Copyright Notice: The software described herein is furnished under a license agreement and may be used only in accordance with the terms of the agreement.

This document may not, in whole or in part, be copied, photocopied, reproduced, translated, or reduced to any electronic medium or machine-readable form without prior written consent from:

Tridium, Inc.,
3951 Westerre Parkway, Suite 350
Richmond, Virginia 23233.

The confidential information contained in this document is provided solely for use by Tridium employees, licensees, and system owners. It is not to be released to, or reproduced for, anyone else; neither is it to be used for reproduction of this control system or any of its components.

All rights to revise designs described herein are reserved. While every effort has been made to assure the accuracy of this document, Tridium shall not be held responsible for damages, including consequential damages, arising from the application of the information given herein. The information in this document is subject to change without notice.

The release described in this document may be protected by one of more U.S. patents, foreign patents, or pending applications.

Trademark Notices: Microsoft and Windows are registered trademarks, and Windows 95, Windows NT, Windows 2000, and Internet Explorer are trademarks of Microsoft Corporation. Java and other Java-based names are trademarks of Sun Microsystems Inc. and refer to Sun’s family of Java-branded technologies. Communicator and Navigator are registered trademarks of Netscape Communications Corporation. Echelon, LON, LonMark, LonTalk, and LonWorks are registered trademarks of Echelon Corporation. Tridium Niagara, the Niagara Framework, Vykon, WorkPlace Pro, Java Desktop Environment, Web Supervisor, JACE-4, JACE-5, and JACE-NP are trademarks of Tridium Inc.

All other product names and services mentioned in this publication that are known to be trademarks, registered trademarks, or service marks have been appropriately capitalized and are the properties of their respective owners.

Niagara Browser Access Guide
© 2002, Tridium, Inc.
All rights reserved.
vi

About This Document

Intended Audience
Document Summary
Formatting Conventions
Related Documentation
Commonly Used Terms

CHAPTER 1 Getting Started
What You Need to Connect
Web Browser
Your Connection Information
Connecting to the System (Signing On)
Using Browser Controls
Back and Forward Buttons
Refresh (Reload) Button
Bookmarks
Windows Controls
Right-Click Awareness
Command Menus
Other Special Views
Status Line Information
Signing Off the System
Beginner's FAQs (Frequently Asked Questions)

CHAPTER 2 Graphics and Commands
About Graphics
Image Elements
Text Elements
Status (Color) Indication
Issuing Commands
Understanding Commands
Control Commands
Administrative Commands

CONTENTS
CHAPTER 3 Schedules and Holidays

About Schedules

Events
Holiday schedule
Special Events

About Holidays (Calendars)

Reviewing Schedules

Summary view
Weekly view
Holiday view
Special Events view

Modifying Schedules

Modifying Event Times
Adding Events
Deleting Events
Adding Special Events
Deleting Special Events

Reviewing Holidays

Using Calendar Scroll Arrows
About Holiday Colors

Modifying Holidays

Adding New Holidays
Deleting Holidays
Some Holiday Examples

CHAPTER 4 Alarms and Alerts

About Alarms

Events (Alarms)
Alerts

Viewing the Alarm Summary

Accessing Unacknowledged Alarms

Acknowledging Alarms

Accessing Unacknowledged Alerts

Acknowledging Alerts

CHAPTER 5 Log Charts

About Log Data

About Logs
## Contents

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>About Archives</td>
<td>5-2</td>
</tr>
<tr>
<td>Charts vs. Tables</td>
<td>5-2</td>
</tr>
<tr>
<td>Viewing Chart Data</td>
<td>5-3</td>
</tr>
<tr>
<td>Maximizing the Data Area</td>
<td>5-4</td>
</tr>
<tr>
<td>Using the Data Area</td>
<td>5-4</td>
</tr>
<tr>
<td>Using the Legend Area</td>
<td>5-5</td>
</tr>
<tr>
<td>Using the Control Bar</td>
<td>5-6</td>
</tr>
<tr>
<td>Using the Log Selector</td>
<td>5-8</td>
</tr>
<tr>
<td>Starting the Log Selector</td>
<td>5-8</td>
</tr>
<tr>
<td>Charting Multiple Logs</td>
<td>5-9</td>
</tr>
<tr>
<td>Using Selection Filters</td>
<td>5-10</td>
</tr>
<tr>
<td>Viewing Selected Logs or Archives</td>
<td>5-12</td>
</tr>
<tr>
<td>Using a Single Selection for Text Output</td>
<td>5-14</td>
</tr>
<tr>
<td>Log Data in Text Formats</td>
<td>5-16</td>
</tr>
<tr>
<td>Using the Log Index</td>
<td>5-16</td>
</tr>
<tr>
<td><strong>CHAPTER 6 Status Information</strong></td>
<td>6-1</td>
</tr>
<tr>
<td>Statuses and the Status Summary</td>
<td>6-2</td>
</tr>
<tr>
<td>Accessing the Status Summary</td>
<td>6-3</td>
</tr>
<tr>
<td>About the Status Table</td>
<td>6-3</td>
</tr>
<tr>
<td>Following Links</td>
<td>6-4</td>
</tr>
<tr>
<td>Status Queries</td>
<td>6-5</td>
</tr>
<tr>
<td>Using the Status Query Form</td>
<td>6-6</td>
</tr>
<tr>
<td><strong>CHAPTER 7 Application Database</strong></td>
<td>7-1</td>
</tr>
<tr>
<td>About Application Database Data</td>
<td>7-2</td>
</tr>
<tr>
<td>Log versus Archive</td>
<td>7-2</td>
</tr>
<tr>
<td>Station Archives and Application Archives</td>
<td>7-3</td>
</tr>
<tr>
<td>Notifications (Alerts and Events)</td>
<td>7-4</td>
</tr>
<tr>
<td>Viewing Appdb Tables</td>
<td>7-4</td>
</tr>
<tr>
<td>Using the Appdb Index</td>
<td>7-5</td>
</tr>
<tr>
<td>Using the Archive Index</td>
<td>7-6</td>
</tr>
<tr>
<td>Using the SQL Query Form</td>
<td>7-7</td>
</tr>
<tr>
<td>Opening the SQL Query Form</td>
<td>7-7</td>
</tr>
<tr>
<td>Select Statement Examples</td>
<td>7-8</td>
</tr>
<tr>
<td>Query Output Selections</td>
<td>7-8</td>
</tr>
</tbody>
</table>
# Chapter 8: Station Indexes

- **Appdb and Archive (SQL) Indexes** .................................................. 8-2
- **Database Index** ............................................................................. 8-2
  - Accessing the Database Index ......................................................... 8-3
- **Directory Index** ........................................................................... 8-4
  - Accessing the Directory Index ......................................................... 8-5
- **GxPage Index** ................................................................................ 8-6
  - Accessing the Gx Index ................................................................. 8-6
- **Help Index** .................................................................................... 8-7
  - Accessing the Help Index ............................................................... 8-7
- **Log Index** ....................................................................................... 8-8
- **Status Index** .................................................................................. 8-8

# Appendix A: My System

- **My Web Supervisor** ................................................................. A-1
- **My JACE Controllers** ................................................................. A-2
- **Wallet “Quick Reference” Cards** ............................................... A-3

# Appendix B: Prism Servlet

- **About the Prism Servlet** ........................................................... B-1
- **Identifying Basic Station Parameters** ........................................... B-1
  - Parameter Areas ............................................................................. B-2
- **Backing Up a Station** ................................................................. B-3
- **Prism XML Access** ..................................................................... B-3
- **Viewing External Link Data** ....................................................... B-3
- **Other Prism URLs** ..................................................................... B-4
  - Resource Count ............................................................................. B-4

# Appendix C: Direct-Dial Access

- **Direct Dial Overview** ................................................................. C-1
- **Direct-Dial Configuration** ........................................................... C-2
  - Additional Connection Information ............................................... C-2
  - Windows Configuration .................................................................. C-2
  - Direct Dial Configuration Example .............................................. C-2
- **Dialing the Niagara Host** ............................................................ C-7
- **Disconnecting from the Host** .................................................... C-9

# Index
About This Document

Welcome to the *Niagara Browser Access Guide*. This manual is intended to help you use a standard web browser to access your Vykon (Niagara) system. Included are example pictures that may (or may not) look similar to the real-time displays that have been prepared for your site.

---

**Note**

Each Niagara system looks somewhat different because most of the graphics and other web features are typically customized for each job. However, every effort was made in this guide to show mostly “typical” examples.

This preface includes the following sections:

- Intended Audience
- Document Summary
- Formatting Conventions
- Related Documentation
- Commonly Used Terms

**Intended Audience**

The following people should use this document:

- Vykon system owners and end users.

To get the most from this guide, you should already know how to use a computer and mouse. Previous experience using a web browser such as Microsoft Explorer or Netscape Communicator is also helpful, but is not necessarily required.
Document Summary

This document contains a cover page, a table of contents, eight chapters, three appendixes, an index, and a documentation response form.

These sections are summarized below.

Chapter 1, “Getting Started,”—Topics include browser requirements, connection information needed, procedures to connect and sign on the system, using basic browser controls, mouse and cursor behavior, and signing off of the system.

Chapter 2, “Graphics and Commands,”—Is about system graphics (GxPages), including image and text elements, visual alarm indication, and issuing commands.

Chapter 3, “Schedules and Holidays,”—Provides information on using the graphical views to schedules and holidays. Included are procedures to review and modify schedules and holidays.

Chapter 4, “Alarms and Alerts,”—Covers standard browser access to alarms and alerts in the system, including procedures to acknowledge these events.

Chapter 5, “Log Charts,”—Covers viewing log data in the graphical Log Chart view, including using the control bar buttons. Use of the Log Selector is also explained.

Chapter 6, “Status Information,”—Covers accessing object status information, using the text-based status index and status query form.

Chapter 7, “Application Database,”—Covers accessing the SQL application database of a Web Supervisor, using the available indexes and SQL query form.

Chapter 8, “Station Indexes,”—Provides a review of the various indexes into a station, including the appdb, archive, database, GxPage, Help, Log, and Status index.

Appendix A, “My System,”—Provides a place where you can record information about your system, including IP addresses, specific URLs, or other custom notes.

Appendix B, “Prism Servlet,”—Provides information on using the prism servlet for troubleshooting and maintenance of the system.

Appendix C, “Direct-Dial Access,”—Provides details on accessing a remote Niagara host using a direct-dial (modem) connection.

An Index provides an alphabetical listing of important topics with page numbers.

Formatting Conventions

This document uses the following conventions:

- **Bold text** indicates an important keyword, a keyboard key name, or an interface object name. For example, the ENTER key, or the File menu.
- **CAPITAL letters** are often used for acronyms, such as the JDE (Java Desktop Environment). They are also used to identify keyboard keys in instructions. For example, “Press ENTER” or “Press CTRL+C.”
- **Heavy bold text** is used to emphasize words in important concepts.
• *Italic text* is used for non-literal text that represents a variable. For example, *station_name* or *host*. It is also used for names of other documents.

• “Quotation marks” are used to refer to the names of sections within the current document. For example, see “**Formatting Conventions**” for more information.

