the panel or requested time width plus the time offset. A positive time offset extends the time into the future. A negative time offset extends the time into the past. The time anchor determines from where the time is extended: *Ending Time* or *Starting Time*. Click the **Time Offset:** button to select the interval and direction from lists. Click the **Time Offset:** button again to return to the time offset value and time units display. Enter 0 or select *None* to set no plot panel

time offset.

#### 7.1.6 Plot Annotation List

The **Annotation List** shown on the **Plot Edit** page shows all the plot annotation records assigned to the plot being edited, see Figure 7.1.9. Plot annotations are horizontal or vertical colored lines with colored text strings that are displayed on top of the plot panel. When a Plot is first defined, no Plot annotation records will be assigned to the Plot.

Click on the table column headers to resort the table for this column; first ascending, then descending. Click on the **Choose details...** button to change the details and display order, see Figure 7.1.10. Click on a table field to edit the text. Click **Add** to add an new annotation; the edit panel is opened. Click **Edit** to edit an existing annotation; the edit panel is opened, see Figure 7.1.11.

Ann	otation li	ist <sup>=</sup> _cl	noose details.									
	Clear all Select all	Panel	Orientation	Scale	Limit	Text	Text Color	Text Align	Line Show	Line Color	Add	Delete Move Up
		1	Horizontal	left	136.6	Alert stage 136.6ft	black	Center above line	true	green	Edit Select	Move Down
		1	Horizontal	left	138.6	Warn stage 138.6ft	black	Center below line	true	orange	Edit Select	
		1	Horizontal	left	142.1	Berm at Foot Bridge 142.1ft	black	Left above line	true	black	Edit Select	
		1	Horizontal	left	139	Bank full 139ft	black	Left above line	true	black	Edit Select	
		1	Horizontal	left	144	Oakridge Drive 144ft	black	Left above line	true	black	Edit Select	
		1	Horizontal	left	141.6	Critical stage 141.6ft	black	Center below line	true	red	Edit Select	l k
		1	Horizontal	left	145.33	1995 Flood 145.33ft	black	Left above line	true	black	Edit Select	

Figure 7.1.9. Plot Annotation List

Button	Action
Clear all	Clear selection of all rows in this table.
Select all	Select all rows in this table.
Add	Opens the edit panel where you can enter the parameters for a new record.
Edit	Open the edit panel for this record.

Select Select row for applied changes from the edit panel; first select, then clear select.

Delete Mark selected rows for deletion; first select, then clear select.

Move up Move the selected rows up one row.

Move down Move the selected rows down one row.

Apply Assign changed field values to this and all other selected rows in the table.

Changed fields are highlighted with a blue-green background while unchanged

fields have a white background.

Close the edit panel without saving changes; you will be warned if changes will

be lost by this action.

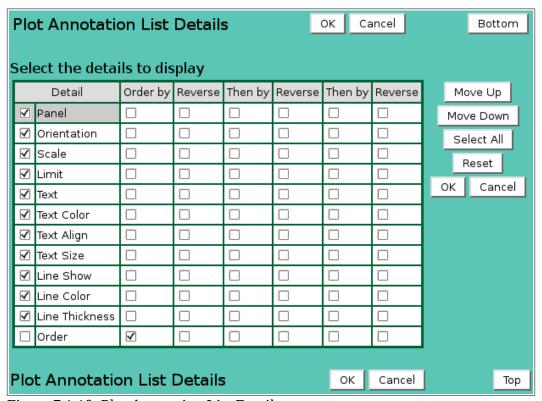


Figure 7.1.10. Plot Annotation List Details

#### **Plot Annotation List Details**

The check boxes on **Plot Annotation List Details** page control the items, organization, sort order, and limit the records displayed on the associated **List** page.

## Select the details to display

Check the box to the left of a detail to display. Details are displayed in the order shown.

Check the Order by box for the detail to sort first. Check Reverse for a descending sort.

Check the Then by box for the detail to sort second. Check Reverse for a descending sort.

Check the second Then by box for the detail to sort third. Check Reverse for a descending sort.

**Button** Action

Move Up Move the selected detail up one row.

Move Down Move the selected detail down one row.

Select All Select all details.

Reset to default details.

OK Return to previous page with new details selected.

Cancel Return to previous page with no changes.

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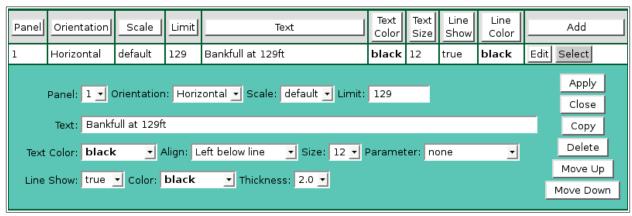


Figure 7.1.11. Plot Annotation Edit Panel

## **Annotation list parameters**

**Panel:** Select the plot panel for this annotation.

**Orientation:** Select *Horizontal* to draw a line horizonally across the plot at a limit on the left,

right, or other vertical scale.

Select *Vertical* to draw a line vertically up the plot at a time offset from the *Start* 

time or End time.

**Scale:** *Horizontal* orientation: Select the vertical scale for the limit to position the line.

Vertical orientation: Select the Start time or End time for the time offset to

position the line.

**Limit:** *Horizontal* orientation: Position on the selected vertical scale for the line start.

Vertical orientation: Time offset on the time line for the line start. Click the **Time** 

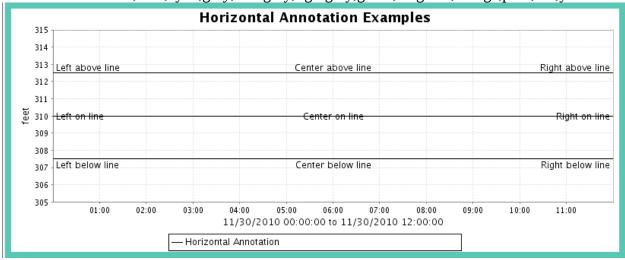
**Offset:** button to select the interval and direction from lists. Click the **Time Offset:** button again to return to the time offset value and time units display.

Enter 0 or select *None* to set no time offset.

**Text:** Text string for the annotation. Leave blank to draw a line only.

**Text Color:** Select the text color:

black,blue,cyan,gray,darkgray,lightgray,green,magenta,orange,pink,red,yellow.



**Align:** *Horizontal* orientation, select the text position above, on, or below the line:

Center above line

Center on line

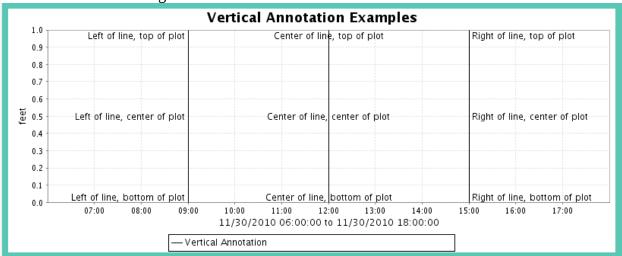
Center below line

Left above line

Left on line

Left below line

Right above line Right on line Right below line.



Vertical orientation, select the text position left, center, right of line.

Center of line, top of plot Center of line, center of plot Center of line,bottom of plot Left of line, top of plot Left of line, center of plot Left of line,bottom of plot Right of line, center of plot Right of line, center of plot Right of line,bottom of plot

**Size:** Select text point size. Default is 12 points.

**Parameter:** Append selected display parameter key words to the text. These key words are

replaced by the plot display request parameters: Table 7.1.1. Plot Annotation Text Parameters

List label	Parameter key word
Plot number	_PLOTNUMBER
Plot name	_PLOTNAME
Ending time	_ENDINGTIME
Display interval	_DISPLAYINTERVAL
Data analysis	_DATAANALYSIS

**Line Show:** Select *true* to plot line, *false* for no line.

**Color:** Select the line color:

black,blue,cyan,gray,darkgray,lightgray,green,magenta,orange,pink,red,yellow.

**Thickness:** Select line thickness in pixels.

## 7.1.7 Plot Point List

The **Point List** displays the Plot point records assigned to the Plot being edited, see Figure 7.1.12. Plot points define the point data analysis and plot options. Plot options include the plot scale (left or right), plot scale invert, plot scale range type and limits, plot type (line, area, bar, ...), line

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color, line type, line thickness, point point shape, shape color, shape filled. Multiple plot levels can be defined to change the plot line color at different limits.

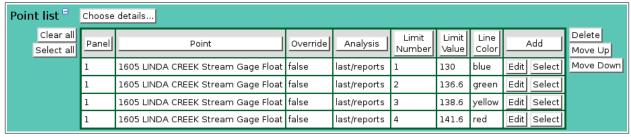


Figure 7.1.12. Plot Point List

Click on the table column headers to resort the table for this column; first ascending, then descending. Click on the **Choose details...** button to change the details and display order, see Figure 7.1.13. Click on a table field to edit the text. Click **Add** to add an new point; the point list add panel is opened, see Figure 7.1.14. Click **Edit** to edit an existing point; the edit panel is opened, see Figure 7.1.15.

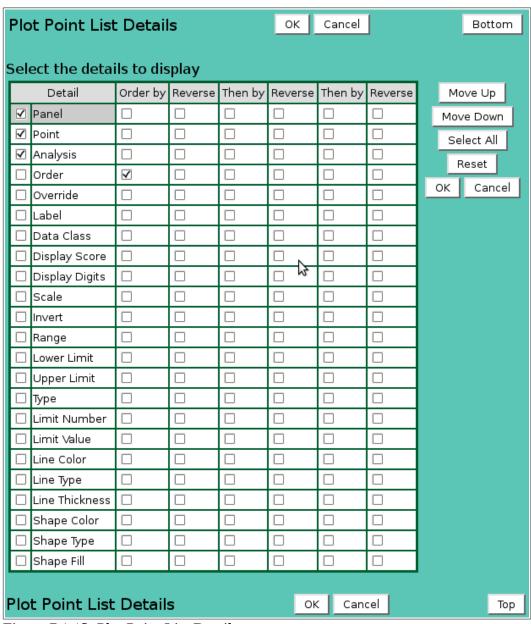


Figure 7.1.13. Plot Point List Details

Button	Action			
Clear all	Clear selection of all rows in this table.			
Select all	Select all rows in this table.			
Add	Opens the edit panel where you can enter the parameters for a new record.			
Edit	Open the edit panel for this record.			
Select	Select row for applied changes from the edit panel; first select, then clear select.			
Delete	Mark selected rows for deletion; first select, then clear select.			
Move up	Move the selected rows up one row.			
Move down	Move the selected rows down one row.			
Apply	Assign changed field values to this and all other selected rows in the table.			
	Changed fields are highlighted with a blue-green background while unchanged			
	fields have a white background.			
Close	Close the edit panel without saving changes; you will be warned if changes will			
	be lost by this action.			

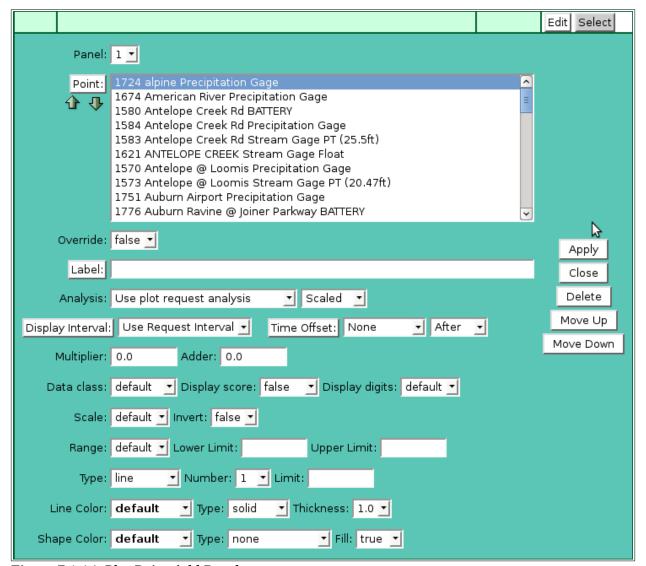


Figure 7.1.14. Plot Point Add Panel

#### **Plot Point List Details**

The check boxes on **Plot Point List Details** page control the items, organization, sort order, and limit the records displayed on the associated **List** page.

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## Select the details to display

Check the box to the left of a detail to display. Details are displayed in the order shown.

Check the Order by box for the detail to sort first. Check Reverse for a descending sort.

Check the Then by box for the detail to sort second. Check Reverse for a descending sort.

Check the second Then by box for the detail to sort third. Check Reverse for a descending sort.

**Button** Action

Move Up Move the selected detail up one row.

Move Down Move the selected detail down one row.

Select All Select all details.

Reset to default details.

OK Return to previous page with new details selected.

Cancel Return to previous page with no changes.

Point:

Select points to add to the point list from the pick list. Hold down the [Ctrl] key and click to select multiple points. Hold down the [Shift] key and click to select points from last selected to current selection. Click button to change **Point Pick Details** and order, see Section 3.1.2.

#### **Button Action**

- Decrease pick list length.
- Increase pick list length.

Click the **Apply** button to add all selected points to the point list. The point list add panel will change to the point list edit panel for the last point added. You will then need to assign the other parameters to each point. First click **Clear all** to de-select all points except the one shown in the edit panel.

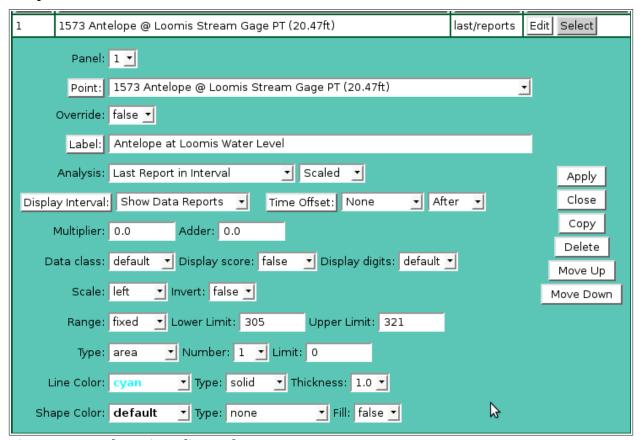


Figure 7.1.15. Plot Point Edit Panel

## Point list parameters

HydroLynx Systems, Inc.

Select the plot panel for this point. Panel:

Point: Select the point from the pick list. Click button to change pick list details and

order, see Section 3.1.2.

Select *true* to allow users to replace this point with one they select. This allows Override:

general purpose plot templates to be created and used for multiple points.

Enter the plot legend for this point. If blank the point pick list label is used. Click Label:

button to fill in the default label for editing from the point pick details.

Select the data analysis for the point readout. See the data analysis appendix for a **Analysis:** 

description of the analysis types. *Use default analysis* will do the plot data request analysis selected. Any other analysis type selected will override the plot data

request analysis.

**Analysis Interval:** The *Storm Rainfall* and *Rainfall Intensity* data analysis require an analysis interval. See the data analysis appendix for a description of the analysis interval use for these analysis types. Click the button to alternate between interval

selection from a pick list or from time interval fields.



## Data type:

Select the type of data displayed:

Data type	Database information displayed
Scaled	Scaled or analysis value
Raw	Raw data value
Score	Nova score value
Rating1-Rating5	Rating value 1 - 5

**Display Interval:** Select the time interval for the data analysis. The time interval is used to

compute the start time for the data analysis from the end time. Click the button to alternate between interval selection from a pick list or from time interval fields. *Use Request Interval* and *Show Data Reports* will use the plot data request display interval if selected or 1 day by default

**Time Offset:** Select the time offset from the plot data request end time for the data analysis period, default if 0.0 seconds. A positive time offset starts in the future (After), a negative time offset starts in the past (Before). Click the Time Offset: button to select from a list of intervals. The time offset direction is selected from the *After/Before* list. Click the button again to use the time offset fields.

**Multiplier:** Multiply the data analysis computed value by this constant.

Adder: Add this constant to the data analysis computed value.

Select a class from the plot style sheet to define the plot data list display style. Data class:

The *default* style is *plotdata*.

**Display score:** Select *true* to change the data class displayed for the data analysis score value.

The score value (1-5, 0 for missing) is appended to the data class name. For example if the data class name is plotdata then a score of 1 will use the class plotdata1, a score of 2 will use the class plotdata2, and so on. Missing data will use the class plotdata**0**. This feature is *false* by default.

/\* Plot readout background colors for scores \*/

td.plotdata0 {color:#888888;background-color:#ffffff;}

td.plotdata,

td.plotdata1 {background-color:#ffffff;} /\* white \*/ td.plotdata2 {background-color:#ffff44;} /\* yellow \*/ td.plotdata3 {background-color:#ffaa44;} /\* orange \*/ td.plotdata4 {background-color:#ff8866;} /\* pink \*/

**Page 246** A102722 td.plotdata5 {background-color:#ff4444;} /\* red \*/

**Display digits:** Set the number of decimal digits to display to the right of the decimal point.

Select default to use the number of display digits assigned to the point type.

**Scale:** Select the plot scale for this plot point:

*default*: Let the plot program assign the plot scale.

*Left*: Use the left plot scale. *Right*: Use the right plot scale.

3-9: Use the plot scales 3-9 to the right of the right plot scale.

**Invert:** Select the plot scale invert:

*normal*: No inversion. Plot scale has highest on top and lowest on bottom. *invert*: Invert the plot scale from lowest on top to highest on bottom.

**Range:** Select the plot scale range computation for this plot point:

default: Use the plot data request scale parameter.auto: Let the plot program compute the plot scale.

fixed: Use the plot scale limit to the right. point: Use the point plot scale limits.

**Lower Limit:** Lower plot scale limit for fixed plot range. **Upper Limit:** Upper plot scale limit for fixed plot range. **Type:** Select the plot type for this plot point:

*line*: Draw a line between plot points.*point*: Draw plot points only – no line.

bar: Draw histogram bars.

*step*: Draw stepped lines between plot points.

*area*: Draw a line between plot points and fill in area under plot line.

steparea: Draw a stepped line between plot points and fill in area under plot line.

**Number:** Select the limit number for this plot point. Multiple plot points can be added to a

plot that will plot point data in different colors for data ranges.

**Limit:** Plot data limit for this plot data range. All data values from this limit to the next

are plotted with this plot point parameters. All data less than the first limit uses that limit's plot point parameters. All data greater than the last limit uses that

limit's plot point parameters.

**Line color:** Plot line color for this level. Colors are: *default, black, blue, cyan, gray, gray* 

dark, gray light, green, magenta, orange, pink, red, yellow.

**Line type:** Plot line type for this level. Line types are: *solid*, *dashed*, *dotted*.

**Thickness:** Plot line thickness in pixels for this level. Thicknesses are: 1.0,1.5,2.0,2.5,...,5.0.

**Shape color:** Plot shape color for this level. Colors are: *default, black, blue, cyan, gray, gray* 

dark, gray light, green, magenta, orange, pink, red, yellow.

**Shape type:** Plot shape at data points for this level. Shapes are: *none*, *box*, *circle*, *diamond*,

ellipse, rectangle down, rectangle up, triangle up, triangle down, triangle left,

triangle right.

**Filled:** Plot shape fill for this level: *true* or *false*.

For example the plot annotation and point options above were used to create the plot data page below:

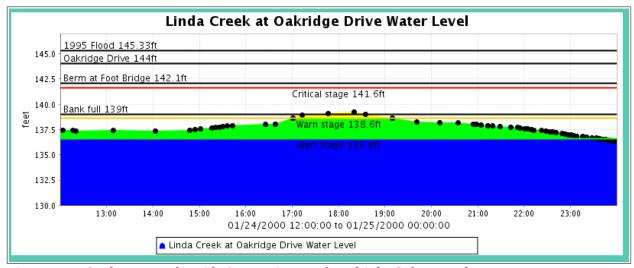


Figure 7.1.16. Plot Example with Annotations and Multiple Color Levels

### 7.1.8 Plot Copy

The **Plot Edit** page allows a user to add a plot with all of the same parameters, panels, annotations and points as an existing defined plot using the **Copy** button. When you press the **Copy** button on the **Plot Edit** page you reach the **Plot Copy** page. Copying an existing plot is most convenient when the new plot will share many parameters with the existing plot that is used as a copy template. Once you have assigned a unique plot **Number** and **Name** to the copied plot, clicking the **Apply** button will create the copied plot and access the **Plot Edit** page, described in Section 7.1.4.

#### 7.1.9 Plot Delete

To delete a plot from the **Plot List**, click **Edit** on that plot's row in the table and then click **Delete** from the **Plot Edit** screen to view the **Plot Delete** page. The **Plot Delete** page prompts you to click the **Delete** button again to confirm that the plot should be deleted. When a plot is deleted, NovaStar 5 will delete all plot panels, annotations and points assigned to the plot then return to the **Plot List** page. Click **Back** to cancel the delete request.

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# 8 Reports

In NovaStar 5, *reports* are defined collections of point data and analysis options that are defined and formatted so that specific data sets of interest can be produced conveniently and even automatically by the system. NovaStar5 can create 3 types of reports:

- •Points in Columns will display columns of point data report analyses for multiple rows of fixed time intervals.
- •Intervals in Columns will display rows of point data report analyses for multiple columns of fixed time intervals.
- •Points in Rows will display multiple rows of points. The report columns will display point database information and data report analysis values. The database information, data report analyses, and time intervals are programmable.
- •Intervals in Rows will display columns of point data report analyses for multiple rows of programmable time intervals and time offsets.



Figure 8.1.1. Report List

# 8.1 Report List

When you click on the **Report Data** menu list option, **Data Request** and **Report List** menu choices appear. Click **Report List** to display the **Report List** page. When you first begin to configure NovaStar 5, no reports will appear on the **Report List** page. Click the **Add** button at the upper right-hand corner of the **Report List** table to define a new report using the **Report Add** page, see Section 8.1.3. You can also create a new report based on an existing template report using the **Report Copy** page, see Section 8.1.5.

The **Report List** table shows all of the reports that have been defined for your system and can show report details. Clicking on any of the column heading buttons will reorder the reports in the **Report List**, numerically or alphabetically, by that detail. The **Choose details...** button allows you to specify what information is displayed by the **Report List** page using the **Report List Details** page, see Section 8.1.1.

Click on the **Edit** button on any report's row in the **Report List** table to view or edit the defining attributes of that report on the **Report Edit** page, described in Section 8.1.4 below.

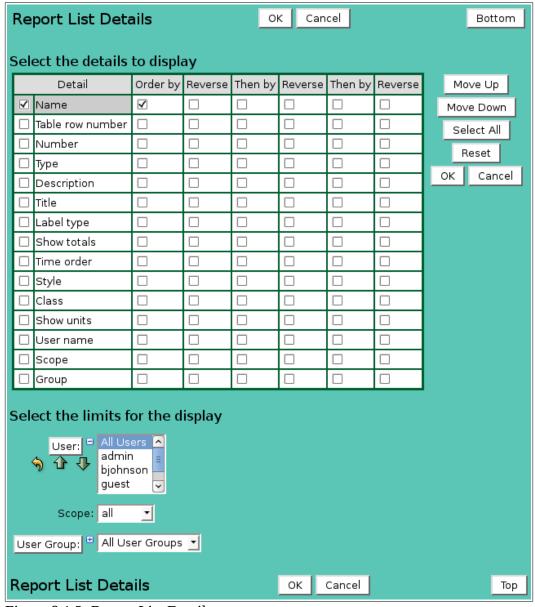


Figure 8.1.2. Report List Details

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### 8.1.1 Report List Details

The check boxes on **Report List Details** page control the items, organization, sort order, and limit the records displayed on the associated **List** page.

### Select the details to display

Check the box to the left of a detail to display. Details are displayed in the order shown.

Check the Order by box for the detail to sort first. Check Reverse for a descending sort.

Check the Then by box for the detail to sort second. Check Reverse for a descending sort.

Check the second Then by box for the detail to sort third. Check Reverse for a descending sort.

**Button** Action

Move Up Move the selected detail up one row.

Move Down Move the selected detail down one row.

Select All Select all details.

Reset to default details.

OK Return to previous page with new details selected.

Cancel Return to previous page with no changes.

#### Select the limits for the display

**User:** Limit display to reports assigned to the user(s). Click **User:** button to change **User** 

**Pick Details** and order.

#### **Button Action**

Reset pick list to single select.

Decrease pick list length.

Increase pick list length.

Expand pick list to multiple select.
Collapse pick list to single select.

**Scope:** Limit display to reports with scope: *all*, *public*, *private*.

**User Group:** Limit display to reports assigned to the user group(s). Click **User Group:** button

to change **User Group Pick Details** and order.

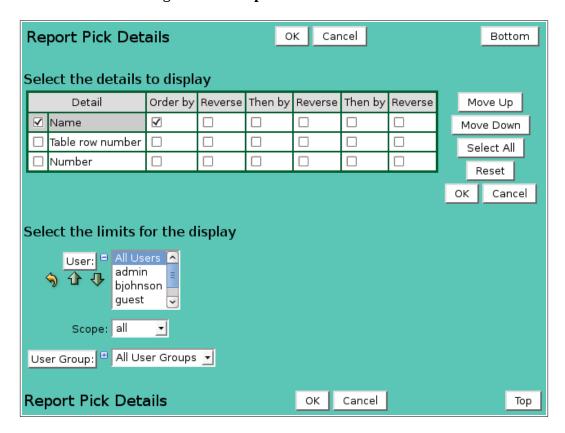


Figure 8.1.3. Report Pick Details

## 8.1.2 Report Pick Detail

The check boxes on **Report Pick Details** page control the items, organization, sort order, and limit the records displayed on the pick list.

## Select the details to display

Check the box to the left of a detail to display. Details are displayed in the order shown. Check the Order by box for the detail to sort first. Check Reverse for a descending sort.

Check the Then by box for the detail to sort second. Check Reverse for a descending sort.

Check the second Then by box for the detail to sort third. Check Reverse for a descending sort.

**Button** Action

Move Up Move the selected detail up one row.

Move Down Move the selected detail down one row.

Select All Select all details.

Reset Reset to default details.

OK Return to previous page with new details selected.

Cancel Return to previous page with no changes.

## Select the limits for the display

**User:** Limit display to reports assigned to the user(s). Click **User:** button to change **User** 

Pick Details and order.

## **Button Action**

Reset pick list to single select.

Decrease pick list length.

Increase pick list length.

Expand pick list to multiple select.Collapse pick list to single select.

**Scope:** Limit display to reports with scope: *all*, *public*, *private*.

**User Group:** Limit display to reports assigned to the user group(s). Click **User Group:** button to change **User Group Pick Details** and order.



Figure 8.1.4. Report Add

## 8.1.3 Report Add

The **Report Add** page allows users to create a new report by entering, at a minimum, a unique report **Number** and **Name**. All other report parameters are described in the **Report Edit** page section below. Click the **Apply** button to save the report to the database and convert your page to the **Report Edit** page. The **OK** button will also save the report to the database then return you to the **Report List** page.

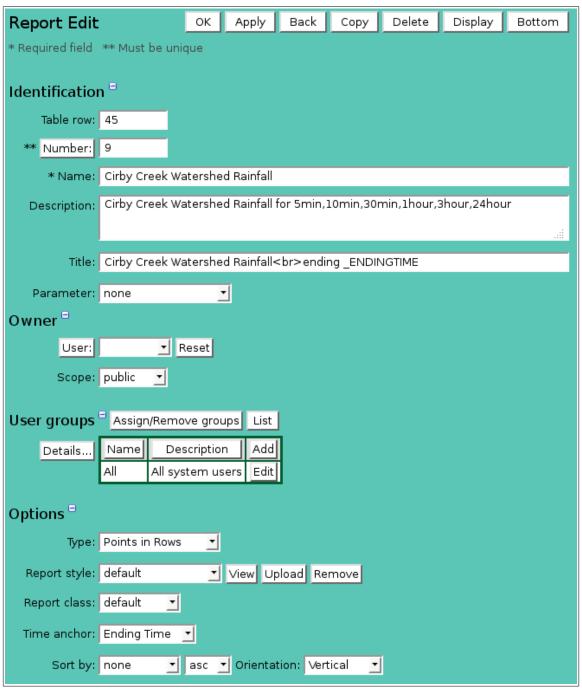


Figure 8.1.5. Report Edit

## 8.1.4 Report Edit

When you click on the **Edit** button associated with any report defined in the **Report List** table, or when you click **Apply** from the **Report Add** or **Report Copy** pages to create a new report,

you reach the **Report Edit** page. The report parameters that are edited or input using the **Report Edit** page are grouped under **Identification**, **Options**, **Column list**, **Row list**, and **Point list** headings.

## Identification

Report identification is used to organize and describe reports in the system and provide information for report pick lists.

**Table index:** Field can not be modified; it is assigned automatically when a record is added. **Number:** Report number must be unique for each report. Report numbering does not have

to be sequential. Click on button to assign the next available report number.

**Name:** Report name must be unique for each report and should describe the report

background and report points that are displayed, including the data analysis options that have been selected for that report points. Max: 100 characters.

**Description:** This descriptive field does not display on report data display pages. Use it to

describe the report functionality. Max: 1000 characters.

**Title:** Report the title that will appear at the top of the report. Max: 1000 characters. **Parameter:** Append selected display parameter key words to the title text. These key words

are replaced by the report display request parameters

Table 8.1.1. Report Text Parameters

List label	Parameter key word
Report number	_REPORTNUMBER
Report name	_REPORTNAME
Ending date	_ENDINGDATE
Ending time	_ENDINGTIME
Ending time of day	_ENDINGTIMEOFDAY
Starting date	_STARTINGDATE
Starting time	_STARTINGTIME
Starting time of day	_STARTINGTIMEOFDAY
Display interval	_DISPLAYINTERVAL
Data analysis	_DATAANALYSIS

The example above with the following title:

Antelope-Clover Valley Watershed Rainfall<br/>
<a href="https://ending.e

Antelope-Clover Valley Watershed Rainfall<br/>
<a href="https://doi.org/10.1030/2010-08:00:00">br>ending 11/30/2010 08:00:00</a>

### **Owner**

**User:** Select the map owner from the user list. Click **User:** button change **User Pick** 

**Details** and order, see Section 10.1.2. Click **Reset** to assign your login name.

**Scope:** Select map access: *public*, *private*.

**Access Description** 

Public Everyone can display this map.

Private Only owner, group supervisor, or administrator can display this map.

### User groups

The **User groups** table shows the user groups currently assigned to the report. Clicking on any of the column heading buttons will reorder the user groups in the **User groups List**, numerically or alphabetically, by that detail. Click **Details:** button to change the User Group List details and

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display order, see Section 10.3.1. Click Assign/Remove groups button to open User Group Assignment window, see Section 10.3.3. Changes made to user group assignments will update this page when the assignment window is closed. Click **List** button to show all user groups, see Section 10.3. Click **Add** button to add a user group, see Section 10.3.4. Click **Edit** button to edit the user group, see Section 10.3.5.

## **Options**

Type: Select the report display type:

> **Points in Columns** displays columns of point data report analyses for multiple

> > rows of fixed time intervals.

**Intervals in Columns** displays rows of point data report analyses for multiple

columns of fixed time intervals.

**Points in Rows** displays multiple rows of points. The report columns

> display point database information and data report analysis values. The database information, data report analyses, and

time intervals are programmable.

displays columns of point data report analyses for multiple **Intervals in Rows** 

rows of programmable time intervals and time offsets.

displays results of reportgen display program. Reportgen

**Hourly Precipitation for Month** displays hourly precipitation for month report.

**Daily Precipitation for Year** displays daily precipitation for year report.

**Report style:** Report headings, titles, and data lists are drawn with the default styles for the

NovaStar5 server. Select a custom report style from **Report style** list. The style files are Cascading Style Sheets and are stored in the folder: /tomcat/local/styles.

Click the **View** button to display the style file on your browser.

Click the **Upload** button to add a style sheet file to your server.

Click the **Remove** button to remove a style sheet file from your server.

To create a new style sheet:

- 1. Select the default style sheet and click the **View** button.
- 2. Using the browser File menu select Save As or Save Page As to write the default report style sheet (report.css) to a folder on your workstation.
- 3. Use a text editor to modify the styles in your local file.
- 4. Return to the **Report Edit** page.
- 5. Click the **Upload** button to the right of the Report style to open the Upload file window.
- 6. Select your modified local file.
- 7. Click the Upload button on the Upload file select window.
- 8. After the upload is successful close the window.
- 9. Click the Reload button to the right of the Report style.
- 10. Select the new file in the Report style select list.

**Report class:** Select a class from the report style sheet to define the report data list display style. The *default* style is *reportdata*.

Select type of point information display in column header for points in columns. Point label:

**Time format:** Select format for time displayed in columns or rows. Click **Reset** for default.

**Show totals:** Select *true* to display column totals at bottom of report for points in columns. Default is false.

**Show units:** Select *true* to display units in report column headers. Default is *false*.

**Show column header:** Select *true* to display column headers, *false* for no header, default is true.

**Time anchor:** Select the data request time to use for computing report intervals: *Starting Time* or Ending Time.

Select column number for sort on first display. Default is none. Sort by:

Sort direction: *asc for ascending* or *des* for descending. Asc:

**Orientation:** Multiple panel orientation: *horizontal* or *vertical* (Default is vertical).

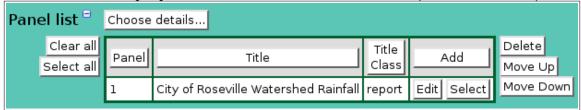


Figure 8.1.6. Report Panel List

## 8.1.5 Report Panel List

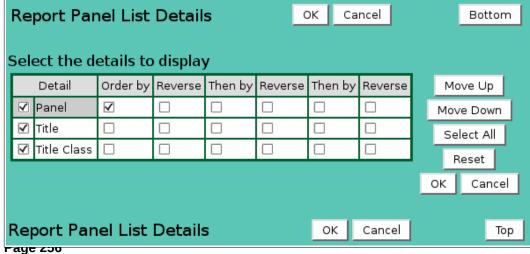
The Panel List shown on the Report Edit page shows all the report panel records assigned to the report being edited, see Figure 8.1.6. report panels define the report title, and class. When a report is first defined, no report panel records will be assigned to the report. You must create at least one report panel.

Click on the table column headers to resort the table for this column; first ascending, then descending. Click on the Choose details... button to change the details and display order, see Figure 8.1.7. Click on a table field to edit the text. Click **Add** to add an new panel; the edit panel is opened. Click **Edit** to edit an existing panel; the edit panel is opened, see Figure 8.1.8.

Button	Action		
Clear all	Clear selection of all rows in this table.		
Select all	Select all rows in this table.		
Add	Opens the edit panel where you can enter the parameters for a new record.		
Edit	Open the edit panel for this record.		
Select	Select row for applied changes from the edit panel; first select, then clear select.		
Delete	Mark selected rows for deletion; first select, then clear select.		
Move up	Move the selected rows up one row.		
Move down	Move the selected rows down one row.		
Apply	Assign changed field values to this and all other selected rows in the table.		
	Changed fields are highlighted with a blue-green background while unchanged		
	fields have a white background.		
Close	Close the edit panel without saving changes; you will be warned if changes will		
	be lost by this action.		

### **Report Panel List Details**

The check boxes on **Report Panel List Details** page control the items, organization, sort order, and limit the records displayed on the associated **List** page.



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Figure 8.1.7. Report Panel List Details

## Select the details to display

Check the box to the left of a detail to display. Details are displayed in the order shown.

Check the Order by box for the detail to sort first. Check Reverse for a descending sort.

Check the Then by box for the detail to sort second. Check Reverse for a descending sort.