• `<Text between brackets>` is used as a placeholder for user-supplied values. For example, `<password>`. It may appear with italics such as `<host>`.

---

**Note**

Notes typically contain details related to the subject in the nearby text. They alert you to important information that might otherwise be overlooked.

---

**Caution**

Cautions remind you to be careful. There may be a chance that an action might cause unexpected results, or might cause lost data. Cautions typically contain an explanation of why the action is potentially problematic.

---

**Tip**

Tips typically contain best practices, recommendations, or other helpful instructions that help you use the product more effectively.

---

The following table describes how various forms of information are represented.

<table>
<thead>
<tr>
<th>Table 1</th>
<th>How information is formatted.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Typographical convention</strong></td>
<td><strong>What it represents</strong></td>
</tr>
<tr>
<td>Press ENTER.</td>
<td>An instruction to press the ENTER key on the keyboard.</td>
</tr>
<tr>
<td>Click OK</td>
<td>An instruction to click the left mouse button on the OK selection appearing on the screen.</td>
</tr>
<tr>
<td>Click the Start button on the Taskbar</td>
<td>An instruction to click the left mouse button on a user control that appears on the Windows Taskbar.</td>
</tr>
<tr>
<td>In the Host box, type the name of the host machine.</td>
<td>An instruction to type information in the data entry field labeled ‘Host’ in the dialog box on the screen.</td>
</tr>
<tr>
<td><strong>Filename and URL conventions</strong></td>
<td><strong>What they mean</strong></td>
</tr>
<tr>
<td>D:\niagara\r.1.17.68\</td>
<td>A directory path on drive D: Directories and files are generally shown with the actual spelling and punctuation.</td>
</tr>
<tr>
<td>.xml</td>
<td>A filename extension.</td>
</tr>
<tr>
<td>\stations.properties</td>
<td>A filename.</td>
</tr>
<tr>
<td>http://&lt;host&gt;/chart/savedList</td>
<td>A URL for an on-line station.</td>
</tr>
<tr>
<td>/stations/tridiumx</td>
<td>Partial SWID’s that reference folders stored in a parent folder. The parent is likely a station or a local library.</td>
</tr>
</tbody>
</table>
Related Documentation

The following documents are related to the content in this document and may provide addition information on the topics it covers:

- Niagara Web Solutions Guide
- Niagara JDE User's Guide
- Niagara Concepts Guide

Commonly Used Terms

Throughout this guide, references are made to acronyms and terms with which you may not be familiar. This section provides a source for defining those terms and is intended to ensure their consistent use.

**appdb:** or application database. The SQL database populated by a station's database service, for archiving log data and all occurrences of alarms/alerts. An appdb is separate from a station's configuration database. Typically, only a Web Supervisor has an appdb, although a JACE-NP station may optionally be configured to have an appdb.

**browser:** Or web browser. This refers to an application like Microsoft Internet Explorer or Netscape Communicator, widely used to locate and display web pages.

**click, double-click, right-click:** To click is to tap a mouse button, pressing it down and then immediately releasing it. Clicking a mouse button is different from pressing (or dragging) a mouse button, which implies that you hold the button down without releasing it. When used as an instruction, click means to move the mouse pointer over that object and click the left mouse button (sometimes called button number one). Some operations may require a double-click, which means that you click the (left) mouse button twice in rapid succession.

Some operations require that you click the right mouse button (sometimes called button two). Even though a mouse can be programmed to switch buttons, by convention 'clicking' refers to the left mouse button. In this guide, the term right-click is used anywhere you need to use the right mouse button.

**clipboard:** A special memory buffer that is used to temporarily store data that is being copied to another location. When you cut and paste data in a Windows application, you are removing the data from its source location and placing a copy of it in this buffer area, then pasting it from the clipboard to its final location (target).

**dialog box or pop-up:** A graphical element (in the form of a box) used in Windows to display information or request input. Typically, dialog boxes request information and pop-ups convey information. They are both temporary - they disappear once you have entered the requested information and click OK.

**folder:** Typically, refers to a graphical representation of what used to be called a directory or subdirectory. Folders can contain other folders and files of various types.
**GxPage**: Graphics page, referring to the Niagara container object with images and/or text that update (in real time) as a web page. A typical Niagara system has many GxPages, with hyperlinks between each other (as well as their sub-elements, such as schedules, holiday calendars, log data charts, and so forth).

**HTML**: HyperText Markup Language - the authoring language used to create documents on the World Wide Web. HTML defines a set of codes that web browsers use to format web pages.

**HTTP**: HyperText Transfer Protocol - the protocol used by the World Wide Web. HTTP defines how web servers and browsers transmit and format messages, including actions commands. HTTP is called a stateless protocol because each command is executed independently, without knowledge of the commands that came before it. The other main standard that controls how the World Wide Web works is HTML, which determines how web pages are formatted and displayed.

**hyperlink**: An element contained on a web page that links the user to a different web page on the same site or an entirely different site. Hyperlinks are also used as user controls in electronic documents that take the user to another place on the current page or to a completely different document.

**JACE controller**: Java Application Control Engine. (Rhymes with “pace”) The Tridium-manufactured controller that runs the core runtime Niagara software in a Java Virtual Machine (JVM), providing a station with direct support for field device integration plus enterprise LAN connectivity. Among other duties, each JACE controller acts as a web server, with some models capable of directly serving their own web graphics (GxPages). A JACE-NP model may optionally have the database service, with its own SQL application database (appdb).

**JDE**: Java Desktop Environment. The engineering tool (program) used to create and monitor Niagara stations. Provides the same access to GxPages (graphics) as a web browser, plus many additional functions used to engineer control logic and manage station databases.

**MIME**: or MIME types. Multipurpose Internet Mail Extensions. A specification for formatting non-ASCII messages so that they can be sent over the Internet. Servlets in a Niagara station support a number of MIME output options, including HTML table, comma-separated-values (CSV), and others.

**objects**: Niagara stations are engineering using “objects,” which have known properties, including inputs and outputs used for sharing information and control. There are many types of objects, including container objects and child objects. Some types of objects commonly viewed are log objects (for storing logged data) and GxPages (for viewing graphics).

**station**: A Niagara station is a combination of services and processes that run in the JVM (Java Virtual Machine) in a JACE controller or Web Supervisor PC. It is engineered and represented as a collection of objects. A Web Supervisor station
archives log (sampled) data from other networked JACE controller stations in an SQL database, and typically also serves graphics (GxPages). A JACE controller station provides access to (and integration of) various networked control devices, and may also serve GxPages.

**SQL:** Structured Query Language. A database language widely-used for querying, updating, and managing relational databases. The appdb created by the Web Supervisor's database service is an SQL database.

**Swid:** System-wide identifier. Each node (container, service, object, etc.) in the station database has a name. Since all nodes are part of a station's database tree, these names can be concatenated together to create a unique system wide identifier (Swid), which provides the full path name of the node much like a file system. Full Swid syntax follows standard URL form: (http://<host>/db/<station>/<container>/<object>). Within a station database (db), Swid is relative (/<station>/<container>/<object>).

**URL:** Uniform Resource Locator. The global address of a document or other resource. Within the context of Niagara, a URL is similar to a Swid. A Swid defines a particular node in a Niagara station database, whereas a URL can include a Swid or a resource located elsewhere. To access your system, you enter a URL in your browser's address bar (location bar), typically with the “http://” prefix and the IP address (or host name) of the target Web Supervisor or JACE controller. Various URLs used for routine access to Niagara stations are provided throughout this document.

**view:** A generic term that applies to what you see in your browser, for example, calendar view, log chart view, and so forth.

**Web Supervisor:** Refers to a Niagara station running on a PC, which is typically configured as the Supervisor station for any networked JACE controller(s). Typically, this PC is also running the full suite of Niagara applications, including WorkPlace Pro and the Alarm Console. A Web Supervisor station runs the database service, which archives log data in an SQL application database (appdb). A Web Supervisor also uses the WebUI Service (next term).

**WebUI Service:** Web User Interface Service. A standard feature of a Web Supervisor, and an optional feature for a JACE controller. The WebUI Service enables a station to directly serve up graphics (GxPages) and graphical views of schedules, holidays (calendars), plus provide status tables and charted log data to web browser users. Most stations that you connect to using your browser will have the WebUI Service.

**XML:** eXtensible Markup Language. A specification developed by the W3C (World Wide Web Consortium). XML is a subset of SGML, designed especially for web documents. Use of custom tags provides “extensibility”, not available using HTML. The Niagara Framework uses XML as one method of station database storage, also as an output option for text data (for example: logs, archives, and status queries).
Getting Started

Special software is not necessary to access your Niagara system. You can use the same web browser that you already use to “surf” the web.

This chapter provides information and procedures to help you start exploring your Niagara system. The following main sections are included:

- What You Need to Connect
- Connecting to the System (Signing On)
- Using Browser Controls
- Right-Click Awareness
- Other Special Views
- Status Line Information
- Signing Off the System
- Beginner's FAQs (Frequently Asked Questions)
What You Need to Connect

You need the following before you can access your Niagara system with a browser:

- A Web Browser
- Your Connection Information

WEB BROWSER

You probably already have this. A “Java-enabled” browser is required—the typical configuration for most modern browsers. For two popular browsers (Internet Explorer and Netscape Communicator), the following parameters have proven most essential:

Microsoft Internet Explorer

(version 5.5 parameters shown)

From Internet Explorer's menu bar: Tools > Internet Options > Advanced.

- “HTTP 1.1 settings”: Clear the checkbox for “Use HTTP 1.1”.
- “Microsoft VM”: JIT compiler for virtual machine enabled.

Netscape Communicator

(version 4.7 parameters listed)

From Netscape Communicator's menu bar: Edit > Preferences > Advanced.

- Enable Java
- Enable JavaScript

Notes

- Your browser's successful display of a graphic (GxPage) after connection to the system is the basic test for Niagara compatibility.
- If your LAN (local area network) is behind a “firewall,” it may be configured to block Java applets. If so, GxPages will not display in any browser (although other HTML items such as menus may appear). In this case, your IT system administrator will need to make the necessary firewall changes.
YOUR CONNECTION INFORMATION

The administrator for your Niagara system should provide you with the information necessary for your system access, along with any specific connection considerations. Typically, you will need the following three pieces of information:

- The **host name or IP address** for each Niagara host you will access. Typically, you receive this as a complete “http” (web) link, for example: http://10.10.8.64
  
  This may even be delivered to you in the body of an e-mail, so you can just click it to start the connection. Refer to Appendix A, “My System,” for a spot where you may wish to record this information.

- Your assigned **user name** for the Niagara station running on this host. When connecting, a sign-on dialog box pops up. You enter this name.

- Your assigned **password** for the Niagara station running on this host. You enter this password in the same popup sign-on box.

**Direct Dial Access**

If you are using a modem to directly dial into a modem-equipped Niagara host, you also need to be supplied its phone number, as well its **host** user name and password. Refer to Appendix C, “Direct-Dial Access,” for more details.