Check the second Then by box for the detail to sort third. Check Reverse for a descending sort.

**Button** Action

Move Up Move the selected detail up one row.

Move Down Move the selected detail down one row.

Select All Select all details.

Reset to default details.

OK Return to previous page with new details selected.

Cancel Return to previous page with no changes.

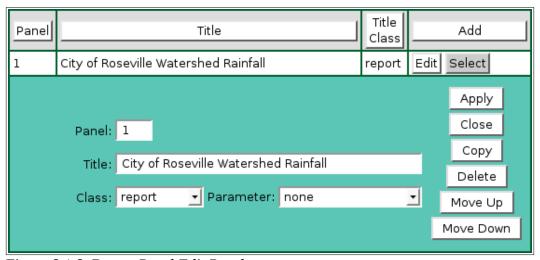


Figure 8.1.8. Report Panel Edit Panel

**Panel:** Panel number, starting at 1.

**Title:** Plot panel title. The title is centered at the top of the plot image.

**Class:** Select a class from the report style sheet to define the report panel text display

style. The *default* style is *report*.

**Parameter:** Append selected display parameter key words to the title text. These key words

are replaced by the report display request parameters

List label	Parameter key word
Report number	_REPORTNUMBER
Report name	_REPORTNAME
Ending date	_ENDINGDATE
Ending time	_ENDINGTIME
Ending time of day	_ENDINGTIMEOFDAY
Starting date	_STARTINGDATE
Starting time	_STARTINGTIME
Starting time of day	_STARTINGTIMEOFDAY
Display interval	_DISPLAYINTERVAL
Data analysis	_DATAANALYSIS

## 8.1.6 Report Column list

The **Column List** is shown on the **Report Edit** page when the report type is *Points in Rows*, see Figure 8.1.9. It shows all the report columns currently assigned to the report being edited. Report columns defined the report column labels, type of information, and data analysis. When a report is first defined, no report column records will be assigned to the report.

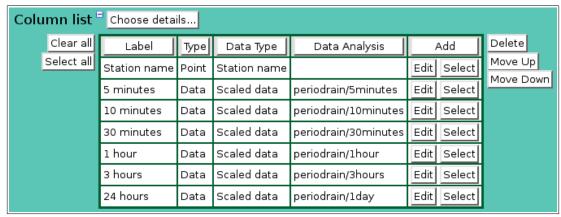


Figure 8.1.9. Report Column List.

Click on the table column headers to resort the table for this column; first ascending, then descending. Click on the **Choose details...** button to change the details and display order, see Figure 8.1.10. Click on a table field to edit the text. Click **Add** to add an new annotation; the edit panel is opened. Click **Edit** to edit an existing annotation; the edit panel is opened, see Figure 8.1.11.

Button	Action	
Clear all	Clear selection of all rows in this table.	
Select all	Select all rows in this table.	
Add	Opens the edit panel where you can enter the parameters for a new record.	
Edit	Open the edit panel for this record.	
Select	Select row for applied changes from the edit panel; first select, then clear select.	
Delete	Mark selected rows for deletion; first select, then clear select.	
Move up	Move the selected rows up one row.	
Move down	Move the selected rows down one row.	
Apply	Assign changed field values to this and all other selected rows in the table.	
	Changed fields are highlighted with a blue-green background while unchanged	
	fields have a white background.	
Close	Close the edit panel without saving changes; you will be warned if changes will	
	be lost by this action.	

### **Report Column List Details**

The check boxes on **Report Column List Details** page control the items, organization, sort order, and limit the records displayed on the associated **List** page.

### Select the details to display

Check the box to the left of a detail to display. Details are displayed in the order shown. Check the Order by box for the detail to sort first. Check Reverse for a descending sort. Check the Then by box for the detail to sort second. Check Reverse for a descending sort. Check the second Then by box for the detail to sort third. Check Reverse for a descending sort.

**Button** Action

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Move Up Move the selected detail up one row.

Move Down Move the selected detail down one row.

Select All Select all details.

Reset to default details.

OK Return to previous page with new details selected.

Cancel Return to previous page with no changes.

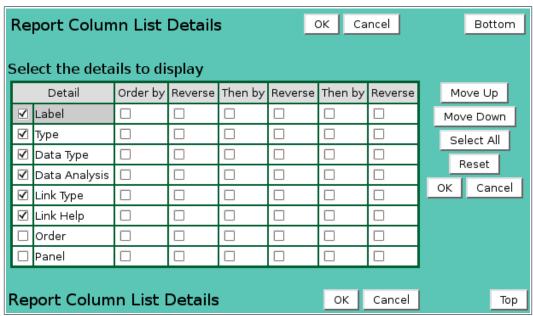


Figure 8.1.10. Report Column List Details

Label	Туре	Data Type	Data Analysis	Link Type	Link Help	Add
Station name	Point	Station name		none		Edit Select
5 minutes	Data	Data value	periodrain/5minutes	none		Edit Select
Panel:	1 🕶					
Label:	5 minu	tes				
Parameter:	none					Apply
Type:	Data 🔄	·				Apply Close
Data type:	Data v	alue 👤				Сору
Analysis:	Period	Rainfall	<u>▼</u> Scaled	•		Delete
Display Interval:	5 min	utes	Time Offset:	lone <u>•</u>	After 🕶	
Multiplier:	0.0	Adder: 0	.0			Move Down
Link type:	none	<u>•</u>				
Link help:						

Figure 8.1.11. Report Column Edit Panel

# **Column list parameters**

**Panel:** Select panel number.

**HydroLynx Systems, Inc.** 

**Label:** Enter the column header label. Max: 100 characters.

**Parameter:** Append selected display parameter key words to the label. These key words are

replaced by the report display request parameters

List label	Parameter key word
Report number	_REPORTNUMBER
Report name	_REPORTNAME
Ending date	_ENDINGDATE
Ending time	_ENDINGTIME
Ending time of day	_ENDINGTIMEOFDAY
Starting date	_STARTINGDATE
Starting time	_STARTINGTIME
Starting time of day	_STARTINGTIMEOFDAY
Display interval	_DISPLAYINTERVAL
Data analysis	_DATAANALYSIS

**Type:** Select the column type: *Point*, *Data* or *Text*. This selection affects the fields shown below.

**Point type:** Select the type of point information shown in the column:

Point type	Database information displayed
Station row	Station table row number
Station ID	Station numeric ID
Station name	Station name
Station tag	Station tag name
Station type	Station type name
Point row	Point table row number
Point ID	Point numeric ID
Point name	Point name
Point tag	Point tag name
Point label	Point label from report point list
Point type	Point type name
Remote ID	Point remote numeric ID

**Data type:** Select the type of data report information shown in the column:

Data type	Database information displayed
Data value units	Data report value with units
Data value	Data report value
Data time	Data report time
Data flags	Data report flags
Data score	Data report nova score

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Period time	Data report interval time	
-------------	---------------------------	--

**Text type:** Select the type of text information shown in the column:

Text type	Database information displayed
Text	Display test

**Analysis:** 

Select the data analysis for the point readout. See the data analysis appendix for a description of the analysis types. *Use default analysis* will do the report data request analysis selected. Any other analysis type selected will override the report data request analysis.

**Analysis Interval:** The *Storm Rainfall* and *Rainfall Intensity* data analysis require an analysis interval. See the data analysis appendix for a description of the analysis interval use for these analysis types. Click the button to alternate between interval selection from a pick list or from time interval fields.

Analysis:	Storm Rainfall	🗾 Analysis Interval: 1 day 🔻	-1

Data type:

Select the type of data displayed:

Data type	Database information displayed
Scaled	Scaled or analysis value
Raw	Raw data value
Score	Nova score value
Rating1-Rating5	Rating value 1 - 5

**Display Interval:** Select the time interval for the data analysis. The time interval is used to compute the start time for the data analysis from the end time. Click the button to alternate between interval selection from a pick list or from time interval fields. *Use Request Interval* and *Show Data Reports* will use the report data request

display interval if selected or 1 day by default

**Time Offset:** Select the time offset from the report data request end time for the data analysis

period, default if 0.0 seconds. A positive time offset starts in the future (*After*), a negative time offset starts in the past (*Before*). Click the Time Offset: button to select from a list of intervals. The time offset direction is selected from the

After/Before list. Click the button again to use the time offset fields.

**Multiplier:** Multiply the data analysis computed value by this constant. **Adder:** Add this constant to the data analysis computed value.

**Link type:** Type of link for column data.

**Link help:** Link tooltip help.

# 8.1.7 Report Row list

The **Row List** is shown on the **Report Edit** page when the report type is *Interval in Rows*, see Figure 8.1.12. It shows all the report rows currently assigned to the report being edited. Report rows defined the report row labels, type of information, and data analysis. When a report is first defined, no report row records will be assigned to the report.

Click on the table column headers to resort the table for this column; first ascending, then descending. Click on the **Choose details...** button to change the details and display order, see Figure 8.1.13. Click on a table field to edit the text. Click **Add** to add an new annotation; the edit panel is opened. Click **Edit** to edit an existing annotation; the edit panel is opened, see Figure 8.1.14.



Figure 8.1.12. Report Row List

Button	Action
Clear all	Clear selection of all rows in this table.
Select all	Select all rows in this table.
Add	Opens the edit panel where you can enter the parameters for a new record.
Edit	Open the edit panel for this record.
Select	Select row for applied changes from the edit panel; first select, then clear select.
Delete	Mark selected rows for deletion; first select, then clear select.
Move up	Move the selected rows up one row.
Move down	Move the selected rows down one row.
Apply	Assign changed field values to this and all other selected rows in the table.
	Changed fields are highlighted with a blue-green background while unchanged
	fields have a white background.
Close	Close the edit panel without saving changes; you will be warned if changes will
	be lost by this action.

## **Report Row List Details**

The check boxes on **Report Row List Details** page control the items, organization, sort order, and limit the records displayed on the associated **List** page.

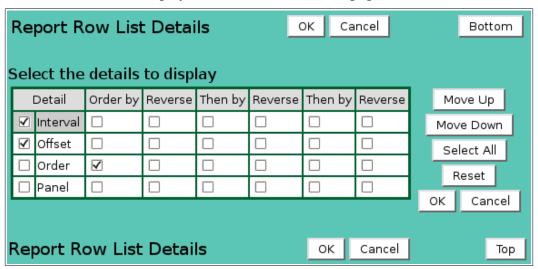


Figure 8.1.13. Report Row List Details

## Select the details to display

Check the box to the left of a detail to display. Details are displayed in the order shown. Check the Order by box for the detail to sort first. Check Reverse for a descending sort. Check the Then by box for the detail to sort second. Check Reverse for a descending sort. Check the second Then by box for the detail to sort third. Check Reverse for a descending sort.

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**Button** Action

Move the selected detail up one row. Move Up Move the selected detail down one row. Move Down

Select All Select all details. Reset to default details. Reset

Return to previous page with new details selected. OK

Cancel Return to previous page with no changes.

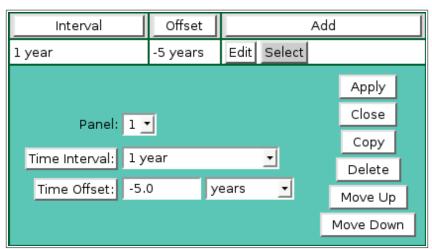


Figure 8.1.14. Report Row Edit Panel

Select panel number. Panel:

Time Interval: Select the time interval for the data analysis. The time interval is used to compute the start time for the data analysis from the start or end time based on the report *Interval from* field. Click the button to alternate between interval selection from a pick list or from time interval fields. *Use Request Interval* and *Show Data Reports* will use the report data request display interval if selected or 1 day by default

**Time Offset:** Select the time offset from the report data request start or end time for the data analysis period, default if 0.0 seconds. A positive time offset starts in the future (*After*), a negative time offset starts in the past (*Before*). Click the Time Offset: button to select from a list of intervals. The time offset direction is selected from the After/Before list. Click the button again to use the time offset fields.

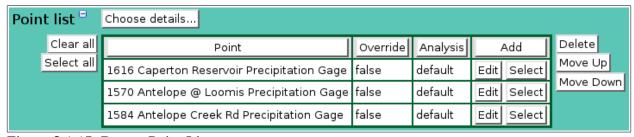


Figure 8.1.15. Report Point List

## 8.1.8 Report Point List

The Point List displays the Report point records assigned to the Report being edited, see Figure 8.1.15. Report points define the point data analysis and report display options. When a report is first defined, no report point records will be assigned to the report.

Click on the table column headers to resort the table for this column; first ascending, then descending. Click on the Choose details... button to change the details and display order, see

Figure 8.1.16. Click on a table field to edit the text. Click **Add** to add an new point; the point list add panel is opened, see Figure 8.1.17. Click **Edit** to edit an existing point; the edit panel is opened, see Figure 8.1.18.

Button	Action
Clear all	Clear selection of all rows in this table.
Select all	Select all rows in this table.
Add	Opens the edit panel where you can enter the parameters for a new record.
Edit	Open the edit panel for this record.
Select	Select row for applied changes from the edit panel; first select, then clear select.
Delete	Mark selected rows for deletion; first select, then clear select.
Move up	Move the selected rows up one row.
Move down	Move the selected rows down one row.
Apply	Assign changed field values to this and all other selected rows in the table.
	Changed fields are highlighted with a blue-green background while unchanged
	fields have a white background.
Close	Close the edit panel without saving changes; you will be warned if changes will
	be lost by this action.

## **Report Point List Details**

The check boxes on **Report Point List Details** page control the items, organization, sort order, and limit the records displayed on the associated **List** page.

# Select the details to display

Check the box to the left of a detail to display. Details are displayed in the order shown. Check the Order by box for the detail to sort first. Check Reverse for a descending sort. Check the Then by box for the detail to sort second. Check Reverse for a descending sort. Check the second Then by box for the detail to sort third. Check Reverse for a descending sort.



Figure 8.1.16. Report Point List Details

Button	Action
Move Up	Move the selected detail up one row.
Move Down	Move the selected detail down one row.

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Select All Select all details.

Reset Reset to default details.

OK Return to previous page with new details selected.

Cancel Return to previous page with no changes.

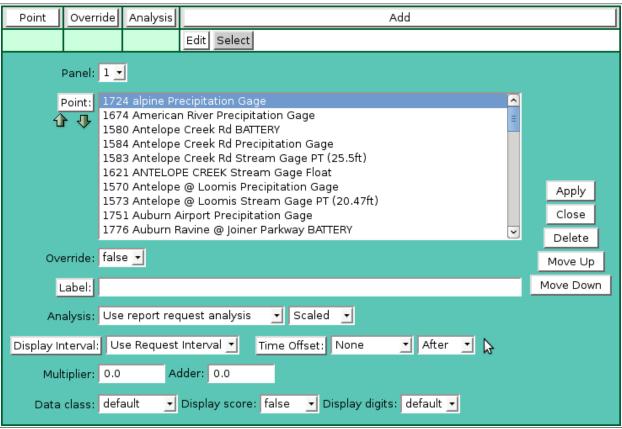


Figure 8.1.17. Report Point Add Panel

**Panel:** Select panel number.

**Point:** Select points to add to the point list from the pick list. Hold down the [Ctrl] key

and click to select multiple points. Hold down the [Shift] key and click to select points from last selected to current selection. Click button to change **Point Pick** 

**Details** and order, see Section 3.1.2.

**Button Action** 

Decrease pick list length.

Increase pick list length.

Click the **Apply** button to add all selected points to the point list. The point list add panel will change to the point list edit panel for the last point added. You will then need to assign the other parameters to each point. First click **Clear all** to de-select all points except the one shown in the edit panel.

### **Point list parameters**

**Panel:** Select panel number.

**Point:** Select the point from the pick list. Click button to change pick list details and

order, see Section 3.1.2.

**Override:** Select *true* to allow users to replace this point with one they select. This allows

general purpose report templates to be created and used for multiple points.

**Label:** Enter the report legend for this point. If blank the point pick list label is used.

Click button to fill in the default label for editing from the point pick details.

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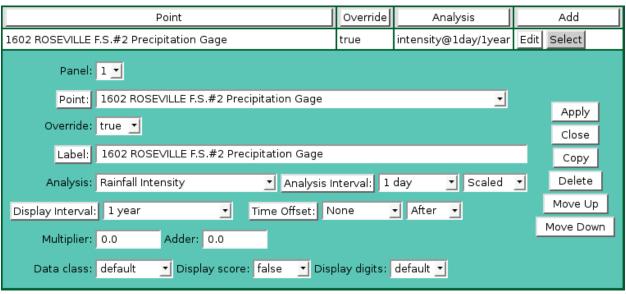


Figure 8.1.18. Report Point Edit Panel

**Analysis:** 

Select the data analysis for the point readout. See the data analysis appendix for a description of the analysis types. *Use default analysis* will do the report data request analysis selected. Any other analysis type selected will override the report data request analysis.

**Analysis Interval:** The *Storm Rainfall* and *Rainfall Intensity* data analysis require an analysis interval. See the data analysis appendix for a description of the analysis interval use for these analysis types. Click the button to alternate between interval selection from a pick list or from time interval fields.

> Analysis: Storm Rainfall ▼ Analysis Interval: 1 day

Data type:

Select the type of data displayed:

Data type	Database information displayed
Scaled	Scaled or analysis value
Raw	Raw data value
Score	Nova score value
Rating1-Rating5	Rating value 1 - 5

**Display Interval:** Select the time interval for the data analysis. The time interval is used to compute the start time for the data analysis from the end time. Click the button to alternate between interval selection from a pick list or from time interval fields. *Use Request Interval* and *Show Data Reports* will use the report data request display interval if selected or 1 day by default

**Time Offset:** Select the time offset from the report data request end time for the data analysis period, default if 0.0 seconds. A positive time offset starts in the future (*After*), a negative time offset starts in the past (Before). Click the Time Offset: button to select from a list of intervals. The time offset direction is selected from the After/Before list. Click the button again to use the time offset fields.

**Multiplier:** Multiply the data analysis computed value by this constant.

Adder: Add this constant to the data analysis computed value.

Select a class from the report style sheet to define the report data list display style. Data class: The *default* style is *reportdata*.

**Display score:** Select *true* to change the data class displayed for the data analysis score value. The score value (1-5, 0 for missing) is appended to the data class name. For

**Page 266** A102722 example if the data class name is reportdata then a score of 1 will use the class reportdata1, a score of 2 will use the class reportdata2, and so on. Missing data will use the class reportdata0. This feature is *false* by default.

```
/* report readout background colors for scores */
td.reportdata0 {color:#888888;background-color:#ffffff;}
td.reportdata,
td.reportdata1 {background-color:#ffffff;} /* white */
td.reportdata2 {background-color:#ffff44;} /* yellow */
td.reportdata3 {background-color:#ffaa44;} /* orange */
td.reportdata4 {background-color:#ff8866;} /* pink */
td.reportdata5 {background-color:#ff4444;} /* red */
```

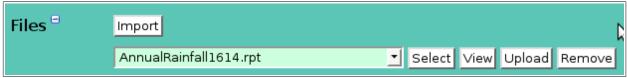
**Display digits:** Set the number of decimal digits to display to the right of the decimal point. Select default to use the number of display digits assigned to the point type.

File	s =	<u>Import</u>
	Point File:	lst/1614.lst
	Time File:	tim/hoursinday.tim
Ten	nplate File:	tpt/ListTimes.tpt

Figure 8.1.19. Reportgen File List

# 8.1.9 Reportgen File List

When the selected report type is *reportgen*, the reportgen file list is displayed, see Figure 8.1.19. Click **Import** to read the point, time, and template file names from a report file.



Select a reportgen report file from the pick list. This list is loaded from the /tomcat/local/rpt folder which is linked to the /usr/ns/rpt folder. Click **Select** to import the point, time and template file names from the selected report file. Click **View** to display the file contents. Click **Upload** to upload a file from your workstation. Click **Remove** to delete the selected report file.

**Point File:** File containing point/analysis. Click **Point File:** button to show the file select, view, upload, and remove tool bar.

Point File:	lst/1614.lst	
	1614.lst	Select View Upload Remove

Select a point list file from the pick list. This list is loaded from the /tomcat/local/rpt/lst folder which is linked to the /usr/ns/rpt/lst folder. Click **Select** to assign the selection as the point file. Click **View** to display the file contents. Click **Upload** to upload a file from your workstation. Click **Remove** to delete the selected point list file.

**Time File:** File containing reportgen time intervals. Click **Time File:** button to show the file select, view, upload, and remove tool bar.



Select a time list file from the pick list. This list is loaded from the /tomcat/local/rpt/tim folder which is linked to the /usr/ns/rpt/tim folder. Click **Select** to assign the selection as the time file. Click **View** to display the file contents. Click **Upload** to upload a file from your workstation. Click **Remove** to delete the selected time list file.

**Template File:** File containing reporgen template. Click **Template File:** button to show the file select, view, upload, and remove tool bar.

Template File:	tpt/ListTimes.tpt	
	ListTimes.tpt	▼ Select View Upload Remove

Select a template list file from the pick list. This list is loaded from the /tomcat/local/rpt/tpt folder which is linked to the /usr/ns/rpt/tpt folder. Click **Select** to assign the selection as the template file. Click **View** to display the file contents. Click **Upload** to upload a file from your workstation. Click **Remove** to delete the selected template list file.

## 8.1.10 Report Copy

The **Report Edit** page allows a user to add a report with all of the same parameters, columns, rows and points as an existing defined report using the **Copy** button. When you press the **Copy** button on the **Report Edit** page you reach the **Report Copy** page. Copying an existing report is most convenient when the new report will share many parameters with the existing report that is used as a copy template. Once you have assigned a unique report **Number** and **Name** to the copied report, clicking the **Apply** button will create the copied report and access the **Report Edit** page, described in Section 8.1.2.

## 8.1.11 Report Delete

To delete a report from the **Report List**, click **Edit** on that report's row in the table and then click **Delete** from the **Report Edit** screen to view the **Report Delete** page. The **Report Delete** page prompts you to click the **Delete** button again to confirm that the report should be deleted. When a report is deleted, NovaStar 5 will delete all report columns, rows and points assigned to the report then return to the **Report List** page. Click **Back** to cancel the delete request.

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# 9 System

The **System** command accesses a menu of subordinate commands that configure various aspects of the NovaStar 5 system, including the **Configuration List**, **Data Flag List**, **Nova Score List**, **Scheduler List**, and **Serial Port List** commands. The **Configuration List** and the **Serial Port List** allow you to configure serial port assignments that integrate the NovaStar 5 system hardware and software. These commands should be accessed as a final step in the installation of the NovaStar 5 application as described in Sections 9.1 and 9.5. The capabilities accessed using the **Data Flag List** and the **Nova Score List** will not be required for this version of NovaStar 5, unless you wish to change the nomenclature used. See Sections 9.2 and 9.3, respectively. The **Scheduler List** allows users to set up automatic processes for data reporting as described in Section 9.4. The **View Log File** command allows you to view the raw point data reports that are stored by NovaStar 5 in log files. These can be useful for investigating system operation. Section 9.6 describes the **View Log File** command.

# 9.1 Configuration List

To reach the **Configuration List** page, click on the **System** menu command on the *Registered user Home page*. The **Configuration List** page will appear, allowing you to enable or disable data collection startup and general display formats.

Clicking on any of the column heading buttons will reorder the reports in the **Configuration List**, numerically or alphabetically, by that detail. The **Choose details...** button allows you to specify what information is displayed by the **Configuration List** page using the **Configuration List Details** page, see Section 9.1.1.

Network master	Configuration List	t	Choose details	Back	Refresh	Во	ttom
Home	Name		√alue		Options	1	Add
Stations	50386_data_collection	true					Edit
Points	50386_port1	192.	168.1.202:2101	-p8511 -S	3 -l2 -r30m -	-a32	Edit
Alarms	alarms_enable	true					Edit
Data Forecast	alert_data_collection	true					Edit
System	alert_port1	/dev/	rtdd1	-S1 -r5mir	nutes		Edit
Configuration List	alert_port2	192.	168.1.201:2101	-S2 -r5mir	nutes -c1 -G	alert2 -a31	Edit
Data Flag List	alerttalk3	true		-n novasta	ar5a:8502 -U	J 1	Edit
Nova Score List	automatic_interrogation	true		-t4			Edit
Scheduler List	boot_data_collection	true					Edit
Serial Port List	database_replication	true		master			Edit
View Log File	forecast	true					Edit
Users	map_display	true		-n novasta	ar5a:8502 -U	J 1	Edit
Tabular Data	poll_port1	nova	star5a:8511	-S3			Edit
Report Data	repeat_report_interval	5sec	onds				Edit
Plot Data	time_format	MM/d	dd/yyyy HH:mm:ss	24:00:00			Edit
Map Data	time_list_24_hour_clock	true					Edit
About NovaStar 5  Contact HydroLynx	time_list_increment	15					Edit
Log out	year_start	1980	)				Edit
Log out					Тор		

Figure 9.1.1. Configuration List

Click the **Add** button at the upper right-hand corner of the **Configuration List** table to define a new item using the **Configuration Add** page. Click on the **Edit** button on any row in the **Configuration List** table to view or edit the item on the **Configuration Edit** page. See Section 9.1.2.

## 9.1.1 Configuration List Details

The check boxes on **Configuration List Details** page control the items, organization, sort order, and limit the records displayed on the associated **List** page.



Figure 9.1.2. Configuration List Details

## Select the details to display

Check the box to the left of a detail to display. Details are displayed in the order shown.

Check the Order by box for the detail to sort first. Check Reverse for a descending sort.

Check the Then by box for the detail to sort second. Check Reverse for a descending sort.

Check the second Then by box for the detail to sort third. Check Reverse for a descending sort.

**Button** Action

Move Up Move the selected detail up one row.

Move Down Move the selected detail down one row.

Select All Select all details.

Reset to default details.

OK Return to previous page with new details selected.

Cancel Return to previous page with no changes.

### 9.1.2 Configuration Edit

When you click on the **Edit** button associated with any item defined in the **Configuration List** table, or when you click **Apply** from the **Configuration Add** or **Configuration Copy** pages to create a new configuration item, you reach the **Configuration Edit** page.

The contents of the **Configuration Edit** page will changed depending on the contents of the name field. Some names have values that are limited to *false* or *true*; others have programmable values. See Section 9.1.3 for an explanation of the configuration parameters.

### Identification

Name: Configuration parameter name. Max 100 characters.Value: Configuration parameter value. Max 255 characters.Options: Configuration parameter options. Max 255 characters.

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Parameters options may be a list of command line options passed to the NovaStar data collection program. These command arguments may have the format -X Y. Where X is a upper or lower case letter and Y is a value or string. For example: -r 30minutes. Multiple command arguments are separated by spaces. See Section 9.1.3 for a description of configuration parameter names, values, and options.

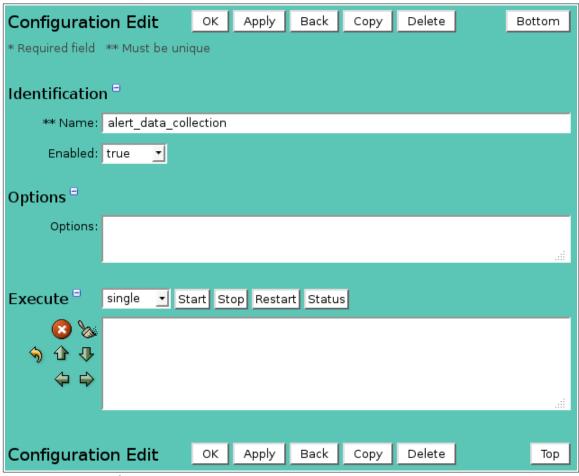


Figure 9.1.3. Configuration Edit

### **Execute**

Configuration list items that control **NovaStar** data collection, database replication, and data alarm actions can be controlled from this page. Click an action button to control the process. Select *single* or *network* command action. Network commands are executed on all NovaStar 5 database replication nodes.

Button	Action
Start	Start the process if not running.
Stop	Stop the process if running.
Restart	Stop and then restart the process.
Status	Display the running status of the process.
<b>S</b>	Stop command.
8	Clear display window.
<b>√ 1 1</b>	Reset display window size to default.
<b>1</b>	Decrease display window height.
₽	Increase display window height.
<b>\( \rightarrow</b>	Decrease display window width.
$\Rightarrow$	Increase display window width.

## 9.1.3 Configuration Parameters

### 50386 Data Collection

Name: 50386\_data\_collection

**Enabled:** Replication state that enables start.

false Disabled.

failover Enabled when replication state is Failover.

master Enabled when replication state is Disabled, Master, Single, or Failover.

single Enabled when replication state is Disabled or Single.

slave Enabled when replication state is Slave.

When enabled, 50386 data collection will begin automatically on system boot up or when the data collection is manually started. Data collection can be disabled by setting this parameter to **false** when suspension would be useful for system maintenance.

**Options:** none.

Name	Value	Options
50386_data_collection	true	

In the above example, the 50386 data collection programs defined by 50386\_port# records will be started when the NovaStar 5 data collection is started.

#### **50386 Data Collection Ports**

**Name:** 50386 port#

where # is replaced by the port number: 1,2,3,...

**Value:** Specifies the serial port alias or network port to which the 50386 receiver is

connected. Replace # with 1 for the first receiver, 2 for the second, and so on. Incoming 50386 data is read and station polling commands are sent through this port. Serial port aliases are defined in the serial port list and assigned to physical serial ports; for example /dev/rtdd1. Network ports are defined as hostname:port where hostname is a computer name or IP address and port is a port number; for

example 10.150.11.23:2101.

**Options:** Command options for the ns50386server program.

-a # Alarm trigger at loss of data.-d # Set diagnostic level (Default: 1).

-f Do not file data received.

-l # Sets the file for logging: 0=nssyslog, 1=nsrecdata.log 2=nsautointer.log

(Default: 2).

-m port Serial port alias connected to the 50386 DCU (Default: /dev/dc1).

-n host:port Remote host name or TCP/IP address and port connected to the 50386 DCU.

-P port Remote connection port number (can be included in host name above).

-p port Port number to listen on for for connections.

-q Do NOT display status messages.

-r #[smhd] Data collection down timeout (Default: none).

-S # Source line number set in the data port flags and written in the data collection

log file (Line: #) to indicate which source a data report came from.

-T Files data reports with current time (Default: report time).

-t #[smhd] Limits future report filing by this interval.

-W #[smhd] Wait to connect interval (Default: 10 seconds).

-y Disable CTS wait for RTS/CTS toggle on serial ports.

-Z #[smhd] Wait before reconnect (Default: 5 seconds).

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Name	Value	Options	
50386_port1	192.168.1.202:2101	-p8511 -S3 -l2 -r30m -a32	

In the example above, when the 50386 data collection program is started it will connect to IP address 192.168.1.202 on port 2101. Manual polling will connect to the program on port 8511. ScadaLynx reports received on this line will be filed in the database with source ine number 3. Diagnostic logging will be in the nsautointer.log file. After 30 minutes of no data reports received, the data collection alarm trigger 32 will be executed.

### Alarms enable

Name: alarms\_enable

**Value:** When true, alarm actions will be taken when alarm conditions are met. When

false, alarm actions are disabled; the date and time alarms are to be re-enabled

must be set in the Options column.

**Options:** Date and time that alarms will be re-enabled.

Name	Value	Options
alarms_enable	false	02/11/2012 08:00:00

In the example above, the system alarms are disabled until 02/11/2012 at 08:00:00.

## Alert data collection

Name: alert\_data\_collection

**Enabled:** Replication state that enables start.

false Disabled.

failover Enabled when replication state is Failover.

master Enabled when replication state is Disabled, Master, Single, or Failover.

single Enabled when replication state is Disabled or Single.

slave Enabled when replication state is Slave.

When enabled, ALERT data collection will begin automatically on system boot up or when the data collection is manually started. Data collection can be disabled by setting this parameter to **false** when suspension would be useful for system maintenance.

**Options:** none.

Name	Value	Options
alert_data_collection	true	

In the above example, the alert data collection programs defined by alert\_port# records will be started when the NovaStar 5 data collection is started.

## Alert data collection port

Name: alert\_port#

where # is replaced by the port number: 1,2,3,...

**Value:** Specifies the serial port alias or network port to which the ALERT decoder is

connected. Replace # with 1 for the first decoder, 2 for the second, and so on. Incoming ALERT data is read from this port. Serial port aliases are defined in the

serial port list and assigned to physical serial ports; for example /dev/rtdd1.

Network ports are defined as hostname:port where hostname is a computer name or IP address and port is a port number; for example 10.150.11.23:2101.

**Options:** Command options for the nsrecdata program.

-a # Alarm trigger at loss of data.

-B Baudrate sets the data collection port baud rate overriding the baud rate set in

the Serial Port List (Default: 300).

-b Use the baud rate set in the Serial Port List. -c [0|1] Network connect type: 0=listen, 1=connect.

-d # Set diagnostic level (Default: 1).

-EGG Supports EG&G format
 -ENH Supports Enhanced format.
 -EIF Supports IFLOWS format.
 -f Do not file data received

-F filename Filtered ID checking file name.

-G #,#,# Line input field order for date-time(1), point(2), data(3). Use alert2 alone to

specify ALERT2 A format.

-H string Heartbeat string used to keep network communication alive. When this string is

received the receive data timeout timer is reset.

-k Enable network connection keep alive feature.-P program Execute this program when data is received.

-q Do NOT display status messages.

-R filename Rule file nane used to verify ID numbers.

-r #[smhd] Data collection down and baud rate reset timeout (Default: 1hour).

-S # Source line number set in the data port flags and written in the data collection

log file (Line: #) to indicate which source a data report came from.

-s #[smhd] Round time of reports received (Default: none).

-w #[smhd] Wait after data received before program executed (Default: 1second).

-W #[smhd] Wait to connect (Default: 10seconds).-Z #[smhd] Wait before reconnect (Default: 5seconds).

-z # Interval in seconds to prevent repeat report filing (Default: Use

repeat\_report\_interval configuration parameter).

Name	Value	Options
alert_port1	/dev/rtdd1	-S1 -r5minutes -a31

In the example above, when the Alert data collection program is started it will connect to serial port alias /dev/rtdd1. Alert reports received on this line will be filed in the database with source line number 1. After 5minutes of no data reports received, the data collection alarm trigger 31 will be executed.

### Alert talk 3 auto-dialer

Name: alerttalk3

**Value:** When **true**, the alert\_talk3 driver will start automatically on system boot up. The

alert talk 3 driver can be disabled by setting this parameter to **false** when

suspension would be useful for system maintenance.

**Options:** Command options for the nsalerttalk3 program.

-d # Set diagnostic level (Default: 1).

-n host:port Host name and port number (Default: localhost:8503).

-U #,#,... Alert talk 3 units managed by this driver (Default: control all).

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Name	Value	Options	
alerttalk3	true	-n localhost:8503 -U1	

In the above example, the alert talk 3 program is started when the NovaStar 5 data collection is started. The program will control alert talk 3 unit number 1 and will listen for control commands on the localhost port 8503.

## **Automatic interogation**

**Name:** automatic\_interrogation

**Enabled:** Replication state that enables start.

false Disabled.

failover Enabled when replication state is Failover.

master Enabled when replication state is Disabled, Master, Single, or Failover.

single Enabled when replication state is Disabled or Single.

slave Enabled when replication state is Slave.

When enabled, remote station polling will begin automatically on system boot up or when the data collection is manually started. Automatic remote station polling can be disabled by setting this parameter to **false** when suspension would be useful for system maintenance. The parameter boot\_data\_collection must be true to start automatic remote station polling on booted.