---

**Note**

It would be helpful if your Niagara system administrator explained what “rights” have been assigned to you (in your user account). These rights determine not only what you can access (view), but also whether or not you can perform the following:

- Issue control commands—for example, to change a setpoint, turn On or Off lights or equipment, or issue timed overrides. Generally, such commands are classified as “standard” (manual) or “emergency,” with separate command rights for each class. They are presented as “right-click” commands.

- Modify weekly schedule events, add or delete special events, and add or delete calendar dates (holidays). These are considered “Admin-level” write actions.

- Perform various system-administration commands, such as clearing or archiving logged data (logs), backing up a station database, and various others. Requiring “Admin command” rights, these commands are also presented as “right-click” commands.

Performing the commands and actions listed above are described later in this manual. Realize, however, that you may not have been assigned the necessary security rights to perform these operations, at least for all of these things.

In either case, the system becomes aware of your rights when you sign on, and provides you with the necessary menus or controls on a “user aware” basis.
Connecting to the System (Signing On)

You connect to your system by “pointing” your browser at the system host, either a Web Supervisor or a JACE controller. The system host is running a Niagara station, which prompts you to sign on. After you enter your user name and password, you are connected to the system.

To connect to your system:

1. Launch your browser, if not already started.
2. Click once in the address bar (location field) of your browser, to completely highlight the current URL.
3. Type the host name (or host IP address) supplied by your Niagara system administrator into the address bar (location bar) in your browser.
   You can include the leading http:// portion (or omit it if desired). (Do not include “www” characters.)
4. Press ENTER.
   A connection is made to the station. This typically produces a popup dialog box that prompts for your user name and password.
5. Type your supplied user name.
6. Press TAB to move to the password field, and type your supplied password. (Each password character you type displays as an (*) asterisk.)
7. Press ENTER to send your logon information to the station. If accepted (information is correct), you will see your assigned home page. This may be a top-level graphic of your system, a graphic plus a menu frame, or something completely different, depending on how your system was built.

If not accepted, you will be re-prompted (the popup dialog box remains with the entered user name, but the password is cleared). Check your information, correct any errors, and try again. Note: Within any browser window, three logon tries are permitted before you receive a “401 Error: Access Denied.”

---

**Note**

It is possible that your system has been engineered to allow some “public access.” If so, you **may not** be prompted for your user name and password, at least when first connecting. In this scenario, however, it is likely that **later** you will be prompted (at some point while navigating your way through the system). In this case, just enter your assigned user name and password and proceed as normal.
Using Browser Controls

While connected to your system, you will find hyperlinks that you can follow to navigate to see various graphics displays or other pages. When you mouse over an element in a graphic that contains a hyperlink, the cursor changes to a pointing-hand.

Cursor icons: \[\text{\begin{tabular}{c} \includegraphics[width=0.05\textwidth]{link_icon}\end{tabular}}\] changes to: \[\text{\begin{tabular}{c} \includegraphics[width=0.05\textwidth]{hand_icon}\end{tabular}}\] (Also see the middle of Figure 1-1 below).

Simply click to follow the link. This updates the browser window with the new contents, or (in some cases) may launch a new browser window.

Figure 1-1  Click to follow any hyperlink indicated by a pointing hand.

These type of links have been engineered as part of the station database, meaning that your access was “anticipated” (even more precisely, facilitated).

In addition to these links, you also use standard browser and windows controls, including the following:

- Back and Forward Buttons
- Refresh (Reload) Button
- Bookmarks
- Windows Controls

Each of these controls is discussed separately ahead.
**BACK AND FORWARD BUTTONS**

Click on your browser’s Back button to return to the previously viewed browser display. After using the Back button, you can click on the Forward button to return again to the previous display.

In most browsers, Back and Forward buttons are in the upper left of the toolbar.

**Back**—Click to back up one display.  
**Forward**—Click to return forward.

You can continue to click back or forward, as needed.

**Note**

Even if you click back to before your original (pre-sign-on) display, you should not have to sign on again.

**REFRESH (RELOAD) BUTTON**

You do not need to use the Refresh (Reload) button when viewing graphics served by your Niagara system. Values in graphics continuously update in real time—you only need to observe. The browser maintains an open connection to the station.

However, text-only views (typically tables) provide “snapshots” of current values. Examples are the Status page, log data tables, and the Alarm Display page (Figure 1-2).

**Figure 1-2** Views of text (e.g. the Alarm Display page here) may require a periodic Refresh.

While viewing these displays, you may wish to periodically click on your browser’s Refresh button to update the display—particularly if you have returned using the Back or Forward button. Otherwise, you will be viewing values “cached” (stored) by the browser, instead of the latest values.
Bookmarks

You can set and save browser bookmarks (Favorites) for any point during your access of your Niagara system. This allows you to return to a favorite display in your system directly whenever you are using your browser.

Figure 1-3 Creating a new bookmark (Favorite) in Internet Explorer.

In Internet Explorer, select from the menu bar:
Favorites > Add to Favorites

In Netscape Communicator, select from the menu bar:
Communicator > Bookmarks > Add Bookmarks

When adding a bookmark for a display, you should give it a descriptive name.

In this example, this display is being given a bookmark with the name “My Lighting Schedule.”

You can also organize your bookmarks under a new folder.

Note

During a browser session in which you have not already signed into your system, and you select a saved bookmark (into the system), you will be prompted first for your username and password—just like when you first accessed the system.

Windows Controls

When accessing your system, you should typically maximize your main browser window to ensure you can see all parts of graphics and menus. Do this by simply double-clicking anywhere on the Title Bar (the top of the browser window)—this acts as a toggle you can use to set the browser window back to a re-sizeable window.

In some cases, especially if your display is less than XGA resolution (1024 x 768 pixels), even a maximized browser window might not be able to display the complete contents of a system-graphic or menu. In this case, your browser window automatically “knows” to provide scroll bars: either vertical, horizontal, or both. Just click and drag on the scroll bar sliders, as needed, to view the complete area.
Right-Click Awareness

As you mouse over elements in a graphic (GxPage), you may have noticed that some reveal a thin, red, “bounding-box” under the cursor (Figure 1-4). This is the default behavior for an element that represents a commandable object. In addition, an element may show both a bounding-box and a hyperlink cursor (pointing hand).

Figure 1-4 Red bounding-box may appear around commandable elements in graphics.

A bounding-box is your cue that a right-click, command menu may be available for that object. (The menu appears only if you have the necessary command rights).

Note
Your system may have been engineered so as not to show bounding-boxes. In this case, you simply need to “know” that a right-click command menu may exist.

Command Menus

Whenever the cursor is inside a bounding-box (or over an element you “suspect” is commandable), you can right-click to see the associated popup menu (Figure 1-5). If the menu appears, you have command rights. If you do not have rights to commands in the popup menu, nothing will happen.

Figure 1-5 Right-click to see the available command menu.

Caution
Do not issue commands “just because you can.” You should understand how the commands affect your system (and even more importantly) discuss this topic with your Niagara system administrator, before you issue commands.

See the “Issuing Commands” section on page 2-6 for more information.
**Other Special Views**

You may have noticed that some hyperlinks from graphics produce special views. These include graphical editors for reviewing and modifying things like schedules and holidays, and viewing log samples (Figure 1-6).

<table>
<thead>
<tr>
<th><strong>Weekly Schedule View</strong></th>
<th>This lets you review the day-of-week event times in a schedule; also modify them (if you have rights). Other links are to holiday schedules and special schedule events. See “Reviewing Schedules,” page 3-3, for more information.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Calendar View</strong></td>
<td>Lets you review defined <strong>holidays</strong> using a calendar; also add and delete them (if you have rights).  See “Reviewing Holidays,” page 3-13, for more information.</td>
</tr>
<tr>
<td><strong>Log Chart View</strong></td>
<td>Presents stored data in logs or archives in a graphical chart format. Included are a number of controls to zoom in, change colors and formats, and so on.  See “Viewing Chart Data,” page 5-3, for more information.</td>
</tr>
</tbody>
</table>
Status Line Information

In the lower left corner of your browser window is an area called the status line. As you mouse over a hyperlink in a system graphic, the status line displays the link destination, as shown in Figure 1-7. The destination is typically a database address (Swid) in the station database.

Figure 1-7 Status line shows link destinations and other details related to cursor position.

Status line information is most useful when viewing log charts in line graph form, as it reports the current “y | x” position of your cursor. This allows you to point to any particular spot on the line graph and see the exact “value | time/date” information, as shown in Figure 1-8 below.

Figure 1-8 In a log chart, the status line reflects the current “y | x” position of your cursor.

Signing Off the System

There is no specific procedure to sign off your browser connection to the station. However, it is strongly recommended that you simply close (not minimize) all browser windows when signing off.

Click the close control in the upper right corner of each browser window.
This prevents someone else from accessing the system when you are away from your computer.
Beginner's FAQs (Frequently Asked Questions)

The following questions and answers may be helpful after first using your browser to access your Niagara system.

Q: Why does my co-worker connect to the same system I do, but see a completely different graphic?

Each user in the system may be assigned to a different “home page.” Moreover, users may be given different security rights. This means that you each may be able to access different parts of the system, or have different abilities to issue commands and overrides, modify setpoints, and so forth.

Q: Why do I have to sign on to the system more than once? For example, I sign on when I first connect in the browser, and then I’m prompted to sign on again later, usually when I select a certain log chart or schedule.

This can occur if your system contains multiple stations (Niagara hosts). After your initial sign on to the first station (typically the Web Supervisor), you will prompted again whenever a hyperlink requires connection to a different station (typically a JACE controller). However, you are asked to sign on only once to any particular station during your browser session—and only then if required.

Q: Does the system “know” when I’m connected?

Yes, in that each station in the system records changes made by all users in an “audit log.” This applies whether a user is signed on using a web browser or the native tool (JDE). Recorded changes include most commands plus schedule and holiday edits, along with the time and date of occurrence. The audit log for each station is typically archived, and may be reviewed by the system administrator.

Note: This underscores the importance of keeping your user name and password private, and being sure to close your browser windows when finished.

Q: When I click on a hyperlink, I get an error. What does it mean?

Reasons can vary, but typically the following applies:
– If “Page cannot be displayed,” the station may not be running, or the network connection (or Internet connection) may be down.
– If “401 Access Denied,” this means insufficient user rights. If seen upon station signon, it means your entered user name or password are not valid.

Q: If I acknowledge an alarm or alert, does the system administrator know?

Yes. Each alarm or alert acknowledgement is recorded in the application database of the Web Supervisor (or possibly a JACE-NP), and includes the user that acknowledged it and the time and date. Refer to “Notifications (Alerts and Events),” page 7-4, for more information.
CHAPTER 2

Graphics and Commands

When you have a system graphic opened in a browser, your computer maintains an open connection with the station—all values remain current as they continually update in real-time. If you have sufficient security rights, you may also issue commands to objects represented by image or text elements.

This chapter provides information on interpreting system graphics (GxPages), and includes the following main sections:

- About Graphics
- Status (Color) Indication
- Issuing Commands
- Understanding Commands
About Graphics

System graphics (GxPages) provide real-time data using both images and text. The main interface to your system, they typically provide links to other graphics and special views—and possibly access to commandable objects represented by graphic elements.

Each graphic can display a screen full of system information. Most graphics are assembled using a combination of image elements and text elements.

**IMAGE ELEMENTS**

Image elements in graphics typically include a “background” image, plus other images which may represent various things. Examples include buildings or other locations, pieces of equipment, or anything else in the context of the graphic.

![Figure 2-1 Portion of graphic that is mostly image-based.](image)

Some images visually represent values. For example, in Figure 2-1 above, the fan is “animated” (appears moving when on and stopped when off). The outside-air damper is also proportionally displayed (currently at a 20% open position).

**TEXT ELEMENTS**

Typically, text elements are used for both “labels” and for directly displaying values. Values appearing in text may be formatted in different fonts and colors, as designed by the system designer.

In Figure 2-1 above, text elements show temperature values (88.30 °F and 56.8 °F), and are used for other values and labels too.

Besides showing analog values, text values may be binary (two-state) or multi-state (three-or-more states) types too. For example, a value may display as On or Off, Off, Slow, or Fast, Yes or No, or any needed state, as shown in Figure 2-2.
**STATUS (COLOR) INDICATION**

Various elements in graphics may be capable of visual “off-normal” indication, such as an alarm or fault condition. Typically, such elements turn a different color as long as the off-normal condition exists. Table 2-1 below shows some possible examples.

<table>
<thead>
<tr>
<th>Graphic Element</th>
<th>Normal Appearance</th>
<th>Example “Off Normal”</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text Area</td>
<td>71.30 °F</td>
<td>-112.30 °F</td>
</tr>
<tr>
<td>Fan Icon</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bar Graph</td>
<td>29.00 % 0.0 100.0</td>
<td>18.00 % 0.0 100.0</td>
</tr>
<tr>
<td>Damper Icon</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

In addition, a system can be engineered to provide almost any custom representation of an off-normal condition.
By color, the following three status indicators are most widely-encountered:

- **Red (alarm)**
- **Orange (fault)**
- **Yellow (down)**

**Red (alarm)**

When a graphic element turns red, it means the object represented is currently in a *known alarm* condition. For example, the analog value received from a temperature or humidity sensor may be above (or below) a configured alarm limit, or an “alarm switch” (filter status, for instance) may be in the “off-normal” state (closed or opened).

During this period, an associated graphic element remains red (Figure 2-3). Color returns to “normal” only when the alarm status condition ends.

**Figure 2-3**  Graphic portion with two text elements currently displaying red (alarm).

<table>
<thead>
<tr>
<th>Schedule</th>
<th>Occupied</th>
</tr>
</thead>
<tbody>
<tr>
<td>Runtime (hours)</td>
<td>0.07</td>
</tr>
</tbody>
</table>

**Unit Status**

- **Supply Fan**: On
- **Low Limit**: Alarm
- **Mixed Air Temp**: 31.50 ºF
- **Return Air Temp**: 52.00 ºF

**Blinking Red (Unacknowledged Alarm)**

When an element is both red and **blinking**, it means two things:

- The object represented currently has an alarm status, and
- This alarm needs to be acknowledged by a system user. (Note that not all alarm-capable objects are also configured to require acknowledgment.)

You (as a system user) **may** have been given alarm acknowledgment rights, along with a link to the alarm display. If so, you may be able to find and acknowledge the associated alarm—this will stop the blinking effect.

Your acknowledgment includes the time, date, and user (you) that acknowledged it. However, the element will remain red until the alarm condition is over.

**Orange (fault)**

When a graphic element turns orange, it means the object represented currently has a **fault** status. Less common than alarm status, a fault usually means the value received from a sensor or device is outside any reasonable (measurable) limits. This condition may occur from an open or shorted-connection in a sensor cable, for example.
During this fault period, the element will remain orange (Figure 2-4). The color may return to “normal” only when the fault condition no longer applies—in some cases, an alarm status (red) color may be seen first.

Note that elements do not “blink” while displaying a fault status.

Figure 2-4 Graphic portion with one text element currently displaying orange (fault).

If you (as a system user) have been given alarm acknowledgment privileges and a link to the alarm display, you may be able to find and acknowledge the associated fault alarm—this will record the time, date, and user (you) that acknowledged it. However, the element will remain orange until the fault condition is over.

Yellow (down)

When a graphic element turns yellow, it means that communications are down between the station and the device with the originating data. Although not typical, when this occurs usually multiple elements in a display will be yellow (Figure 2-5).

Figure 2-5 Graphic portion with text elements currently displaying yellow (down).

If you (as a system user) have been given alarm acknowledgment privileges and a link to the alarm display, you may be able to find and acknowledge an associated device down alarm—this will record the time, date, and user (you) that acknowledged it. However, elements will remain yellow until device communications are re-established.
Other Indication Colors

Although rare in most Niagara systems, graphic elements may alternately turn color from their normal color to either cyan (light blue) to indicate an “out of service” condition, or magenta (purple) to indicate an “override” condition. Neither of these two conditions is associated with an alarm-type notification.

On a system-specific basis, your Niagara system administrator can provide you with appropriate explanations for these two color indicators.

Issuing Commands

As already explained in the Chapter 1 section, “Right-Click Awareness,” your system graphics may include graphic elements linked to commandable objects. Depending on your security rights, you may have various right-click commands available.

To issue any type of right-click command:

1. In the system graphic, right-click on the element representing a commandable object. A popup menu appears (if you have command rights).

2. On the popup command menu, select a command by moving your cursor over it so that it becomes highlighted.
3. Click the highlighted command. If a second popup control appears (below right), enter a value, and click Ok. The command is issued and the popup menu disappears.

**Note** If the secondary popup control remains after you click OK, this means that the value you entered is outside the acceptable value range.

To see what the specific range is, look at the status line in the lower-left of your browser window (Figure 2-6). Your value entry must fall within the limits shown in brackets.

**Figure 2-6** Browser status line shows acceptable value range if command not accepted.

In this example, only values between 0.0 and 100.0 are accepted.
Understanding Commands

There are two basic categories of commands:

Control Commands—These commands affect some aspect of distributed system control. Examples include establishing a setpoint or turning lights on/off.

Administrative Commands—These commands apply to the maintenance of the Niagara system itself, such as the handling of logged data.

CONTROL COMMANDS

Control commands include the following types:

- Binary output commands—To manually turn on/off lights and equipment.
- Analog output commands—Typically, to manually set or modify setpoints.
- Multi-state output commands—To manually control a multi-state device (for example, 3-speed fan), or select one of several enumerated modes.

Output commands listed above can occur at two (2) of the possible 16 different priority levels—manual (level 8) and emergency (level 1). The lowest priority level is schedule (16), and the highest level is emergency (1).

Depending on your system's configuration, additional control commands may include:

- Override control commands—To issue timed-overrides of binary loads, analog devices or setpoints, and multi-state outputs.
- Other control commands—Other right-click control commands are possible.

Each of the control command types above is explained separately ahead, including the "default" commands that may appear on the command menu.

Notes

- Your system may have been configured to include more meaningful labels for control commands in popup menus (instead of defaults), such as “Start AHU,” “Modify Return Air Setpoint,” “Lights On,” and so forth.
- Also, command menus may be configured to show only some of the possible commands (even if you have full rights). For example, a lighting load may appear with only manual active (on) and auto commands, as shown in Figure 2-7.

Figure 2-7 Only some of the possible control commands may be on a command menu.
Binary output commands

Commands to binary output (two-state) objects provide control of such things such as lights, fans, or any load with two-states: inactive and active (off/on).

In total, six different binary commands may be possible, with default names of:

- **Active**—On or Start at the manual level.
- **Inactive**—Off or Stop at the manual level.
- **Auto**—Clears any previously issued command at the manual level. Control falls back to the next-highest priority command (that is either active or inactive).
- **Emergency Active**—On or Start at the emergency (highest) priority level.
- **Emergency Inactive**—Off or Stop at the emergency (highest) priority level.
- **Emergency Auto**—Clears any previously issued command at the emergency level. Control falls back to the next-highest priority command (that is either active or inactive).

Analog output commands

Analog control commands are used for things like establishing a setpoint or manually positioning a damper or valve.

In total, four different commands may be possible, with default names of:

- **Set**—Set an output value at the manual priority level. A secondary popup provides the current value, in which you enter the new value.
- **Auto**—Clears any previously set output value at the manual level. Control falls back to the value set at the next-highest priority level.
- **Emergency Set**—Set an output value at the emergency priority level. A secondary popup provides the current value, in which you enter the new value.
- **Emergency Auto**—Clears any previously set output value at the emergency level. Control falls back to the value set at the next-highest priority level.

Figure 2-8  Example analog output command (setpoint).

**Note**  Pre-configured limits (low and high) may exist when you access a Set or Emergency Set command. Your value must be within these limits, otherwise the popup dialog box remains displayed. See Figure 2-6 on page 2-7.
Multi-state output commands

Multi-state commands are used to select one of several discrete states for a multi-state device, such as a 3-speed fan. In total, four different commands may be possible, with default names of:

- **Set**—Set an output state at the manual priority level. A secondary popup provides a selection list of defined-states that you pick from.
- **Auto**—Clears any previously set output state at the manual level. Control falls back to the state set at the next-highest priority level.
- **Emergency Set**—Set an output state at the emergency priority level. A secondary popup provides a selection list of defined-states that you pick from.
- **Emergency Auto**—Clears any previously set output state at the emergency level. Control falls back to the state set at the next-highest priority level.

Figure 2-9 Example multi-state command dialog.

Override control commands

Override commands may be available to set values for analog, binary, and multi-state outputs for a duration that you specify, in minutes. This timed override occurs at a pre-programmed priority level.

For analog or multi-state overrides, these commands are available:

- **override**—Start an override. A secondary popup provides a field in which you enter the duration of the override, in minutes.
- **cancel**—Cancels any active override.
- **setOverrideValue**—A secondary popup provides a field in which you enter the desired (analog) value or select the desired (multi-state) state for the override.

Note

To set an analog or multi-state override, you should set (or at least review) the override value or state first, and then issue the override command.

This is because during an active override, any changes you make to the override value are ignored (until the next override). See Figure 2-10 for an example analog override sequence, made to a setpoint.
For binary timed overrides, these commands are available:

- **override Active** (On)—Start an override at On state. A secondary popup provides a field in which you enter the duration of the override, in minutes.
- **override Inactive** (Off)—Start an override at Off state. A secondary popup provides a field in which you enter the duration of the override, in minutes.
- **cancel**—Cancels any active override.

Other control commands

Other more customized control commands may be available. Typically, these commands have been given a descriptive label in the right-click command menu.
ADMINISTRATIVE COMMANDS

Administrative (admin-level) commands apply mostly to logs, where each includes the commands archive, clear (log data), and clear Last Archive. These right-click commands are available on any log object exposed in a graphic.

Figure 2-11 Right-click commands for logs if you have Admin-level command rights.

Caution

Be careful about using the “clear” command for a log, which erases its buffered log data. There is little reason for this command with most logs, which are configured to have a rotating data buffer, plus automatic (“near full”) and/or “daily” archiving. The “clearLastArchive” command is also seldom needed. Only the “archive” command is typically useful, (and only then) if the most recent log data is immediately needed in the system’s SQL application database. Refer to Chapter 7, “Application Database,” for more information about archives.