**Options:** Command options for the nsautointer program.

-c # Wait time in minutes between interrogation time checks (Default: 1minute).

-d # Set diagnostic level (Default: 1).

-i Does immediate interrogation on program start. Otherwise wait for next wait

time interval.

-m Disable multi-line station polling.

-P program Execute this program after interrogation.

-t polltype Type of polling:

0 = current value 1 = last sample value 2 = last logged value 3 = logged since last poll 4 = logged between times.

-w # Time to wait in minutes after program start before polling starts (Default: 0).

Name	Value	Options
automatic_interrogation	true	-t 3

In the above example, the automatic interrogation is started when the NovaStar 5 data collection is started. When stations are polled, data is retrieved since the last time polled.

### **Boot data collection**

Name: boot\_data\_collection

**Enabled:** Replication state that enables start.

false Disabled.

failover Enabled when replication state is Failover.

master Enabled when replication state is Disabled, Master, Single, or Failover.

single Enabled when replication state is Disabled or Single.

slave Enabled when replication state is Slave.

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When enabled, data collection will begin automatically on system boot up. Data collection can be disabled by setting this parameter to **false** when suspension would be useful for system maintenance. The automatic data collection starts the **50386\_data\_collection**, **alert\_data\_collection**, **automatic\_interrogation**, **database\_replication**, **map display**, **smbfs**, and **alert talk 3** processes if they are enabled.

**Options:** none.

Name	Value	Options
boot_data_collection	true	

In the above example, the NovaStar data collection programs are started when the computer is booted.

### Check interval factor

Name: check\_interval\_factor

**Value:** Point no report interval is multiplied by this factor to computed how far back in

time to query the database for reports in data analysis.

**Options:** none

Name	Value	Options
check_interval_factor	10	

In the above example, the point no report interval is multiplied by a factor of 10 when query the database for data reports before a data analysis interval.

## **Database Node # Name and State**

**Name:** database\_node#, where # is 1, 2, ...

**Value:** Replication host name

**State:** Replication state of local node. failed Replication failed on node.

master Master of database in replication network.

slave Slave in replication network.

Name	Value	Options
database_node1	novastar5a	master
database_node2	novastar5b	slave

In the above example, the the master node 1 host name is novastar5a, and the slave node 2 is named novastar5b.

## **Database update wait**

**Name:** database\_update\_wait

**Value:** Time to wait in seconds for a database update to complete when the OK or Apply

button in clicked on an edit page (Default: 15 seconds). Increase this time if the

database replication synchronization time delays require it.

**Options:** none

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Name	Value	Options
database_update_wait	30 seconds	

In the above example, the database update wait time is set to 30 seconds.

## **Database Replication**

**Name:** database\_replication

**State:** Replication state of local node. false No database replication.

failover Backup database detected failure of master and became failover master.

master Master of database in replication network.

single Replication disabled.

slave Slave in replication network.

Database replication can be disabled by setting this parameter to **false** when suspension would

be useful for system maintenance.

**Options:** Replication failover checking

-a # Alarm trigger for replication failure.

-f state Replication failure checking enabled when *true*, disabled when *false*.

**Trigger:** Select the alarm trigger for replication failure. Click **View** to display the alarm

trigger parameters for the selected trigger. Click **List** to list alarm triggers.

**Enable failover:** Select *true* to enable replication failure checking, *false* to disable.

## Replication

**Node 1 Name:** Host name of node 1 in the database replication network. **Node 1 State:** Replication state of node 1 in the database replication network.

**Node 2 Name:** Host name of node 2 in the database replication network.

**Node 2 State:** Replication state of node 2 in the database replication network.

Replication node names and states are stored in a configuration table row with name database\_node1 and database\_node2.

#### Execute

Additional execute command buttons are displayed to control the database replication.

#### **Button Action**

Setup Setup database replication. Use the database node names and states defined above.

Drop Drop the database replication.

Switch Switch the master database replication node, for example from 1 to 2.

Failover Execute replication failover, take over as master.

Name	Value	Options
database_replication	master	-a 45 -f true

In the above example, the NovaStar database for this server is the master in the replication network, replication failure checking is enabled, and failure executes alarm trigger 45.

### **Forecast**

**Name:** forecast

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**Value:** When **true**, the forecast update page button is shown in the menu.

**Options:** none

Name	Value	Options
forecast	true	

In the above example, the NovaStar forecast update page button is shown in the menu.

## **Java Heap Size**

Name: java\_heap\_size

**Value:** The limit is defines the maximum memory available for Java requests by the

NovaStar5 web pages. It has the greatest effect on the plot data display plot point

limit (Default: 512MB).

**Options:** none

Name	Value	Options
java_heap_size	1GB	

In the above example, the Java heap size is increase from 512MB to 1GB.

## Last report interval

Name: last\_report\_interval

**Value:** When performing data analysis, this interval is how far back in time this system

looks for a report before the data analysis period starts (Default: 1 year).

**Options:** none

Name	Value	Options
last_report_interval	1 month	

In the above example, the time interval used to find the last report prior to the data analysis period is 1 month.

#### Local hostname

Name: local\_hostname

**Value:** Host name of the local host. Used by database replication logic.

**Options:** none

Name	Value	Options
local_hostname	novastar5a	

In the above example, the local host name is novastar5a.

## Map display

**Name:** map\_display

**Value:** When **true**, the map display driver will start automatically on system boot up. The

map display driver can be disabled by setting this parameter to false when

suspension would be useful for system maintenance.

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**Options:** Command options for the nsmapdisplay program.

-d # Set diagnostic level (Default: 1).

-n host:port Host name and port number (Default: localhost:8502) .

-U #,#,... Map display units managed by this driver (Default: control all).

Name	Value	Options
map_display	true	-n localhost:8502 -U1

In the above example, the map display program is started when the NovaStar 5 data collection is started. The program will control map display unit number 1 and will listen for control commands on the localhost port 8502.

## **Plot Point Limit**

Name: plot\_point\_limit

**Value:** Maximum number of plot points allowed per plot panel. This limit is used to

prevent Java memory overflow for plot data display requests. When the limit is exceeded by a user request, the user is warned and the plot request is cancelled. The limit is affected by the Java heap size limit which is 512MB by default.

(Default: 50000).

**Options:** none

Name	Value	Options
plot_point_limit	100000	

In the above example, the maximum number of plot points is increased to 100,000. This can be done if the Java heap size is increased from 512MB to 1GB.

## **Polling Ports**

Name: poll\_port#

where # is replaced by the port number: 1,2,3,...

**Value:** Defines the serial port alias or network port to which a polled station port is

connected. Serial port aliases are defined in the serial port list and assigned to physical serial ports; for example /dev/dc1. Network ports are defined as hostname:port where hostname is a computer name or IP address and port is a

port number; for example 10.150.11.23:2101.

**Options:** Command options for the NovaStar polling program.

-S # Source line number set in the data port flags and written in the data collection

log file (Line: #) to indicate which source a data report came from.

Name	Value	Options
poll_port1	novastar5a:8511	-S3

In the above example, the manual and automatic station polling programs will connect to the service on host novastar5a port number 8511 for station assigned to line number 1. Data reports received by poll stations on this line will be filed in the database with source line number 3.

## **Repeat Report Interval**

Name: repeat\_report\_interval

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**Value:** Data collection programs will not store multiple data reports received within this

interval. For example, this prevents an alert data report that is received once directly and then 2 seconds later by a repeater from being filed twice (Default: 2

seconds).

**Options:** none

Name	Value	Options
repeat_report_interval	5 seconds	

In the above example, the repeat report interval is set to 5 seconds.

## **System Name**

**Name:** system\_name

**Value:** Name of system to be used in alarms and reports. Use the hostname by default.

**Options:** none

Name	Value	Options
system_name	Hydrolynx Systems NovaStar 5A	

In the above example, the system name *Hydrolynx Systems NovaStar 5A* will be used in alarms and reports.

### **Time Format**

**Name:** time\_format

**Value:** Specifies the format for displaying time in NovaStar 5 reports. Years can use a

two-digit or four-digit formant, and dates can be displayed with the month, day and year in the desired order. Times can be displayed using either a 24-hour clock or a 12-hour clock by setting the hour value using either capital H's or lower case

h's, respectively, see Table 9.1.1.

**Options:** Time format options.

24:00:00 Show midnight time as 24:00:00 at end of period.

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Table 9.1.1. Time Format Parameters

Letter	<b>Date or Time Component</b>	Presentation	Examples
G	Era designator	Text	AD
y	Year	Year	1996; 96
M	Month in year	Month	July; Jul; 07
W	Week in year	Number	27
W	Week in month	Number	2
D	Day in year	Number	189
d	Day in month	Number	10
F	Day of week in month	Number	2
E	Day in week	Text	Tuesday; Tue
a	Am/pm marker	Text	PM
Η	Hour in day (0-23)	Number	0
k	Hour in day (1-24)	Number	24
K	Hour in am/pm (0-11)	Number	0
h	Hour in am/pm (1-12)	Number	12
m	Minute in hour	Number	30
S	Second in minute	Number	55
S	Millisecond	Number	978
z	Time zone	General time zone	Pacific Standard Time; PST; GMT-08:00
Z	Time zone	RFC 822 time zone	-0800

Name	Value	Options
time_format	MM/dd/yyyy HH:mm:ss	24:00:00

In the above example, the time format MM/dd/yyyy HH:mm:ss will display January 5, 2012 at 1:35 pm as 01/05/2012 13:35:00.

## **Time Format 24 hour Clock**

Name: time\_list\_24\_hour\_clock

**Value:** Specifies the format for selecting time in the drop-down selection lists that are

available in data reporting interfaces throughout NovaStar 5. When true, the 24-

hour clock is used.

**Options:** none

Name	Value	Options
time_list_24_hour_clock	true	

In the above example, the 24 hour clock time display is selected.

## **Time List Increment**

Name: time\_list\_increment

**Value:** Specifies the interval, in minutes, between choices of time increments in drop-

down selection lists that are available in data reporting interfaces throughout NovaStar 5. For example, when the time\_list\_increment is set at 30, the time

choices in data display lists will be limited to 30-minute intervals.

**Options:** none

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Name	Value	Options
time_list_increment	15	

In the above example, the time list will have 15 minute intervals; for example: 00:00, 00:15, 00:30, 00:45, 01:00, ...

## **Water Year Start Month**

Name: wateryear\_startmonth

**Value:** Sets the starting month for the water year (Default: 10).

**Options:** none

Name	Value	Options
wateryear_startmonth	7	

In the above example, starting month for the water year is 7 (July).

### **Start Year**

**Name:** year\_start

**Value:** Sets the earliest year of data in the database (Default: 1980).

**Options:** none

Name	Value	Options
year_start	1995	

In the above example, starting year of the system is 1995.

## 9.1.4 Configuration Delete

To delete a configuration parameter from the **Configuration List**, click **Edit** on that configuration's row in the table and then click **Delete** from the **Configuration Edit** screen to view the **Configuration Delete** page. The **Configuration Delete** page prompts you to click the **Delete** button again to confirm that the configuration parameter should be deleted.

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# 9.2 Data Flag List

When you click on the **Data Flag List** menu subcommand, the **Data Flag List** page appears. Each data flag is assigned a number that is used internally by the NovaStar 5 system to interpret the format of incoming data reports. The **Data Flag List** shows all of the data flags that are predefined for your system by **Name** and **Description**, and can show their associated **Table row number** in the NovaStar 5 data flag database table. **The Choose details...** button allows you to specify what information is displayed by the **Data Flag List** page using the **Data Flag List Details** page, see Section 9.2.1. Data flags shown on the **Data Flag List** page can be ordered numerically or alphabetically using the buttons at the top of each column.

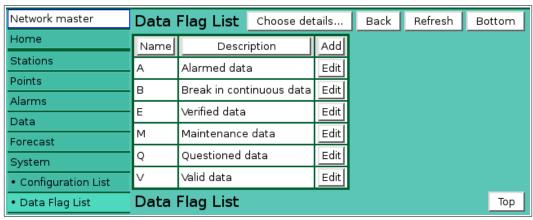


Figure 9.2.1. Data Flag List

Although you can use the **Add** button at the upper right-hand corner of the **Data Flag List** page to access the **Data Flag Add** page and create new data flags, the present version of the NovaStar 5 system is not configured to utilize data flags beyond those that have been predefined. Because the numerical assignments preloaded into NovaStar 5 cannot be altered by users, editing the **Data Flag List** is not recommended, except as desired to rename the data flags to either reflect the use of a different language or so that the data flag nomenclature is easy to remember.

The **Edit** button at the right side of each data flag in the **Data Flag List** can be used to access the **Data Flag Edit** page to alter the nomenclature associated with the data flag numbers that are used by the NovaStar 5 system, see Section 9.2.2.

## 9.2.1 Data Flag List Details

The check boxes on **Data Flag List Details** page control the items, organization, sort order, and limit the records displayed on the associated **List** page.

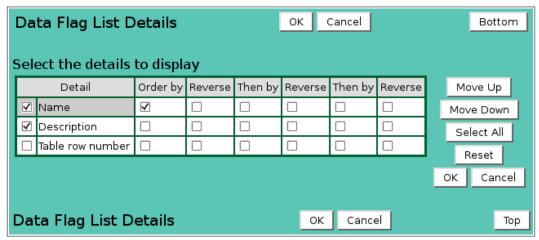


Figure 9.2.2. Data Flag List Details

## Select the details to display

Check the box to the left of a detail to display. Details are displayed in the order shown.

Check the Order by box for the detail to sort first. Check Reverse for a descending sort.

Check the Then by box for the detail to sort second. Check Reverse for a descending sort.

Check the second Then by box for the detail to sort third. Check Reverse for a descending sort.

**Button** Action

Move Up Move the selected detail up one row.

Move Down Move the selected detail down one row.

Select All Select all details.

Reset to default details.

OK Return to previous page with new details selected.

Cancel Return to previous page with no changes.

# 9.2.2 Data Flag Edit

When you click on the **Edit** button associated with any item defined in the **Data Flag List** table, or when you click **Apply** from the **Data Flag Add** or **Data Flag Copy** pages to create a new configuration item, you reach the **Data Flag Edit** page.



Figure 9.2.3. Data Flag Edit

### Identification

**Table index:** Field can not be modified; it is assigned automatically when a record is added.

**Name:** Data flag character. Max 1 character.

**Description:** Data flag description. Max 1000 characters.

## 9.2.3 Data Flag Delete

To delete a data flag from the **Data Flag List**, click the **Edit** button on that data flag's row in the table to access the **Data Flag Edit** page. Click on the **Delete** button. You will be prompted to confirm that you wish to delete the data flag by clicking on the **Delete** button again. Deleting predefined data flags is not recommended.

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### 9.3 Nova Score List

When you click on the **Nova Score List** menu subcommand, the **Nova Score List** page appears. Nova scores help to categorize active alarms based upon the relative severity of the data report values that trigger an alarm. They are a shorthand way to help interpret alarm data and determine appropriate responses. Each Nova Score is assigned a number that is used internally by the NovaStar 5 system to attach Nova Scores to incoming data reports. The **Nova Score List** shows all of the Nova Scores that are predefined for your system by **Name** and **Description**, and can show their associated **Table row number** in the NovaStar 5 Nova Score database table. **The Choose details...** button allows you to specify what information is displayed by the **Nova Score List** page using the **Nova Score List Details** page, see Section 9.3.1. Nova Scores shown on the **Nova Score List** page can be ordered numerically or alphabetically using the buttons at the top of each column.



Figure 9.3.1. Nova Score List

Although you can use the **Add** button at the upper right-hand corner of the **Nova Score List** page to access the **Nova Score Add** page and create new Nova Scores, the present version of the NovaStar 5 system is not configured to utilize Nova Scores beyond those that have been predefined. Because the numerical assignments preloaded into NovaStar 5 cannot be altered by users, editing the **Nova Score List** is not recommended, except as desired to rename the Nova Score descriptions to either reflect the use of a different language or so that the Nova Score nomenclature is easy to remember. The **Edit** button at the right side of each Nova Score in the **Nova Score List** can be used to access the **Nova Score Edit** page to alter the nomenclature associated with the Nova Score numbers that are used by the NovaStar 5 system, see Section 9.3.3.

	No	va Score List	Details	ОК	Cancel	Bottom					
5	Sele	Δ									
ı		Detail	Order by	Reverse	Then by	Reverse	Then by	Reverse	N	love Up	
ı	<b>✓</b>	Name	<b>Y</b>						Мо	ve Down	
ı	$\checkmark$	Description							s	elect All	
ı		Table row number							_	Reset	
									ОК	Cancel	
Nova Score List Details OK Cancel To									Тој	р	

Figure 9.3.2. Nova Score List Details

#### 9.3.1 Nova Score List Details

The check boxes on **Nova Score List Details** page control the items, organization, sort order, and limit the records displayed on the associated **List** page.

## Select the details to display

Check the box to the left of a detail to display. Details are displayed in the order shown. Check the Order by box for the detail to sort first. Check Reverse for a descending sort. Check the Then by box for the detail to sort second. Check Reverse for a descending sort. Check the second Then by box for the detail to sort third. Check Reverse for a descending sort.

**Button** Action

Move Up Move the selected detail up one row.

Move Down Move the selected detail down one row.

Select All Select all details.

Reset Reset to default details.

OK Return to previous page with new details selected.

Cancel Return to previous page with no changes.

#### 9.3.2 Nova Score Pick Details

The check boxes on **Nova Score Pick Details** page control the items, organization, sort order, and limit the records displayed on the pick list.

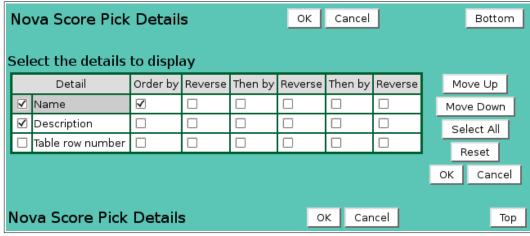


Figure 9.3.3. Nova Score Pick Details

## Select the details to display

Check the box to the left of a detail to display. Details are displayed in the order shown. Check the Order by box for the detail to sort first. Check Reverse for a descending sort. Check the Then by box for the detail to sort second. Check Reverse for a descending sort.