Another common admin command is the right-click command for a schedule, cleanup Specials (Figure 2-12). This removes any previously-executed special events, providing they are older than some number of days (typically, 14 days).

Figure 2-12 The cleanupSpecials command removes expired special events.
Schedules and Holidays

System graphics often provide links to schedules and holidays, which display graphically. Depending on your security rights, you may be able to modify weekly schedule events, add and delete special events, and add and delete holidays.

This chapter provides information on reviewing and modifying schedules and holidays accessed from system graphics. The following main sections are included:

- About Schedules
- About Holidays (Calendars)
- Reviewing Schedules
- Modifying Schedules
- Reviewing Holidays
- Modifying Holidays
About Schedules

Schedules provide regular time-of-day, day-of-week control for controlling loads such as lights, fans, and pumps. To do this, they have been linked to binary outputs.

Schedules may reside in a Web Supervisor station or in a JACE controller station. A station may contain many different schedules, or relatively few (one schedule can control many binary outputs).

Each schedule provides the following schedule “parts,” each with its own view:

- A **weekly** schedule—Provides an ongoing day-of-the-week, time-of-day schedule, with 7 days (Sunday through Saturday). Days hold schedule events.
- A **holiday** schedule—Defines the schedule events that occur on any day defined as a holiday (the schedule must be linked to a calendar). A holiday schedule overrides the weekly schedule.
- (Optional) **special events**—Special event actions that you define for any number of special-event days, typically non-repeating days, or ranges of days. A special-event day overrides the weekly schedule and the holiday schedule.

**Events**

Schedule events are the building blocks of schedules. Each event defines a schedule action of either inactive (off) or active (on). Each day in the weekly schedule can be configured to have up to 10 schedule events, meaning up to 5 event cycles per day. Special-event days and the holiday schedule can also have up to 10 events each.

Typically, most schedule days are configured with only two events, or a single event cycle. For example, events are active (on) at 8:00 and inactive (off) at 17:00 (5:00pm).

Although not typical, an active cycle in a weekly schedule can be configured to span across days. For example, you can set an active event to occur at 18:00 (6:00pm) on Monday and last through Friday at 7:30, when the next (inactive) event is configured.

**Holiday schedule**

Each schedule includes a 1-day (24-hour) holiday schedule. It defines the schedule events that occur on any calendar day that has been defined as a holiday. Some schedules may have a holiday schedule where the only event is inactive (off).

When the schedule encounters a holiday, the normal weekly schedule day is overridden and the holiday schedule is followed for that day.

**Special Events**

Special events accommodate special scheduling needs, based upon defined calendar days. When the schedule encounters a special-event day, both the weekly schedule-day (and any holiday, if in effect) are overridden by the events for that specific special-event day. Many special events can be defined for a schedule. You can define a special event as a single day, consecutive days, or a special combination of days.
About Holidays (Calendars)

Holidays are exceptions to normal day-of-week scheduling, and are represented in the system as entries in calendar objects. Calendars are linked to schedules so that scheduling includes holidays.

Holidays in a calendar can be defined as a single day, consecutive days, or a special combination of days, as needed. A station may contain many different calendars, or relatively few (the same calendar may be linked to many schedules).

Reviewing Schedules

When you follow a link to a schedule, you may first see a “summary view” or a “weekly view,” depending on how your system was engineered.

SUMMARY VIEW

The summary view shows the schedule's Swid and a few lines of status information, such as the current event action (active or “on,” inactive or “off”), the active schedule (weekly, holiday, or special event), and the next event action and time.

Links are provided for viewing the weekly, holiday, and special-event schedules, plus (if linked to a calendar), a calendar view.

Figure 3-1  Summary view for a schedule.
**WEEKLY VIEW**

The weekly view (Figure 3-2) is where you review and modify events for the regular day-of-week schedule.

*Note*

Your schedule views may display with different colors, background, and status text, but the graphical (applet) portion will function the same.

If necessary, click and drag on the scroll bar in the applet to see the complete schedule.

**Figure 3-2  Weekly view for a schedule.**

![Weekly View](image)

Click on any of the supplied links to see other schedule views, or the linked calendar.

**HOLIDAY VIEW**

The holiday view (Figure 3-3) is where you define this schedule's behavior on any defined holiday.
**Figure 3-3** Holiday view for a schedule.

**SPECIAL EVENTS VIEW**

The special events view (Figure 3-4) is where you review, add, or delete special-event days for the schedule. Special events may (or may not) be already defined.

**Figure 3-4** Special events view (main).

To review any listed special event, click the checkbox beside it and then click the Display button. This produces its 24-hour special-event schedule (Figure 3-5).
Modifying Schedules

If you have sufficient rights for a schedule (admin-write), you can modify event times and add/delete events in a weekly schedule or holiday schedule. You can also perform these edits when configuring a new (unsaved) special-events schedule.

Use the following procedures:

- **Modifying Event Times**
- **Adding Events**
- **Deleting Events**
- **Adding Special Events**
- **Deleting Special Events**
Modifying Event Times

To modify event times in a weekly or holiday schedule, or in an unsaved special-events schedule:

1. Move your cursor over the top or bottom of the active area (usually green), for the event that you want to change.
   
   Your cursor will change to “crossing arrows”:

2. Click to select the event (it turns yellow), then either:
   
   a. Drag up or down, as needed, to change the event time graphically in 15 minute increments, or:
   
   b. Click again in the Hour : Minute fields (as needed) and type in times directly. Enter hours using a 24-hour format, for example, 11 PM is 23.

   Click the Apply button to see the change graphically.

3. Repeat steps 1 and 2 to modify other event times, if needed.

4. If changes are satisfactory, click the Save button to save them in the station.

   If you want to cancel changes, click the Reload button instead. The schedule is downloaded again from the station, and appears the same as before the changes.
**Adding Events**

To add events in a weekly or holiday schedule, or in an unsaved special-events schedule:

1. Move your cursor to an area that is currently **inactive**.
2. At the time you want to start the event cycle, click once to add an active event. The **entire area following it highlights** (until the next event is encountered).

   **Note**  
   This effect can be surprising; however, you should not be alarmed!

   Cursor in an inactive (off) area. Click to add the active event.

   To adjust the active event time, you can drag it (15-minute intervals), or you can type the time in the Hour : Minute fields, and then click **Apply**.

3. Within the new active area (just added), move your cursor to the time you want to stop the event cycle, and click again. This adds the inactive event.

   The new event cycle now shows the correct active and inactive times, shortening the length to reflect your selected inactive time.

   Cursor in the new active (on) area. Click to add the inactive event.

   To adjust the inactive event time, you can drag it (15-minute intervals), or you can type the time directly in the Hour : Minute fields, and then click **Apply**.

4. Repeat steps 1 through 3, if necessary, to add other event cycles.

5. If changes are satisfactory, click the **Save** button to save them in the station.

   If you want to cancel changes, click the **Reload** button instead. The schedule is downloaded again from the station, and appears the same as before the changes.
DELETING EVENTS

To delete an existing event cycle in a weekly or holiday schedule or in an unsaved special-events schedule:

1. Move your cursor over the top of the active area (usually green), for the event cycle you want to delete.
   Your cursor will change to “crossing arrows”: 

2. Click to select the active event (it turns yellow).

3. Click the Delete button. This graphically removes the event cycle.

   Click the top of active area Click Delete to remove the cycle.

Note

An “orphaned” inactive event (shown as a light gray bar) remains. This will not affect schedule operation, but you can remove it if you wish. Just cursor over it, click to select it, and click **Delete**.

4. Repeat steps 1 through 3, if necessary, to delete other event cycles.

5. If changes are satisfactory, click the **Save** button to save them in the station.

   If you want to cancel changes, click the **Reload** button instead. The schedule is downloaded from the station, and appears the same as before the changes.
**ADDING SPECIAL EVENTS**

To add a special event (special-event days):

1. With a schedule view open, navigate to the main Special Events view.

   ![Image of special events view]

2. Click the **New** button.
   This produces a new special-events schedule dialog box. The default values for a new special events schedule are:
   - **Description**—Special Events n (where n is a unique integer 0 or higher).
   - **Priority**—8 (Priority applies only if multiple special-event days overlap.)
     Priority can be from 1 to 16, where 1 is highest priority, 16 is lowest priority.
   - **Period**—The date of the current day.
     You can accept or change defaults. Often, you change description and period.

3. Drag over the existing description (highlighting it) and type in your new description.

4. Beside the Period field, click the **Change…** button.
   A popup dialog appears for you to select date options.

   ![Image of special events period selection]

   Move the cursor over (to highlight) an option, as follows:
   - **to Date**—Select a single specific day, by month-day-year.
   - **to Date Range**—Select consecutive days, by a start-day and end-day.
   - **to Week And Day**—To select day(s) dependent on month, week-of-month, and day-of-week (but not year).
     Click to select the highlighted option. Each produces another popup dialog box.
5. If you selected **Date**, perform the following and then go to step 8.
   a. Click the drop-down controls for month and date, as needed, and click to select values. A wild card selection (*) means **all months** or **all days**. For example, “*:15:*2002” means the 15th of every month in 2002.
   b. If necessary, click in the year field and enter a year using four digits. You can also enter an asterisk (*) wildcard to specify all years.

6. If you selected **Date Range**, perform the following and then go to step 8.
   a. In the **top** date row, click the drop-down controls for month and day, as needed, and click to select a **starting** month and day. If necessary, click in the year field and enter a year using four digits.
   b. In the **bottom** date row, click the drop-down controls for month and day, as needed, and click to select an **ending** month and day. If necessary, click in the year field and enter a year using four digits.

   **Note**  The top (starting) date must be prior to the bottom (ending) date.

7. If you selected **Week And Day**, perform the following and then go to step 8.
   a. Click the drop-down controls for month, week, and day-of-week, as needed, and click to select a combination. A wild card selection (*) for a field means **all months**, **all weeks**, or **all days-of-week**. For example, “:*:*Thu” means every Thursday (every month and week).

8. Click **OK** to enter the date, or **Cancel** to return to the previous date.
10. Review the event times and other settings such as description, priority, and defined date(s)—you can change them now, but not after you save it!

11. Click the **Save** button to save the special-event in the station.
**DELETING SPECIAL EVENTS**

To delete one or more special events:

1. With a schedule view open, navigate to the main Special Events view.

2. Click the **checkbox** beside the special event(s) you want to delete.

3. Click the **Delete** button.
   
The special event is deleted, and a list displays the deleted special event(s).

4. Click Back, then Refresh (Reload).
   
The Special Events view no longer shows the special event(s) that you deleted.
Reviewing Holidays

When you follow a link to a calendar, you see a calendar showing the current month and year (Figure 3-6). Colored shading indicates any defined holiday dates.

**Figure 3-6** Calendar view initially shows current month and year.

![Calendar view initially shows current month and year.](image)

**Using Calendar Scroll Arrows**

Arrow buttons at the top of both sides allow you to scroll through the calendar. Click the left arrows to step back in time, and click the right arrows to step ahead. **Inner** arrows are for **months** (Figure 3-7). Note that **outer** arrows are for **years**.

**Figure 3-7** Outer scroll arrows are for years, inner scroll arrows are for months.

![Outer scroll arrows are for years, inner scroll arrows are for months.](image)

**Note**

If your browser is Internet Explorer, you can typically use its Refresh button to return to the calendar's current month and year.
ABOUT HOLIDAY COLORS

Holidays are shaded red, blue, or green in the gray calendar area, depending on how they were originally defined. Red holidays were defined as “date,” blue holidays defined as “date range,” and green holidays defined as “week and day.” Typically, this makes little difference, except perhaps when deleting holidays.

You can right-click on a holiday and select **List** to see its definition (Figure 3-8). The example shown here was defined as “date,” as July 4, all years (wildcard * for year).

Figure 3-8  Right-click on a holiday and select List to see its definition.

Modifying Holidays

If you have sufficient rights for a calendar (admin write), you can add new holidays and also delete existing holidays.

The following topics apply to modifying holidays:

- **Adding New Holidays**
- **Deleting Holidays**
- **Some Holiday Examples**

**ADDING NEW HOLIDAYS**

To add a new holiday:

1. With a calendar view open, navigate to the month and year you need for the holiday. See “Using Calendar Scroll Arrows,” page 3-13.
2. Click on the desired day, or **drag** across multiple days to highlight with a border.
3. Right-click and select New, and cursor over a date option, as described below:

- **to Date**—Select a single specific day, by month-day-year.
- **to Date Range**—Select consecutive days, by a start-day and end-day.
- **to Week And Day**—To select day(s) dependent on month, week-of-month, and day-of-week (but not year).

Click to select the highlighted option. Each produces another popup dialog box.

4. If you selected **Date**, perform the following and then go to step 7.
   a. Click the drop-down controls for month and date, as needed, and click to select values. A wildcard selection (*) means **all months** or **all days**. For example, “* 15 2002” means the 15th of every month in 2002.
   b. If necessary, click in the year field and enter a year using four digits. You can also enter an asterisk (*) wildcard to specify all years.

5. If you selected **Date Range**, perform the following and then go to step 7.
   a. In the **top** date row, click the drop-down controls for month and day, as needed, and click to select a **starting** month and day. If necessary, click in the year field and enter a year using four digits.
   b. In the **bottom** date row, click the drop-down controls for month and day, as needed, and click to select an **ending** month and day. If necessary, click in the year field and enter a year using four digits.

**Note:** The top (starting) date must be prior to the bottom (ending) date.
6. If you selected **Week And Day**, perform the following and then go to step 7.
   a. Click the drop-down controls for month, week, and day-of-week, as needed, and click to select a combination. A wild card selection (*) for a field means **all months, all weeks, or all days-of-week**.
      For example, “* * Thu” means every Thursday (every month and week).

7. Click **OK** to display the new holiday graphically (shaded), or click **Cancel** to return to the calendar without adding a new holiday.

8. **Important!** Click the **Save** button to save the holiday in the station.

**DELETING HOLIDAYS**

To delete a holiday:

1. With the calendar open, navigate to the month and year showing the holiday. See “Using Calendar Scroll Arrows,” page 3-13.

2. Right-click anywhere in the shaded area of the target holiday, and select **Delete**. A popup dialog box lists the definition for the holiday.

3. Click **Ok** to remove the holiday from the calendar display, or click **Cancel** to leave the holiday as is.

4. **Important!** Click the **Save** button to delete the holiday in the station.
**Some Holiday Examples**

The following US holidays were entered using these selections:

<table>
<thead>
<tr>
<th>Holiday, When Observed</th>
<th>Entered as</th>
</tr>
</thead>
<tbody>
<tr>
<td>New Years Day, January 1 each year</td>
<td><img src="image1.png" alt="Add Date" /></td>
</tr>
<tr>
<td>Martin Luther King's Day, Third Monday in January</td>
<td><img src="image2.png" alt="Add Weekend Day" /></td>
</tr>
<tr>
<td>Memorial Day, Last Monday in May</td>
<td><img src="image3.png" alt="Add Weekend Day" /></td>
</tr>
<tr>
<td>Labor Day, First Monday in September</td>
<td><img src="image4.png" alt="Add Weekend Day" /></td>
</tr>
</tbody>
</table>
Alarms and Alerts

You can view unacknowledged alarms and alerts in your system using your normal browser. If you have alarm command rights, you will also be able to acknowledge alarms and alerts.

This chapter provides information on viewing unacknowledged alarms and alerts in your browser. Depending on your security access, you may be able to select alarms and alerts for acknowledgment.

Note
Your system may include the optional Vykon Alarm Service, for enhanced access to alarms and alerts. Use of this powerful client-server software is not covered in this document, but is fully explained in the Vykon Alarm Client User’s Guide.

The following main topics are explained in this chapter:

• About Alarms
• Viewing the Alarm Summary
• Accessing Unacknowledged Alarms
• Accessing Unacknowledged Alerts
About Alarms

The term **alarm** is widely-used to refer to any unusual occurrence that requires system users to be **notified**. Once users receive an alarm notification, they may **acknowledge** it, which validates to the system that it was received.

All system users can view unacknowledged alarms (notifications still pending user acknowledgment). Depending on your security rights, you may also be able to acknowledge alarms. All alarm notifications and subsequent acknowledgments (including the user) are archived in the SQL application database for the system.

In a Niagara system, there are actually two classes of such alarms, namely:

- **Events (Alarms)**—Transitions of an object from “normal” to “off-normal”, and back. Events include **application** alarms (alarm low, fault condition, etc.) as well as **system** alarms (for example, device down).
- **Alerts**—An alert means some pre-defined limit has been reached by a binary or multi-state object. This limit is either some amount of elapsed active-time (runtime) or some amount of COS (changes of state).

In general, alerts are used as reminders for scheduling maintenance on equipment, whereas events (alarms) typically indicate problems that require immediate attention.

**Events (Alarms)**

Typically, most alarms occur from within the various applications upon reaching some pre-defined limits, which triggers an alarm **condition**. Alarm conditions may (or may not) result in user notifications, that is “alarms.”

For example, an analog input (AI) object representing a space temperature value may have an “alarm high” limit of 79.5 °F. Upon reaching this value, the object will have an “in alarm” status, and have a red status color. If so configured, the AI object may also send an alarm notification through the station’s notification subsystem.

Consider that alarm detection and alarm notification are separate things. There may be objects in your system that are configured with alarm limits (or states) but not “event enabled.” This means you may observe them in an alarm or fault condition, but you will not receive “alarms” from the system about them.

In addition, objects may be configured such that they are event-enabled for transitions **into alarm** (“to-offnormal”), but **not** return-from-alarm (“to-normal”). Other objects maybe configured as event-enabled (send notifications) for **all** alarm transitions. In this case, these objects will require user acknowledgement upon each alarm transition (to or from) any alarm and fault conditions.

When you receive an alarm, you will see information about when it occurred and why is was issued. Specifically, you will see the current value, “from state,” and “to state.” If the event represents a transition into an alarm condition, you may also see some additional “alarm text” (depending on configuration).
ALERTS

Alerts may be configured in binary and multi-state objects to be issued upon reached some COS or runtime limits. Quite often, object configuration specifies alerts to be issued at repeating intervals.

For example, the binary input (BI) object monitoring a supply fan may be configured to issue a runtime alert every 500 hours, or perhaps every 125 changes of state. When you receive an alert notification, you see the alert type (runtime or COS) and the current limit. Optionally, you may also see some “alert text” (depending on configuration).

Viewing the Alarm Summary

The alarm summary provides a “snapshot” indication of how many unacknowledged alarms and alerts currently exist. It also provides links to the alarm display and alert display pages, where you can review unacknowledged alarms and alerts.

Note
The alarm servlet is typically a Web Supervisor function, as it uses the SQL application database. If your system has no Web Supervisor, a JACE may be the alarm servlet host.

The URL you enter to access the alarm summary is:

http://<host>/alarm

(where <host> is the IP address or host name of your Web Supervisor).

Hit ENTER after typing this URL in the address bar of your browser.

This produces the alarm and alert summary, as shown in Figure 4-1.

Note
Remember that this summary page, as well as the alarm and alert display pages, are all “snapshots.” If you leave them open, you should periodically click your browser’s Refresh (reload) button in order to get updated information.
Accessing Unacknowledged Alarms

You can access the alarm display page from the alarm summary by clicking on the “Alarms” link. Or, you can enter this URL in your browser’s address bar:

http://<host>/alarmDisplay

(where <host> is the IP address or host name of your Web Supervisor).

Hit ENTER after typing this URL in the address bar of your browser.

This produces the alarms display page, as shown in Figure 4-2.

**Figure 4-2  Alarm display page lists unacknowledged alarms.**

![Alarm display page](image)

If you have been given any alarm command rights, you will see the “Ack” column and the Acknowledge button, as shown above. Note that this is no guarantee that you can successfully acknowledge every alarm, as some objects may be assigned to security groups to which you have no rights.

**ACKNOWLEDGING ALARMS**

Acknowledge alarms simply by clicking Ack checkbox(es) and then the Acknowledge button. This produces the ack alarms page, where acknowledgments are totaled, along with the information about the user, time and date of acknowledgment (Figure 4-3).

**Figure 4-3  Ack alarm page lists results of acknowledgments.**

![Ack alarm page](image)
Click either link at the bottom to return to the alarm summary or alarm display page. Either page should now reflect the correct number of unacknowledged alarms.

**Unsuccessful Acknowledgments**

If you attempt to acknowledge an alarm or alert for an object for which you do not have alarm rights, you will be notified in the ack alarm page (or ack alert page). Each unsuccessfully acknowledged alarm or alert will be re-listed, as shown in Figure 4-4.

**Figure 4-4** Ack alarm page includes information about unsuccessful acknowledgments.

Successful acknowledgement also requires a response back from the station where the source object (issuing the alarm or alert) resides. If that station cannot be reached, you may see an acknowledgment response similar to:

*Acknowledgements could not be delivered to the following stations:*
  * <StationName>*

In this case, you should try again later.
Accessing Unacknowledged Alerts

You can access the alert display page from the alarm summary by clicking on the “Alerts” link. Or, you can enter this URL in your browser’s address bar:

http://<host>/alertDisplay

(where <host> is the IP address or host name of your Web Supervisor).

Hit ENTER after typing this URL in the address bar of your browser.

This produces the alerts display page, as shown in Figure 4-5.

Figure 4-5  Alerts display page lists unacknowledged alerts.

If you have been given any alarm command rights, you will see the “Ack” column and the Acknowledge button, as shown above. As with alarms, this is no guarantee that you can acknowledge all alerts—some objects may use security groups different than yours.

ACKNOWLEDGING ALERTS

Acknowledge alerts simply by clicking Ack checkbox(es) and then the Acknowledge button. This produces the ack Alerts page, where acknowledgments are totaled, along with the information about the user, time and date of acknowledgment (Figure 4-6).

Figure 4-6  Ack alert page lists results of acknowledgments.