Check the second Then by box for the detail to sort third. Check Reverse for a descending sort.

**Button** Action

Move Up Move the selected detail up one row.

Move Down Move the selected detail down one row.

Select All Select all details.

Reset Reset to default details.

OK Return to previous page with new details selected.

Cancel Return to previous page with no changes.

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### 9.3.3 Nova Score Edit

When you click on the **Edit** button associated with any item defined in the **Nova Score List** table, or when you click **Apply** from the **Nova Score Add** or **Nova Score Copy** pages to create a new configuration item, you reach the **Nova Score Edit** page.

Nova Score	Edit	ок	Apply	Back	Сору	Delete	Bottom
* Required field	** Must be ur	nique					
Identification	n =						
Table row:	1						
** Name:	1						
Description:	No hydrologic activity						
							.::
Nova Score	Edit	ок	Apply	Back	Сору	Delete	Тор

Figure 9.2.4. Nova Score Edit

### Identification

**Table index:** Field can not be modified; it is assigned automatically when a record is added.

**Name:** Nova score number. Max 1 character.

**Description:** Nova score description. Max 1000 characters.

## 9.3.4 Nova Score Delete

To delete a Nova Score from the **Nova Score List**, click the **Edit** button on that Nova Score's row in the table to access the **Nova Score Edit** page. Click on the **Delete** button. You will be prompted to confirm that you wish to delete the Nova Score by clicking on the **Delete** button again. Deleting predefined Nova Scores is not recommended.

### 9.4 Scheduler List

NovaStar 5 has an scheduled action feature that executes commands at predefined times during the day, day of week and day of month. The commands can generate reports of point data and distribute them. The commands can also perform system maintenance or utility functions. Automatic system activities are created by users using the **Scheduler List** subcommand. When you click on the **Scheduler List** menu subcommand, the **Scheduler List** page is displayed.



Figure 9.4.1. Scheduler List

The **Scheduler List** shows the **Name** assigned to each of the scheduled actions that are defined within your system. Clicking on any of the column heading buttons will reorder the scheduled actions in the **Scheduler List**, numerically or alphabetically, by that detail. The **Choose details...** button allows you to specify what information is displayed by the **Scheduler List** page using the **Scheduler List Details** page, see Section 9.4.1.

When you first begin to configure NovaStar 5, no scheduled events will appear on the **Scheduler List** page. Use the **Add** button at the upper right-hand corner of the **Scheduler List** table to define a new scheduled event using the **Scheduler Add** page. Or, you may use the **Copy** button to create a new scheduled event from a similar template scheduled event. First, click the **Edit** button associated with the template scheduled event to view the attributes of that scheduled event on the **Scheduler Edit** page. From there, the **Copy** button can be used to access the **Scheduler Copy** page to create a new scheduled event as described below.

#### 9.4.1 Scheduler List Details

The check boxes on **Scheduler List Details** page control the items, organization, sort order, and limit the records displayed on the associated **List** page.

# Select the details to display

Check the box to the left of a detail to display. Details are displayed in the order shown.

Check the Order by box for the detail to sort first. Check Reverse for a descending sort.

Check the Then by box for the detail to sort second. Check Reverse for a descending sort.

Check the second Then by box for the detail to sort third. Check Reverse for a descending sort.

**Button** Action

Move Up Move the selected detail up one row.

Move Down Move the selected detail down one row.

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Select All Select all details.

Reset Reset to default details.

OK Return to previous page with new details selected.

Cancel Return to previous page with no changes.

Sc	heduler List D			ок	Cancel			Bottom	
Sel	ect the details	to displa	ay						
Г	Detail	Order by	Reverse	Then by	Reverse	Then by	Reverse	М	ove Up
✓	Name	<b>✓</b>						Mo	ve Down
✓	Enabled							Se	elect All
	Table row number							_	Reset
	Description							_	
	Effective time							OK	Cancel
	Interval								
	Day of week								
	Command								
Scł	neduler List D	etails			ОК	Cance	el		Тор

Figure 9.4.2. Scheduler List Details

## 9.4.2 Scheduler Add/Copy

The **Scheduler Add** page and the **Scheduler Copy** page allow users to create a new scheduled event. They are described together as they function in the same way. The **Scheduler Copy** page is most convenient when the new scheduled event will share several parameters with the template scheduled event. To access the **Scheduler Copy** page, click on the **Edit** button in the template scheduled event's row in the **Scheduler List** table. You will reach the **Scheduler Edit** page. Click on the **Copy** button to reach the **Scheduler Copy** page. The **Scheduler Add/Copy** page(s) prompt you to enter a new scheduled event name in the highlighted field, and provide the opportunity to define other scheduled event parameters as required. See Section 9.4.3 for complete details on input parameters for scheduled events, including those that are required on the **Scheduler Add** or the **Scheduler Copy** pages. The **Scheduler Edit** page, described next, provides the same input fields as the **Scheduler Add** and the **Scheduler Copy** pages.

#### 9.4.3 Scheduler Edit

The **Scheduler Edit** page allows users to enter scheduled event parameters that **Edit** an existing scheduled event, or to add a scheduled event with many of the same parameters as the existing scheduled event using the **Copy** button.

#### Identification

**Table index:** Field can not be modified; it is assigned automatically when a record is added. **Name:** Name must be unique for each scheduled action and should describe the action.

The name is used on pick lists. Max: 100 characters.

**Description:** Use this field to describe the action functionality. Max: 1000 characters.

Schedule

**Effective time:** Enter the time for the next scheduled action. If a past time is entered, the

scheduler will adjust the time to the next scheduled time based on the schedule **Interval**. The default if no value is entered for the **Effective time** is the current

time. Click the button to assign the current time.

#### **Interval:**

Enter how often you want the scheduled action to execute. Enter the numeric value for the interval in the input box and the use the drop-down list to select the interval unit (minutes, hours, days, etc.). Click the **Interval** button to display a list of intervals to pick from. Click the **Interval** button again to display the interval value and time units.

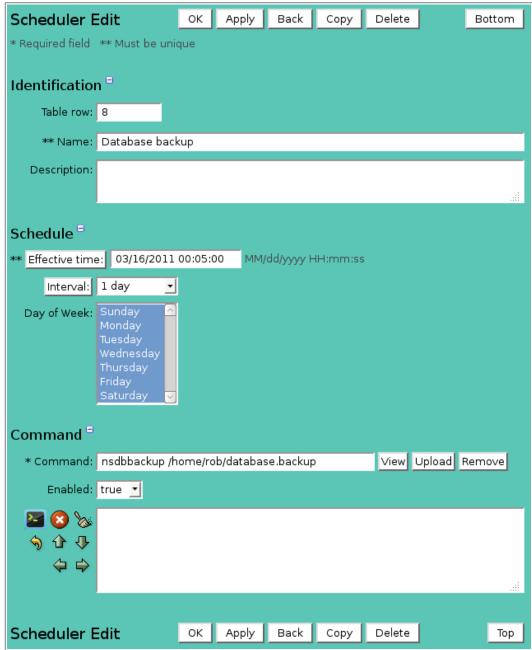


Figure 9.4.3. Scheduler Edit

**Day of Week:** This list allows you select the days of the week on which you want the scheduled action to execute. If you want the scheduled action to execute only on Fridays, set your schedule **Interval** to 1 day and select only Friday from the **Day of Week** list. Multiple days can be selected from the list by depressing the Ctrl button on your keyboard while selecting from the list with the mouse.

#### Command

## **Command:**

Enter the command to be executed at the scheduled time. Commands are custom script files that can be created by users and stored in the folder /usr/ns/cus. Click the **View** button to display a script command file. Click the **Upload** button to

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upload a new command script file to the NovaStar 5 system. Click the **Remove** 

button to delete a command script file.

Select *true* to execute the command at the scheduled time. Select *false* to leave the **Enabled:** 

command in the configuration list but do not execute it.

## **Scheduler Command Upload**

Command script files can be uploaded from your workstation to the NovaStar 5 system. They are placed in the /local/bin folder of the browser which is linked to the /usr/ns/cus folder for command execution by the scheduler. The command ownership and execute permissions are set by the upload process. Click the **Upload** button to start the process.

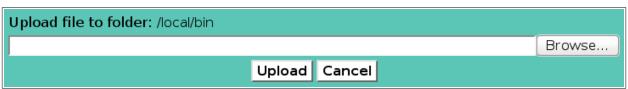


Figure 9.4.4. Scheduler Command Upload Start

Click the **Browse** button to open the file browser on your workstation.



Figure 9.4.5. Scheduler Command Upload File Selection

Select the command script file from you workstation folder and click the **Open** button.

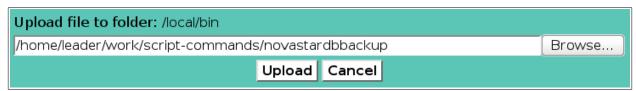


Figure 9.4.6. Scheduler Command Upload Ready



Figure 9.4.7. Scheduler Command Upload Success.

The workstation file name and path will be displayed in the upload window. Click the **Upload** button to upload this file to the NovaStar 5 system.

Click the **Close** button and the **Scheduler Edit** page will be updated with the new command.

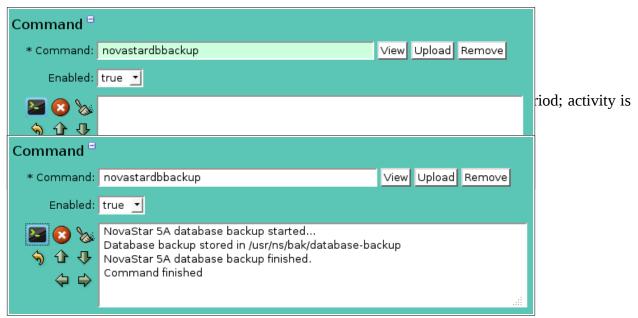


Figure 9.4.9. Scheduler Command Execution

Button	Action
>_	Run command; display activity in command display window.
<b>8</b>	Stop command.
<b>&amp;</b>	Clear display window.
<b>√</b> ) <b>1</b> }	Reset display window size to default.
1	Decrease display window height.
₽	Increase display window height.
<b>4</b>	Decrease display window width.
$\Rightarrow$	Increase display window width.

### 9.4.6 Scheduler Delete

To delete a scheduled event from the **Scheduler List**, click **Edit** on that scheduled event's row in the **Scheduler List** table and then click **Delete** from the **Scheduler Edit** screen. You will be prompted by the **Scheduler Delete** page to click the **Delete** button again to confirm that you wish to delete the scheduled event. If you click the **Delete** button a second time, the scheduled event will be deleted from the Scheduler List. Execution of a scheduled event can be suspended without deleting the scheduled event using the **Enabled** drop down-list on the **Scheduler Edit** page. See Section 9.4.3.

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#### 9.5 Serial Port List

When you click on the **Serial Port List** menu subcommand, the **Serial Port List** page is displayed. Computer I/O ports used by NovaStar 5 must be named, typed and configured. I/O port configuration includes the baud rate, parity, flow control, modem initialization and other parameters. The **Serial Port List** shows all of the serial port connections that are configured for the system. Clicking on any of the column heading buttons will reorder the reports in the **Serial Port List**, numerically or alphabetically, by that detail. The **Choose details...** button allows you to specify what information is displayed by the **Serial Port List** page using the **Serial Port List Details** page, see Section 9.5.1.



Figure 9.5.1. Serial Port List

Click on the **Edit** button on any row in the **Serial Port List** table to view or edit the information that has been entered about that serial port on the **Serial Port Edit** page or to **Delete** a serial port map from the **Serial Port Edit** page. To map a new serial port for the **Serial Port List** table, use the **Add** button at the upper right-hand corner of the **Serial Port List** table to access the **Serial Port Add** page. You can also create a new serial port map based on an existing template serial port map using the **Serial Port Copy** page, as follows. First, click the **Edit** button associated with the template serial port map to access its **Serial Port Edit** page. From there, the **Copy** button can be used to access the **Serial Port Copy** page and create a new serial port. The **Serial Port Add** page, the **Serial Port Copy** page and the **Serial Port Edit** pages all provide the same input fields.

#### 9.5.1 Serial Port List Details

The check boxes on **Serial Port List Details** page control the items, organization, sort order, and limit the records displayed on the associated **List** page.

#### Select the details to display

Check the box to the left of a detail to display. Details are displayed in the order shown. Check the Order by box for the detail to sort first. Check Reverse for a descending sort.

Check the Then by box for the detail to sort second. Check Reverse for a descending sort.

Check the second Then by box for the detail to sort third. Check Reverse for a descending sort.

**Button** Action

Move Up Move the selected detail up one row.

Move Down Move the selected detail down one row.

Select All Select all details.

Reset to default details.

OK Return to previous page with new details selected.

Cancel Return to previous page with no changes.



Figure 9.5.2. Serial Port List Details

#### 9.5.2 Serial Port Pick Details

The check boxes on **Serial Port Pick Details** page control the items, organization, sort order, and limit the records displayed on the pick list.

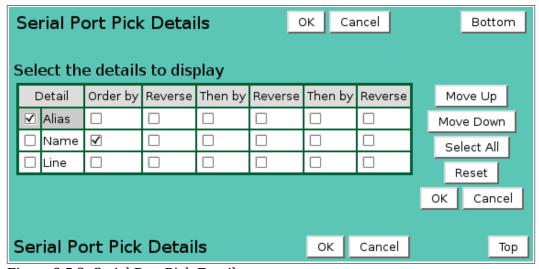


Figure 9.5.3. Serial Port Pick Details

#### Select the details to display

Check the box to the left of a detail to display. Details are displayed in the order shown. Check the Order by box for the detail to sort first. Check Reverse for a descending sort.

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Check the Then by box for the detail to sort second. Check Reverse for a descending sort. Check the second Then by box for the detail to sort third. Check Reverse for a descending sort.

**Button** Action

Move Up Move the selected detail up one row.

Move Down Move the selected detail down one row.

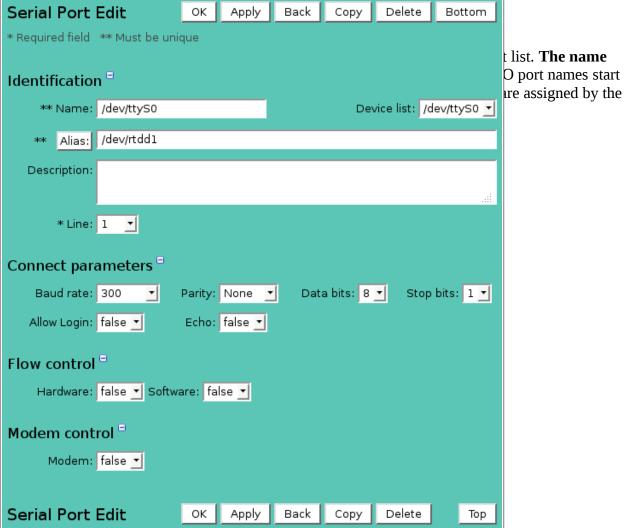
Select All Select all details.

Reset to default details.

OK Return to previous page with new details selected.

Cancel Return to previous page with no changes.

#### 9.5.3 Serial Port Edit



Port name Description				
/dev/ttyS0 First built-in serial port, also known as COM1.				
/dev/ttyS1 Second built-in serial port, also known as COM2.				
/dev/ttyUSB0 First USB to serial port.				
/dev/ttyUSB1 Second USB to serial port.				
/dev/ttyACM0	First USB to telephone modem.			
/dev/ttyACM1	Second USB to telephone modem.			

**Port list:** Select an I/O port name from the pick list. It will be copied into the **Name** field.

Alias: Enter an alias to be used to reference the operating system I/O port name. Alias

names are used by NovaStar 5 to find specific I/O ports in the system, and can make it easier to maintain the system after hardware changes. If ever the I/O port must be moved, you do not have to change the program start argument; just assign the alias to the new I/O port. **The name must be unique in the serial port list.** Click the button to reset the alias to the serial port name. Max 100 characters.

**Description:** Enter descriptive information about the serial port. Max 1000 characters.

Select a reference line number for the serial port. This number can appear in serial Line:

port pick lists.

## **Connect parameters**

Select the communication baud rate for the serial port from the pick list: 300, 600, **Baud rate:** 

1200, 2400, 4800, 9600, 19200, 38400, 57600, 115200.

Select the parity from the pick list: *None*, *Odd*, *Even*, *Mark or Space*. Use parity **Parity:** 

None by default.

Data bits: Select the data bits from the pick list: 5, 6, 7 or 8. Use 8 data bits by default for

parity *None*, Use 7 data bits by default other parity.

**Stop bits:** Select the stop bits from the pick list: 1 or 2. Use 1 stop bit by default.

**Allow Login:** Select *true* to allow login on this serial port, *false* to no login.

Echo: Select *true* to echo input characters on this serial port in full duplex mode, *false* 

for no echo.

#### Flow control

Select *true* to enable RTS/CTS flow control, *false* to disable. Hardware: **Software:** Select *true* to enable Ctrl-S/Ctrl-Q flow control, *false* to disable.

## **Modem control**

Select *true* if the serial port is to be handled as a dial-in or dial-out modem. Modem: **Dial init string:** Enter the AT command line to initialize the modem. Refer to the modem manual for a description of AT commands.

**Dial output line:** Enter the digits to dial to get an outside line. Enter commas for a two second

delays per comma. Leave blank if not needed.

Modem cont	Modem control <sup>□</sup>					
Modem:	true _					
Dial init string:	ATS0					
Dial outside line:	9,					

Figure 9.5.5. Serial Port Modem Edit

#### 9.5.4 Serial Port Delete

To delete a serial port from the **Serial Port List**, click **Edit** on that serial port's row in the **Serial Port List** table and then click **Delete** from the **Serial Port Edit** screen. You will be prompted by the Serial Port Delete page to click the Delete button again to confirm that you wish to delete the serial port. If you click the **Delete** button a second time, the serial port will be deleted from the Serial Port List.

## 9.6 View Log Files

The ALERT data collection and remote station polling programs record their activity in log files. The reports in these files can be displayed in a scrollable window. This display is useful in

**Page 296** A102722 checking the operation of your data collection system. To access these files click on the **View Log Files** button to access the **Log File Request** page.

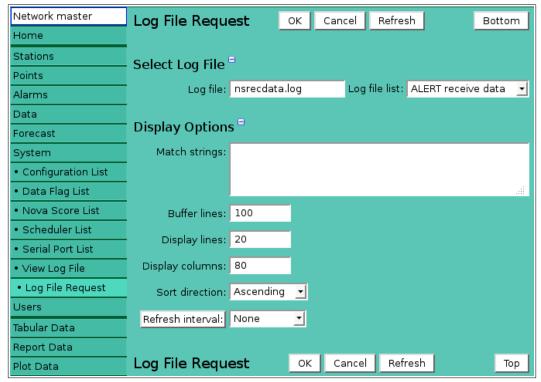


Figure 9.6.1. Log File Request

## 9.6.1 Log File Request

## Select Log File

**Log file:** Enter log file name or select from the log file list. Log files are read from the

**NovaStar 5** log file folder (/usr/ns/log) unless the log file path is provided as part

of the log file name.

**Log file list:** Select a log file from the pick list. The selection is copied to the **Log file** field.

Log file	Description
Custom	Other data collection log file
ALERT receive data	ALERT data collection log
Station polling	Station polling log
Database replication	Database replication activity log
NovaStar 5 start	NovaStar5 data collection start and stop log
NovaStar 5 system	NovaStar5 system activity log

**Match strings:** Enter character strings to match for log file lines to display. By default all lines

are displayed up to the buffer limit.

**Buffer lines:** Enter the number of lines in the log file display window that will be available for

you to scroll through.

**Display lines:** Enter the total number of lines shown in the display window.

**Display columns:** Enter the total number of columns shown in the display window.

**Sort direction:** Select *Ascending* to display the oldest log file line first. Select *Descending* to

display the newest log file line first.

**Refresh interval:** Select the automatic refresh interval in seconds. Select *None* or enter *0* for no automatic refresh. Click the **Refresh Interval:** button to switch between the refresh interval list and interval values.

Click **OK** to display the log file contents. The **Log File Display** page will be displayed.

## 9.6.2 Log File Display Alert Receive Data

This page displays lines read from the selected log file. The number of lines and columns in the display are set in the **Log File Request** page. In addition to the lines displayed, additional lines can be buffered for scrolling with the vertical slider bar. The lines are displayed from oldest to newest if the sort direction is *ascending* or from newest to oldest if *descending*. If the display contents are scrolled or if the mouse is clicked on the display window, the automatic refreshed is paused. In this case the red stop display update button will be replaced with the green resume display update button. Click on the green resume button to continue updating. Click the **Detach** button at the top of the page to open the display in a pop-up window.

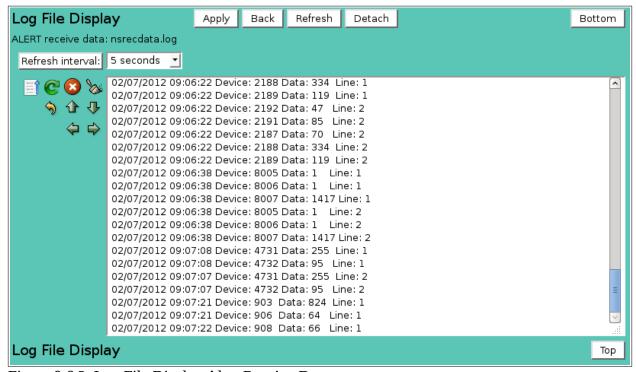


Figure 9.6.2. Log File Display Alert Receive Data

In the Alert Receive Data log the received report time, remote ID, data value, and received source line number are displayed.

Button	Action
<b></b>	Redisplay in ascending time order
<b></b>	Redisplay in descending time order
C	Update display.
	Resume display update.
8	Stop command.
<b>S</b>	Clear display window.
<b>5</b>	Reset display window size to default.
1	Decrease display window height.
₽	Increase display window height.
<b>4</b>	Decrease display window width.
$\Rightarrow$	Increase display window width.

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## 9.6.3 Log File Display Station Polling

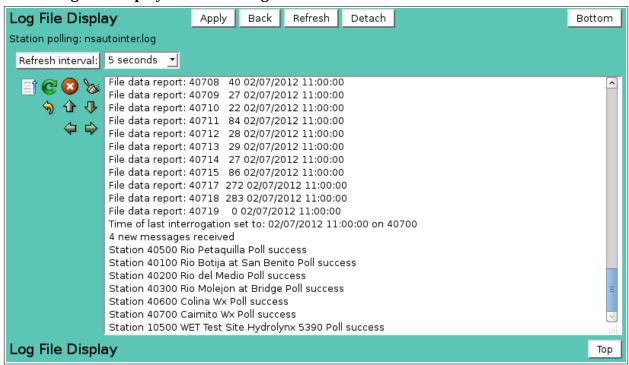


Figure 9.6.3. Log File Display Station Polling

In the Station polling log display the polling program steps and successfull polled remote ID, data value, report time are displayed.

## 10 Users

NovaStar 5 provides for distinct user types with differing degrees of access to the NovaStar 5 database. *Administrators* have responsibility for the NovaStar 5 security system and have access to the configuration, calibration and setup functions within NovaStar 5 that specify how transmissions from remote sensors are converted to meaningful data. *Operators* have read and write access to the database for calibration, setup, and data editing. *Guests* have read only access for viewing data. The system capabilities available to guest users are described in Part I of this manual.

The **Users** menu command allows an *administrator* to manage the system's users and to provide access to those users by entering the passwords that will allow them to login. The user list also acts as a record of system users for the user. When you first begin to configure NovaStar 5, the only predefined user will be the system administrator.

When you click on the **Users** menu list option, the **User List** page appears.



Figure 10.1.1. User List

## 10.1 User List

The **User List** shows all of the users, including the user, who may access the NovaStar 5 system. Clicking on any of the column heading buttons will reorder the user entries in the **User List**, numerically or alphabetically, by that detail. The **Choose details...** button allows you to specify what information is displayed on the **User List** page using the **User List Details** page, see Section 10.1.1. The **User List** does NOT show the passwords for each user. The passwords are encoded and must be remembered (or recorded) independently. NovaStar 5 does not provide reminders for forgotten passwords.

Click on the **Edit** button on any user's row in the **User List** table to view or edit the information that has been entered about that user on the **User Edit** page. To create a new user of the NovaStar 5 system for the **User List** table, use the **Add** button at the upper right-hand corner of the **User List** table to access the **User Add** page. Or, you may **Copy** a template user account to create a new user account, as follows. First, click the **Edit** button associated with the template user account to access its **User Edit** page. From there, the **Copy** button can be used to access the **User Copy** page and create a new user account. The **User Add** page, the **User Copy** page and the **User Edit** pages all provide the same input fields and function in the same way.

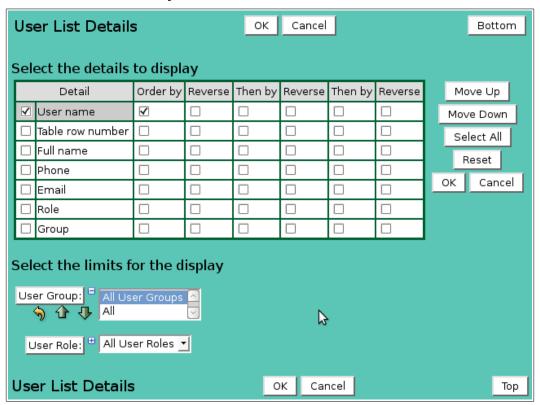
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#### 10.1.1 User List Details

The check boxes on **User List Details** page control the items, organization, sort order, and limit the records displayed on the associated **List** page.

## Select the details to display

Check the box to the left of a detail to display. Details are displayed in the order shown. Check the Order by box for the detail to sort first. Check Reverse for a descending sort. Check the Then by box for the detail to sort second. Check Reverse for a descending sort. Check the second Then by box for the detail to sort third. Check Reverse for a descending sort.



#### **Button** Action

Move Up Move the selected detail up one row.

Move Down Move the selected detail down one row.

Select All Select all details.

Reset to default details.

OK Return to previous page with new details selected.

Cancel Return to previous page with no changes.

## Select the limits for the display

**User Group:** Limit display to users assigned to the user group(s). Click **User Group:** button to change **User Group Pick Details** and order. The pick list is a single select list by default. Click the ⊕ button to change to a multiple pick list. Control the pick list length with the buttons that appear below the pick list label button.

#### **Button Action**

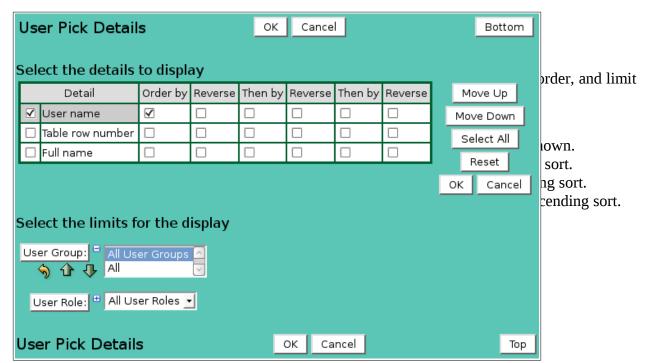
Reset pick list to single select.

Decrease pick list length.

Increase pick list length.

**User Role:** Limit display to users assigned to the user role(s). Click **User Role:** button to change **User Role Pick Details** and order. The pick list is a single select list by

default. Click the 
■ button to change to a multiple pick list. Control the pick list length with the buttons that appear below the pick list label button.



**Button** Action

Move Up Move the selected detail up one row.

Move Down Move the selected detail down one row.

Select All Select all details.

Reset to default details.

OK Return to previous page with new details selected.

Cancel Return to previous page with no changes.

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## Select the limits for the display

**User Group:** Limit display to users assigned to the user group(s). Click **User Group:** button to change **User Group Pick Details** and order. The pick list is a single select list by default. Click the → button to change to a multiple pick list. Control the pick list

length with the buttons that appear below the pick list label button.

#### **Button Action**

Reset pick list to single select.

◆ Decrease pick list length.

Increase pick list length.

**User Role:** 

Limit display to users assigned to the user role(s). Click **User Role:** button to change **User Role Pick Details** and order. The pick list is a single select list by default. Click the button to change to a multiple pick list. Control the pick list length with the buttons that appear below the pick list label button.

## 10.1.3 User Add / Copy

The **User Add** page and **User Copy** page allows *administrators* to add new users to the NovaStar 5 system. The **User Edit** page provides the same input fields as the **User Add** and **User Copy** page, and these are described in Section 10.1.5.

User Add			ок	Apply	Back	Bottom
* Required field	** Must	be uniqu	ue			
Identification	n =					
Table row:		Will	be ass	signed by	system.	
** User name:	usernan	ne				
* Password:	•••••					
Full name:						
Phone:						
Email:						
* Role:	operato	r		√iew	List	
User groups	Assign	/Remov	e grou	ıps List	<u> </u>	
Details	Name	Desc	riptior			
	All	All syste	em us	ers Edit		
User Add			ок	Apply	Back	Тор

Figure 10.1.4. User Add

On the **User Add and User Copy** page you must enter a new **User name** and **Password**, other information is optional. A new user must be assigned one or more roles. The roles define the level of access to the NovaStar 5 system. Select roles from the list by depressing the **Ctrl** button

on your keyboard while selecting from the list with the mouse. Click the **Apply** button to save your changes. Click **Show More** to increase the list length. Click **Show Less** to decrease the list length. Click **Close** to close the selection list and display the role list table.

#### **10.1.4** User Edit

The **User Edit** page allows *administrators* to copy and/or edit user accounts.

User Edit		ОК	Apply	Back	Сору	Delete	Bottom
* Required field	** Must be ur	ique					
Identification	n =						
Table row:	8						
** User name:	admin						
* Password:	•••••						
Full name:							
Phone:							
Email:							
* Role:	administrator		√lew	List			
User groups	Assign/Rem	ove grou	ups List				
Details		scriptio stem us					
User Edit		ОК	Apply	Back	Сору	Delete	Тор

Figure 10.1.5. User Edit

You can change the **User name** and **Password** or enter the **Full Name**, **Phone** number and **Email** address for each user account. The **User name** must be unique. None of the input pages with information about user accounts will show the password entered for a user after the initial entry. The passwords are encoded and must be remembered (or recorded) independently. NovaStar 5 does not provide reminders for forgotten passwords.

#### Identification

**Table index:** Field can not be modified; it is assigned automatically when a record is added.

**User name:** Login name for user. The name must be unique. Max: 50 characters. **Password:** Password for login name. The password characters are hidden. Max: 50

characters. If you change the password, you will be asked to

**Confirm:** If you change the password, you must confirm it on this line.

**Full name:** Full name of user. Max: 100 characters. **Phone:** User telephone number. Max: 50 characters. **Email:** User email address. Max: 100 characters.

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Role:

Select the role for the user from the pick list. Click **Role:** button to change **User Role Pick Details** and order, see Section 10.2.2. **View** button displays the **User Role Edit** page for the selected role, see Section 10.2.4.**List** button displays the **User Role List** page, see Section 10.2.

## User groups

The **User groups** table shows the user groups currently assigned to the user. Clicking on any of the column heading buttons will reorder the user groups in the User groups list, numerically or alphabetically, by that detail. Click the **Details:** button to change the User Group List details and display order, see Section 10.3.1. Click the **Assign/Remove groups** button to open User Group Assignment window, see Section 10.3.3. Changes made to user group assignments will update this page when the assignment window is closed.

**List** Click button to show all user groups, see Section 10.3.1.

**Add** Click button to add a user group to the user, see Section 10.3.4.

**Edit** Click button to edit the user group, see Section 10.3.5.

#### 10.1.5 User Delete

To delete a user account from the **User List**, click **Edit** on that user account's row in the table and then click **Delete** from the **User Edit** screen. You will be prompted by the **User Delete** page to click the **Delete** button again to confirm that you wish to delete the user account. If you click the **Delete** button a second time, the user account will be deleted from the User List.

## 10.2 User Role List

Each *user role* is assigned a number that is used internally by the NovaStar 5 system to control the type of access to the database that is permitted for each user. When you click on the **User Role List** option, the **User Role List** page is displayed. The **User Role List** shows all of the user roles that are predefined for your system. Clicking on any of the column heading buttons will reorder the user roles in the **User Role List**, numerically or alphabetically, by that detail. The **Choose details...** button allows you to specify what information is displayed by the **User Role List** page using the **User Role List Details** page, see Section 10.2.1.



Figure 10.2.1. User Role List

#### 10.2.1 User Role List Details

The check boxes on **User Role List Details** page control the items, organization, sort order, and limit the records displayed on the associated **List** page.

User Role List Details						ОК	Cancel			Bottom
5	Sele	ect the details	to displa	ay						
		Detail	Order by	Reverse	Then by	Reverse	Then by	Reverse		Move Up
	<b>√</b>	Name	<b>V</b>							Move Down
	<b>\</b>	Description							Ī	Select All
ı		Table row number								Reset
									C	OK Cancel
Į	Jse	er Role List D	etails			ок	Cance	el		Тор

Figure 10.2.2. User Role List Details

## Select the details to display

Check the box to the left of a detail to display. Details are displayed in the order shown. Check the Order by box for the detail to sort first. Check Reverse for a descending sort. Check the Then by box for the detail to sort second. Check Reverse for a descending sort. Check the second Then by box for the detail to sort third. Check Reverse for a descending sort.

**Button** Action

Move Up Move the selected detail up one row.

Move Down Move the selected detail down one row.

Select All Select all details.

Reset to default details.

OK Return to previous page with new details selected.

Cancel Return to previous page with no changes.

## 10.2.2 User Role Pick Detail

The check boxes on **User Role Pick Details** page control the items, organization, sort order, and limit the records displayed on the pick list.

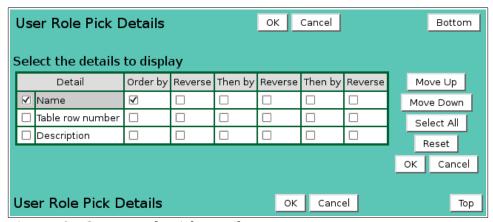


Figure 10.2.3. User Role Pick Details

#### Select the details to display

Check the box to the left of a detail to display. Details are displayed in the order shown. Check the Order by box for the detail to sort first. Check Reverse for a descending sort.

Check the Then by box for the detail to sort second. Check Reverse for a descending sort.

Check the second Then by box for the detail to sort third. Check Reverse for a descending sort.

**Button** Action

Move Up Move the selected detail up one row.

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Move Down Move the selected detail down one row.

Select All Select all details.

Reset to default details.

OK Return to previous page with new details selected.

Cancel Return to previous page with no changes.

#### 10.2.3 User Role Add

Although you can use the **Add** button at the upper right-hand corner of the **User Role List** page to access the **User Role Add** page and create new user roles, the present version of the NovaStar 5 system is not configured to utilize user roles beyond those that have been predefined. Because the numerical assignments preloaded into NovaStar 5 cannot be altered by users, editing the **User Role List** is not recommended, except as desired to rename the user roles to either reflect the use of a different language or so that the user role nomenclature is easy to remember.

#### 10.2.4 User Role Edit

The **Edit** button at the right side of each user role in the **User Role List** can be used to access the **User Role Edit** page to alter the nomenclature associated with the user role numbers that are used by the NovaStar 5 system.