Click either link at the bottom to return to the alarm summary or alert display page. Either page should now reflect the correct number of unacknowledged alerts.

If acknowledgments are unsuccessful, you may not have adequate rights, or problems in communications may exist. See “Unsuccessful Acknowledgments,” page 4-5.
Log Charts

System graphics often provide links to logged data presented in a graphical “log chart” view. Included are controls in which you change the chart appearance, color, or zoom in. In addition, a special “Log Selector” page allows you to select and chart multiple logs and archives on the same chart. You can also access log data in text format, and save this text in various output formats.

This chapter provides information on viewing log and archive data in the graphical log chart view. Included are explanations of the various control bar buttons, plus the special “Log Selector” view.

The following main sections are included:

- About Log Data
- Viewing Chart Data
- Using the Log Selector
- Log Data in Text Formats
About Log Data

Log data is system information stored over time by logs (log objects). Each log is linked to another point (object) in the system, and records the changing values for that specific point. Each log record (value recorded in a log) includes a date and timestamp.

About Logs

There are several types of logs, corresponding to the type of linked object whose value it is recording.

- An analog log is the most commonly used log. It records an analog “floating-point” value such as a temperature or humidity. Configuration is usually to record upon some repeating interval, for example, every 30 minutes.

- A binary log records binary changes-of-state, meaning active (on) or inactive (off). Binary logs are typically configured to record upon each state change.

- An integer log records integer values, such as “number of heat stages active.” Integer logs are very similar to analog logs.

- A multi-state log records the output of a “multi-state object,” that is, an object with more than two discrete states. A 3-speed fan is an example, having discrete states of “off,” “slow,” “med,” and “fast.” Multi-state logs are typically configured to record upon each new state change.

- A string log records “string” (text) values, and is used for special-purpose applications. A string log is the only log type that cannot display graphically.

Each log holds its most recent records in its own log buffer, stored in the station that the log resides. A log’s buffer size (limit) is configurable, but many logs have the default buffer size of 60 records.

Most logs are configured with a “rotating buffer,” which means that after reaching the buffer limit, the oldest record (sample) becomes overwritten to make room for the newest record. The alternative configuration for a log is to “stop when full.”

About Archives

One of the main functions of a Web Supervisor is to provide continuous storage of data for logs, otherwise known as archives. Archived log data is typically “pushed” from logs to a large SQL application database in the Web Supervisor. Each archive can store many thousands of records for a log, from its oldest (first record) to its most recent (at least up to the point of its last archive). Refer to Chapter 7, “Application Database,” for more information.

Log data may be archived manually (archive command). More typically, log data is archived automatically once a day, and/or upon reaching a “near full” buffer condition.

Charts vs. Tables

The default view for most logs (string logs excepted) is the log chart view.
**Viewing Chart Data**

When you follow a link to a log in your system, you typically see its data presented in a graphical log chart view (Figure 5-1).

**Figure 5-1** Log chart view shows log data graphically.

Each log’s configuration determines how you first see it, meaning the color for the data and the chart type (line graph, bar chart, 3D-bar chart, and so forth). For instance, as shown in Figure 5-1 above, this log has a default display of 3-D bar chart, red color.

This default view also makes visible all three areas of the chart applet, namely:

- Log (data) area, including the Title Bar
- Legend area
- Control bar (tool buttons)

A number of controls allow you to change the appearance of the chart, as well as toggle the visibility of the legend area and control bar.

See the following topics about viewing a log chart:

- Maximizing the Data Area
- Using the Data Area
- Using the Legend Area
- Using the Control Bar
MAXIMIZING THE DATA AREA

Use the toggle controls at the bottom of the data area to turn off the display of the legend area and/or control bar. When you turn off these areas, the data area automatically expands, providing more data resolution.

Click the left-side control to toggle the control bar off and on.

Click the right-side control to toggle the legend area off and on.

You can also maximize the browser window that contains the log chart, if not already maximum size. The log chart applet automatically resizes to fit the available area.

USING THE DATA AREA

The following topics apply to the using the data area:

• Cursor and the Status Line
• Zoom In
• Zoom Out

Cursor and the Status Line

As you move the cursor around in the data area, the status line in both the control bar (if visible) and the browser window reflects the value (y-axis) and time (x-axis) under the pointer, as shown in Figure 5-2.

Figure 5-2   Cursor point status line information with a (y-axis) value and (x-axis) time.
**Zoom In**

You can “zoom in” on any time (x-axis) portion of the chart by merely clicking and dragging the cursor across to highlight (mark) the area. When you release the mouse button, the data area reflects only the previously marked area—in other words, you have zoomed in on a specific range of log records.

Click and **drag** the cursor to highlight. **Release** the mouse button to zoom in.

When you zoom in, horizontal time labels (on the x-axis) update to show the new time and date range. You can continue to zoom in many times, if needed.

**Zoom Out**

Click the Zoom Out button on the control bar to return to the previous zoom level. If you zoomed in multiple times, each click returns you back one zoom level.

---

**Note**

If control bar buttons are not visible, you will have to toggle the control bar on first. Just click on the toggle control bar arrow on the left-side bottom of the data area.

**USING THE LEGEND AREA**

Use the legend area to **select** a log (just **click** on the log listed in the legend); a selected log becomes highlighted yellow. You must select a log this way to change its chart type or color. A number of control bar buttons become associated with that particular log.

If viewing a single log, you must still click on it to activate most control bar buttons. Often, you may wish to select the log and then close the legend (to make the data area bigger). Control bar buttons apply to the last log you selected in the legend.

---

**Note**

If you click in a blank spot of the legend area (unsselect a log), many control bar buttons become unavailable (grayed out). Only buttons for controls that apply to the whole LogChart remain available—for example, toggle 3D, toggle grid, etc. See Figure 5-3.
**Using the Control Bar**

Apart from the Zoom Out button, you may occasionally wish to use other buttons in the control bar, as shown in Figure 5-3.

![Control Bar Buttons](image)

**Tip**

When you cursor over a control bar button, the status line area shows its function.

From left to right, the control bar buttons are:

- **Line plot**—Changes selected log to a line-plot type.
- **Area plot**—Changes selected log to an area-plot type.
- **Averages (bar) plot**—Changes selected log to a bar-averages type.
- **Min/Max (candle) plot**—Changes selected log to a bar-candle (delta) type.
- **Toggle 3D chart**—Toggles whole chart in 3D effect (affects bar/candles only).
- **Cycle color**—Changes color of selected log.
- **Bring to Front**—Brings selected log to front of chart (overlaps other logs).
- **Send to Rear**—Sends selected log to back of chart (overlapped by other logs).
- **Zoom Out**—Zooms out (logs data area) to the previous zoom level.
- **Toggle Grid**—Toggles grid lines Off and On.
- **Save to Server**—Saves the current LogChart setup, including colors and plot-types, to a file for recall later (does not save log data). See the next section, “Saved Log Charts.”
- **Auto time scale**—Adjusts x-axis (time) scale to fit the range of log samples.
- **Y(year) time scale**—Adjusts x-axis scale to year increments.
- **M(onth) time scale**—Adjusts x-axis scale to month increments.
- **D(ay) time scale**—Adjusts x-axis scale to day increments.
- **H(our) time scale**—Adjusts x-axis scale to hour increments.
- **M(minute) time scale**—Adjusts x-axis scale to minute increments.
- **S(second) time scale**—Adjusts x-axis scale to second increments.
Saved Log Charts

The control bar button **Save to Server** provides a method to save the chart setup itself (not the actual log data). This means the main visual aspects of the LogChart setup: the selected log(s), selected color(s), plot type(s), if 3-D. Whenever you click this button, the LogChart setup is written to a file in the station. Your only indication that something happened is a “*** Save Successful! ***” message in the status line area.

When saved, the LogChart setup is written to a file in the station. You can see a list of saved log charts in a station (Figure 5-4) using this URL in your browser:

http://<host>/chart/savedlist/

(where <host> is the IP address or host name of your Web Supervisor or JACE).

Each listing is the chart’s “title” that acts a hyperlink—just click on it to see the current log data in the same chart format (as when last saved).

Figure 5-4  Saved log charts store chart setups (chart type, data color, etc.) not data.

Saved charts are most useful when using the Log Selector to chart multiple logs. See the next section, “Using the Log Selector.”
Using the Log Selector

The Log Selector is a special view in your Web Supervisor or JACE station. It lets you select and graph multiple log objects and/or archives in the same chart. You can also use it to select a single log or archive, and direct its data output as text in a format of either HTML, CSV (comma-separated-variable), or XML.

The following topics explain using the Log Selector:

- Starting the Log Selector
- Charting Multiple Logs
- Using Selection Filters
- Viewing Selected Logs or Archives
- Using a Single Selection for Text Output

STARTING THE LOG SELECTOR

The typical URL to launch the Log Selector is:

```
http://<host>/chart/log
```

(where <host> is the IP address or host name of your Web Supervisor or JACE).

Hit ENTER after typing this URL in the address bar of your browser.

This produces the Log Selector dialog, as shown in Figure 5-5.

---

Figure 5-5 Log Selector dialog is a special feature of the WebUi Service.

Selection buttons for listing logs by object name only, or by Swid. Also, options to select archives only, or archives and logs by swid (applies if station has DatabaseService).

Selection list of available log objects and/or SQL archives.

Chart button runs the LogChart, showing all selected items.

Text format buttons (HTML, CSV, XML) are available only if a single log or archive is currently selected.

You should "title" a Log Selector selection. This title appears in the LogChart results. If (after charting) the "Save to Server" button is used, this is how the chart is listed in the "Saved Charts" page (http://<host>/chart/savedlist).

Currently selected logs and/or SQL archives.
Notes

- A link to the “Log Selector” is included among the list of “Browser View” links in the station’s Niagara Help Index, as well as a link to “Saved LogCharts.”
- Your system may be engineered with a link to the Log Selector that is pre-configured to list only some of the available logs and archives (as a convenience to you). This may help simplify your selection of appropriate logs.

CHARTING MULTIPLE LOGS

To chart multiple logs and/or archives:

1. Start the Log Selector, either by following a link (if provided), or by typing the URL (http://<host>/chart/log) in the address bar and pressing ENTER.
2. In the left-side, click a listed item to highlight it (click again to remove highlight). Use the scroll bar to move up and down in the list to see more items, if necessary. You can also use selection filters. See “Using Selection Filters,” page 5-10.
3. Click the Add button to add highlighted logs to the right-side. In general, best results occur by selecting 6 or less logs, and no more than 2 different units. To remove an added log, click it and then click Remove.
4. Click in the top (Title) field and drag to highlight the current “Untitled” text.
5. Type in an appropriate title for your selected logs.

**Note** If using the Log Selector with the goal of saving charts, you should not skip this “Title” step. The default title is “Untitled <datestamp>,” for example, “Untitled Thu Dec 06 15:12:00 EST 2001.” Your generated chart displays with this title. If you save it, it will be listed in the “Saved Charts” the same way.

6. With your titled entered and logs selected, click the **Chart** button. The chart appears showing your selected title and logs.

7. If you want to change the appearance of any log, click it in the legend area and apply changes (for example, make it an area plot, send it to the back).