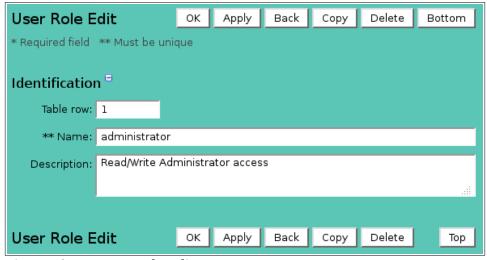


Figure 10.2.4. User Role Edit

#### 10.2.5 User Role Delete

To delete a user role from the **User Role List**, click the **Edit** button on that user role's row in the table to access the **User Role Edit** page. Click on the **Delete** button to access the **User Role Delete** page. You will be prompted to confirm that you wish to delete the user role by clicking on the **Delete** button again. Deleting predefined user roles is not recommended.

## 10.3 User Group List

Each *user group* is assigned a number that is used internally by the NovaStar 5 system to control which database records are displayed for users assigned to groups. Only *administrators* can display records assigned to other user groups. When you click on the **User Group List** option, the **User Group List** page is displayed. The **User Group List** shows all of the user groups that are defined for your system. Clicking on any of the column heading buttons will reorder the user roles in the **User Group List**, numerically or alphabetically, by that detail. The **Choose details...** button allows you to specify what information is displayed by the **User Group List** page using the **User Group List Details** page, see Section 10.3.1.

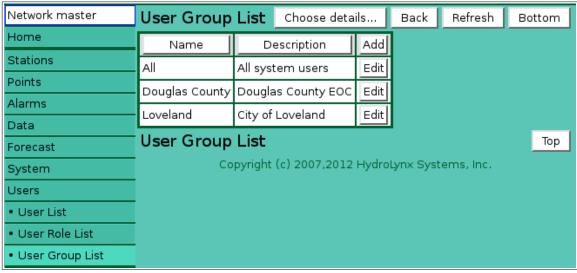


Figure 10.3.1. User Group List

## **10.3.1 User Group List Details**

The check boxes on **User Group List Details** page control the items, organization, sort order, and limit the records displayed on the associated **List** page.

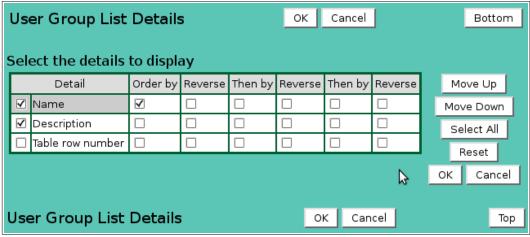


Figure 10.3.2. User Group List Details

## Select the details to display

Check the box to the left of a detail to display. Details are displayed in the order shown.

Check the Order by box for the detail to sort first. Check Reverse for a descending sort.

Check the Then by box for the detail to sort second. Check Reverse for a descending sort.

Check the second Then by box for the detail to sort third. Check Reverse for a descending sort.

**Button** Action

Move Up Move the selected detail up one row.

Move Down Move the selected detail down one row.

Select All Select all details.

Reset Reset to default details.

OK Return to previous page with new details selected.

Cancel Return to previous page with no changes.

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## 10.3.2 User Group Pick Detail

The check boxes on **User Group Pick Details** page control the items, organization, sort order, and limit the records displayed on the pick list.

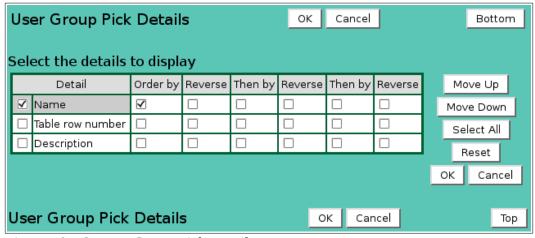


Figure 10.2.3. User Group Pick Details

## Select the details to display

Check the box to the left of a detail to display. Details are displayed in the order shown. Check the Order by box for the detail to sort first. Check Reverse for a descending sort. Check the Then by box for the detail to sort second. Check Reverse for a descending sort.

Check the second Then by box for the detail to sort third. Check Reverse for a descending sort.

**Button** Action

Move Up Move the selected detail up one row.

Move Down Move the selected detail down one row.

Select All Select all details.

Reset Reset to default details.

OK Return to previous page with new details selected.

Cancel Return to previous page with no changes.

## **10.3.3** User Group Assignment

The **User Group Assignment** window is opened when the **Assign/Remove** User Group button is clicked. The window is divided into two lists, the *Assigned list* and the *Pick list*.

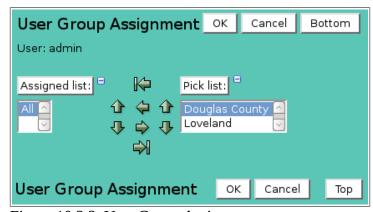


Figure 10.3.3. User Group Assignment

The user groups available for assignment are shown in the *Pick list*. Click on the arrow buttons to move user groups from the *Pick list* to the *Assigned list* add assignments. Click on the arrow buttons to move user groups from the *Assigned list* to the *Pick list* remove assignments. Click the **OK** button to save the assignment changes and close the window. Click **Cancel** to abandone

changes and close the window. Click either the *Assigned list* or *Pick list* buttons to change **User Group Pick Details** and order, see Section 10.3.2.

Button	Action
H	Move all from pick list to assigned list.
<b>4</b>	Move from pick list to assigned list.
$\Rightarrow$	Move from assigned list to pick list.
$\Rightarrow$	Move all from assigned list to pick list.
<b>1</b>	Decrease pick list length.
₽	Increase pick list length.
+	Expand pick list to multiple select.
$\equiv$	Collapse pick list to single select.

## 10.3.4 User Group Add

The **User Group Add** page allows users to create a user group by entering, at a minimum, the user group name. Click Apply to display the **User Group Edit** page.

## **10.3.5** User Group Edit

When you click on the **Edit** button associated with any row in the **User Group List** table, or when you click **Apply** from the **User Group Add** or **User Group Copy** pages to create a new user group, you reach the **User Group Edit** page.

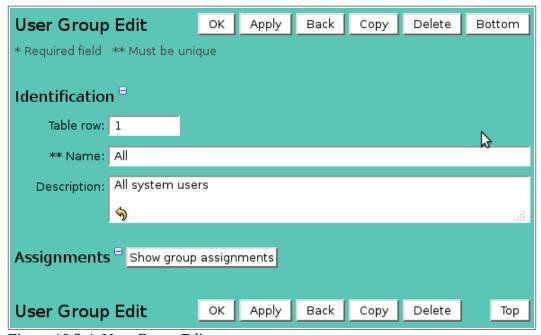


Figure 10.3.4. User Group Edit

#### **Identification**

**Table index:** Field can not be modified; it is assigned automatically when a record is added.

**Name:** User group name. The name must be unique. Max 100 characters.

**Description:** User group description. Max 1000 characters.

## **Assignments**

Click the **Show group assignments** button to display all database tables assigned to this group.

Button	Action
Add	Add or remove assignments to user group, see Section 10.3.3.
	Reset pick list to single select.

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- **Decrease** pick list length.
- ♣ Increase pick list length.
- Expand pick list to multiple select.
- Collapse pick list to single select.

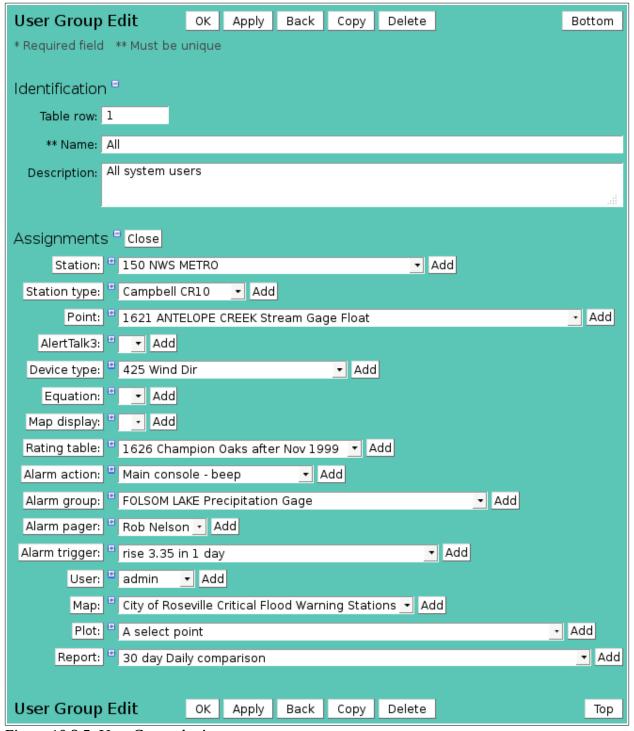


Figure 10.3.5. User Group Assignments

**Station:** List of stations assigned to user group. Click **Station:** button to change **Station Pick Details** and order.

**Station Type:** List of station types assigned to user group. Click **Station Type:** button to change **Station Type Pick Details** and order.

**Point:** List of points assigned to user group. Click **Point:** button to change **Point Pick** 

**Details** and order.

**Alerttalk3:** List of alerttalk3 assigned to user group. Click **Alerttalk3:** button to change

Alerttalk3 Pick Details and order.

**Point type:** List of point types assigned to user group. Click **Point type:** button to change

Point Type Pick Details and order.

**Equation:** List of equations assigned to user group. Click **Equation:** button to change

**Equation Pick Details** and order.

Map display: List of map displays assigned to user group. Click Map display: button to change

Map Display Pick Details and order.

Rating table: List of rating tables assigned to user group. Click Rating table: button to change

Rating Table Pick Details and order.

Alarm action: List of alarm actions assigned to user group. Click Alarm action: button to

change Alarm Action Pick Details and order.

Alarm group: List of alarm groups assigned to user group. Click Alarm group: button to

change **Alarm Group Pick Details** and order.

**Alarm contact:** List of alarm contacts assigned to user group. Click **Alarm contact:** button to

change Alarm Contact Pick Details and order.

**Alarm trigger:** List of alarm triggers assigned to user group. Click **Alarm trigger:** button to

change Alarm Trigger Pick Details and order.

**User:** List of users assigned to user group. Click **User:** button to change **User Pick** 

**Details** and order.

**Map:** List of maps assigned to user group. Click **Map:** button to change **Map Pick** 

**Details** and order.

**Plot:** List of plots assigned to user group. Click **Plot:** button to change **Plot Pick** 

**Details** and order.

**Report:** List of reports assigned to user group. Click **Report:** button to change **Report** 

Pick Details and order.

#### 10.3.6 User Group Delete

To delete a User Group from the User Group List, click the Edit button on that User Group's row in the table to access the User Group Edit page. Click on the Delete button. You will be prompted to confirm that you wish to delete the User Group by clicking on the Delete button again. You cannot delete a user group assigned to any table in the database. Remove all assignments before deleting.

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## 11 Forecast

When you click on the **Forecast** menu list option, the **Forecast Update** page is displayed. The **Forecast Update** page allows operators to manually update the river/reservoir forecasts when the *forecast* name is defined and it value is *true* in the Configuration list, see Section 9.1. When a forecast is updated, the computed forecast data report values are stored in the NovaStar 5 database. The forecast command results are shown in the command display window.

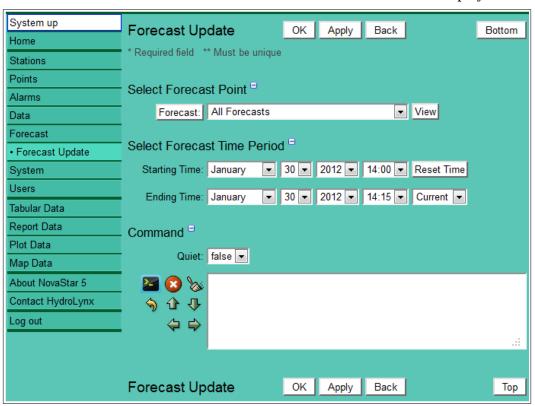


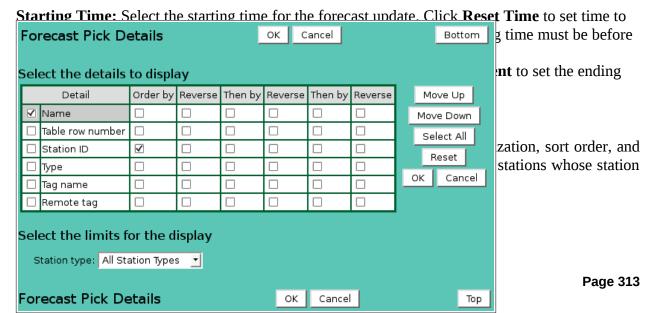
Figure 11.1.1. Forecast Update

#### **Select Forecast Point**

Forecast:

Select forecast point to update from the pick list. The top entry in the list is always *All Forecasts*. Select this to update all forecasts defined in the system. Click button to change **Forecast Pick Details** and order, see Section 10.1.1. **View** button displays the **Station Edit** page for the selected forecast, see Section 3.1.4.

#### Select Forecast Time Period



## Select the details to display

Check the box to the left of a detail to display. Details are displayed in the order shown.

Check the Order by box for the detail to sort first. Check Reverse for a descending sort.

Check the Then by box for the detail to sort second. Check Reverse for a descending sort.

Check the second Then by box for the detail to sort third. Check Reverse for a descending sort.

**Button** Action

Move Up Move the selected detail up one row.

Move Down Move the selected detail down one row.

Select All Select all details.

Reset to default details.

OK Return to previous page with new details selected.

Cancel Return to previous page with no changes.

## Select the limits for the display

**Station Type:** Limit the display to forecasts assigned to the selected station type.

## 11.1.2 Forecast Update

Click the **Run command** button to update the selected forecast(s) for the selected time period; activity is shown in the display window.

**Quiet**: *false* prints the command activity in the display window; *true* only prints the

command start and stop messages. Use *true* for the fastest command performance.

#### **Button Action**

Run command; display activity in command display window.

Run command; Stop command.

Clear display window.

Reset display window size to default.

Decrease display window height.

Increase display window height.

Decrease display window width.

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Figure 11.1.3. Forecast Update Command

# A) Data Analysis

A number of statistical processing options available from the **Data Analysis** drop-down list can create processed information that will be displayed for a point on a data display page when the Display Interval is not *Show Data Reports*.

Table A.1.1. Data Analysis

<b>Data Analysis</b> Use default analysis	<b>Description</b> The default analysis used to process data depends on the point type and rating assignment.
	Points that are assigned ratings to compute incremental rainfall use the Period Rainfall analysis.
	Counter class point types use the Difference in Report Values analysis. Total class point types use the Sum of Report Values analysis.
Nearest Report to Interval Last Report in Interval Number of Reports Period Rainfall	All other point types use the Nearest Report to Interval analysis. Find the data report nearest to the end of the Display interval boundary. The report may occur before or after the interval boundary. Find the last data report in the Display interval boundary without going past the boundary. Count the total number of reports in the Display interval. Sum the incremental rainfall in the Display interval. The point must be assigned an incremental rainfall rating. Find the last data report storm rainfall rating value in the Display interval.
Season Rainfall	The storm rainfall rating sums the incremental rainfall until the incremental rainfall is 0. A time gap in the incremental rainfall of more then the storm rainfall rating computation interval will restart the storm rainfall accumulation.  Find the last data report season rainfall rating value in the Display interval.
Rainfall Intensity	The season rainfall rating sums the incremental rainfall from the season rainfall starting date. The season rainfall starting date is set in the season rainfall rating effective time.  Find the maximum period rainfall for the Analysis interval over the Display interval.
Difference in Report Values Sum of Report Values	For example, find the maximum period rainfall for a 5 minute Analysis interval over a one month Display interval.  Compute the difference between the last report in the Display interval and the last report from the prior Display interval.  Compute the sum of report values within the Display interval.
Maximum Minimum Mean	Find the maximum value for the Display interval. Find the minimum value for the Display interval. Find the time-weighted average of the report values within the Display interval.

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Compute the variance of the time-weighted values within the Display Variance

interval.

Standard Deviation Compute the standard deviation of the time-weighted values within the

Display interval.

Skew Compute the skew of the time-weighted values within the Display

interval.

Compute the coefficient of skew of the time-weighted values within the Coefficient of

Display interval. Skew

Compute cooling hours from a base temperature that is defined as the **Cooling Hours** 

Adder under Data Analysis.

**Heating Hours** Compute heating hours from a base temperature that is defined as the

Adder under Data Analysis.

Rate of Change in Units per Second, Minute, Hour, or

Day

Runtime in Seconds, Minutes, Hours, Days

Volume in Units per Second, Minute, Hour, or

Day

Wind Speed

Data Analysis

Compute the rate of change for the last report in the Display interval relative to the prior report in the Display interval. You can request rate of change units as per day even if the Display interval is one hour. The analysis result displayed will be multiplied by 24 (e.g. a change of 1 unit per hour = 24 units per day). You may wish to do this because some SCADA applications expect data to be provided in gallons per day.

Runtime is the amount of time a digital status value is not zero. The concept can also be applied to any other data type. The runtime is computed to determine values that answer questions like "How long was the pump running on this day?" The time units (seconds, minutes, hours, days) define the output value. For example, 55 seconds, 35 minutes, 2.5 hours, or .5 days.

Integrates a volumetric flow rate over time to determine total volume. In NovaStar5, discharge is computed from stage using a rating table or equation. Discharge data are stored in a rated data table. An optional check box is available in the User Interface to display rated data. The volume computation units are the beginning data units integrated over time. So if the data is stored in cubic feet per second or the rating table output is cubic feet per second, then the volume units are cubic feet. To convert cubic feet to acre feet, a multiplier is used and is selected from a pick list in the advanced options to simplify the multiplier value entry.

Compute the wind speed in units per hour from an incrementing

anemometer wind sensor (a non-ALERT wind point type) for the last

report in the Display interval.

Description