8. If you want to save the configuration of this chart, click the **Save to Server** button. It will now be available to all system users in the “Saved Charts” page.

**Note** Be aware that if you select a “Saved Chart” and then make changes in its appearance, if you Save to Server you **overwrite** its previous chart settings.

**Using Selection Filters**

Selection filters in the Log Selector are **optional**, and apply to the start and end times for data records, the listing method for selecting logs or archives, and a text filter to narrow selection lists.
Start and End Times

Start and end times let you limit the amount of data to be charted—they can be useful when charting archives, which may contain thousands of records. Note that the x-axis (time) used in a chart is automatically set by the item (log or archive) with the widest span of recorded timestamps.

For example, if you select a large archive with many (ancient) records to compare against a relatively new archive, you may wish to establish a start time. Otherwise, the time area of interest may require a bit of “zooming.”

You can enter either a start time, end time, or both. A time must use the date-time syntax shown in parentheses by the entry fields, namely

```
yyyy-m-dThh:mm
```

(for example):

```
2002-7-10T8:30
```

for July 7, 2002, at 8:30AM. If desired, you can enter a time (T) of

```
T0:0
```

(midnight).

Notes

- If your entry syntax is incorrect, the chart will not display and the entry field highlights in red. Just correct the time entry and then click Chart again.
- Start and end times do not filter the list of available logs or archives, only the possible time range of data the chart may display.

List Methods

When selecting items to chart, you can chose them to be listed alphabetically by either:

- Logs by description or name (the default).
- Logs by station Swid.
- Archives by station Swid.
- Both logs and archives by Swid.

You can use only one method at a time—the list regenerates upon change (Figure 5-6).

Figure 5-6  Changing a list method in the Log Selector regenerates the available items list.

Unless you are familiar with the Swid database structure of the system, selecting logs by the (default) description is easiest. When selecting archives (records stored in the SQL database), you will see this Swid database structure, in fact, in all capital letters.

You can use different list methods when adding items to chart. For example, you can select and add a log by description, then select and add an archive using archives only.
Filter (text)

Anything you type in the Filter box limits what is listed for selection—only items with **exactly** matching text are seen. As you type in characters, the list dynamically updates.

Filter text is **case-sensitive**, and you can (and usually do) use asterisks (*) as “wildcards.” Typically, you enter a leading wildcard when using filter text.

For example, if you want to list only logs with descriptions that included “Hourly,” you would enter filter text of:  *Hourly*  This would dynamically filter the selection list to include only those items with “Hourly,” as shown in **Figure 5-7**.

**Figure 5-7** Text you type in Filter dynamically limits what items are listed for selection.

If you left off the leading asterisk (Figure 5-7), only those logs with descriptions **beginning** with Hourly would display, as shown in **Figure 5-8**.

**Figure 5-8** A leading wildcard (*) is typically used, otherwise few items are typically seen.

**VIEWING SELECTED LOGS OR ARCHIVES**

When you view numerical data in a chart, the vertical value scale (y-axis) provides numbered labels according to values in the log (or archive) records. If binary data or multi-state data, the different possible states are also indicated on the y-axis.

By default, charted **logs** also show an abbreviation for associated engineering **units**, for example, “°F”, “cfm”, or perhaps “no_units” (if a log is not assigned units).

Binary and multi-state logs show the different state descriptors, such as “On” or “Off,” “Active” or “Inactive,” or “Off,” “Slow,” and “Fast.”

When looking at a chart of multiple logs where different units are used, a separate value (y-axis) scale appears for each unit type. As shown in the example in **Figure 5-9**, the two logs use different units (°F and kW).
Archives of numerical data, however, by default show a “?” for units when charted, as shown below in Figure 5-10. Archives of binary data show “Active” or “Inactive,” and archives of multi-state data show “State 0,” “State 1,” “State 2,” and so on.

Unlike logs, archives are not associated with units or state descriptors—they are just values with timestamps. However, you can manually set both the legend descriptor and units label for an archive (or log) before charting. Click on a selected (added) archive or log, and then edit the “Legend Label” and “Unit Axis Label” fields (Figure 5-11).
Notes

- When viewing multiple logs, it is common for many logs to use the same color (oftentimes red). It is recommended that you select each duplicate-colored log in the legend, and then click on the cycle color button (in the control bar) until the log has a unique color. This will make your analysis of the chart data easier. See Figure 5-3 on page 5-6 for the location of the Cycle Color button.
- When viewing multiple archives, the Log Selector automatically assigns unique colors to each one.

**Using a Single Selection for Text Output**

You may have noticed that when a single log or archive has been selected (added) to the right-side of the Log Selector, all four buttons are available at the window bottom.

**Figure 5-12** Text output buttons to the right of the Chart button.

It works this way because you may view the data as a text table for only one log or archive at a time, using a text output button HTML Table, CSV Table, or XML Table. You cannot chart a text-based logs or archive, for example, a station's audit log or error log. However, you can view such a log/archive (or any other) using one of these text buttons. Typically, you use the HTML Table output for most viewing (Figure 5-13).

**Figure 5-13** HTML Table provides best online viewing, with window scroll bars if needed.
Importing Text Data Into Excel

You can use the CSV output selection from the Log Selector to import a log or archive’s data into a spreadsheet such as Microsoft Excel. You can then manipulate and/or graph that data as needed using the spreadsheet software.

You can use the following procedure to import log or archive data into Excel:

1. Select and add a single log or archive to the right-side of the Log Selector.
2. Click the CSV Table button.
   The browser window updates with log or archive data, showing comma-separated data on each line.
3. Click once on the URL shown in the address bar.
   The URL should be highlighted completely to show it is selected.
4. Press CTRL-C (for copy to clipboard).
5. Open a new worksheet in Excel.
6. From the Excel menu bar, select Data > Get External Data > Import Text.
7. When the dialog box appears asking for the file, click in the File name field, and press CTRL-V (for paste from clipboard).
   The URL should now appear in the File name field.
8. Click the Import button.
   You may be prompted again for your station username and password again. If so, enter these (sign on again) and click the Import button once more.
   You may accept all defaults, but be sure to select Comma for “Delimiters” on the second screen of the wizard (as shown below).
10. When finished with the wizard, the log data should appear in your worksheet.
11. Save your spreadsheet for recall later.

Note
You can reopen your saved worksheet later and update the data. From Excel’s menu bar, select Data > ! Refresh Data, then Import. After entering your username and password for the station, select Import once more. Data is then updated.
Log Data in Text Formats

Your system may provide links to logged data that presents information in tables. This is particularly true of some types of logs that do not lend themselves to graphical representation, such as “string” logs or system logs like audit logs or error logs.

Using the Log Index

Every Niagara station provides basic HTTP text-access to its logs, including a log index. The index lists all logs that you can access, and provides hyperlinks to them.

The URL to launch the log index is:

http://<host>/log/index

(where <host> is the IP address or host name of your Web Supervisor or JACE). Hit ENTER after typing this URL in the address bar of your browser.

Figure 5-14 Station log index provides text-output links to logs in the station.

Logs are listed by description (if configured) or by log object name, and are not sorted alphabetically. However, you may use your browser’s find function (Edit > Find).

Click on a link to see text output. Use the browser Back button to return to the index.

Notes • Clicking on a log's name/description is the same as clicking on “text/html.”
• Links “text/plain” and “text/comma-separated-values” are also identical.
• Links “application/x-tridium-datax” are for future use. Such a link typically produces a download box to save as a file, but there is no current use for it.

Note that in a few cases logs may be configured with very large data buffers. In these cases, the output results may take several seconds and produce a very large HTML page.

If you want to import a log's data into a spreadsheet such as Microsoft Excel, you can select “text/plain” and follow the procedure on page 5-15, starting with step 3.
Status Information

Probably, most (if not all) of the important real-time information in your system is represented in system graphics. However, you can access a special table that provides a text-based “snapshot” of current statuses—for virtually every object of interest in your system. Included is a “query form” that you can use to search for specific information.

This chapter provides information on using the status servlet of a Web Supervisor (or any JACE equipped with the WebUI Service). The status servlet provides browser access to current real-time statuses (and values) of most objects in a station.

The following main topics apply to the status servlet:

- Statuses and the Status Summary
- Status Queries
Statuses and the Status Summary

In your system, the status of each object reflects its general “health.” Off-normal status conditions may be indicated by color change on system graphics (GxPages), as explained in “Status (Color) Indication,” page 2-3.

Any station with the WebUI Service also includes a text-based status summary, which provides a tabular “snapshot” of all objects with their statuses and values, listed in one HTML table. You can access this status summary to quickly see any off-normal object conditions, which are indicated by colored rows in the table (Figure 6-1).

Figure 6-1 Status summary shows “off-normal” objects in colored rows.

Notes

• Typically, the status summary for a Web Supervisor station provides centralized access to the status of all objects in the entire system, meaning both the objects in Web Supervisor station plus all objects in all subordinate JACE stations.

• When accessing the status summary, keep in mind that you are viewing a “snapshot” of statuses and values. Periodically, you must use your browser’s “Refresh” (reload) button to update the screen with current values.

The following topics apply to using the status summary:

• Accessing the Status Summary

• About the Status Table

• Following Links
ACCESSING THE STATUS SUMMARY

The typical URL to access statuses is the summary (index), which shows all objects:

http://<host>/status/index

(where <host> is the IP address or host name of your Web Supervisor or JACE). Hit ENTER after typing this URL in the address bar of your browser.

This produces the status summary, as shown in Figure 6-2.

Figure 6-2 Status summary lists all objects with reportable status, alphabetically by Swid.

As needed, use the scroll bars in your browser window to view all objects and columns. You can also use your PgDn and PgUp keys to move through the objects.

ABOUT THE STATUS TABLE

Each row in the status table represents one object in the system. By default, objects are sorted alphabetically by Swid, which starts by station name, then parent container name(s), and ends with the object's name.

Four columns in the status table show text values for the following:

- **Swid**—The complete station path and name for the object, and a hyperlink to the object's “default view.” (For alarmable objects, this is a property table.)
- **Type**—Object type, or abbreviation of type (e.g., AO for AnalogOutput).
- **Status**—If not {ok}, which status flags are set for an off-normal condition.
- **Summary**—Object's value or state, control level, or description.

Important features within the status table include:

- **Color Indication**
- **Status Information**
- **Summary (Value) Information**
**Color Indication**

As previously mentioned, a main feature is that “off-normal” statuses are indicated in the table by some color other than white—using the same status-indication colors seen in a GxPage. Colors seen in the status table are as follows:

- **White** (ok)
- **Red** (inAlarm)
- **Orange** (fault)
- **Cyan or Light Blue** (outOfService)
- **Yellow** (down)

**Status Information**

The status column shows “ok” for each object with normal status. Objects showing any other status flag(s) (inAlarm, fault, down, etc.) typically have a colored row.

One exception is if a single status flag “unackedAlarm.” This means that the object had an alarm condition (and as yet, it is unacknowledged by a user since occurrence).

**Summary (Value) Information**

The summary (far-right) column is where the object’s value and units appear, such as “57.5 ºF” or “5.5 mA” for an analog object, or “On,” “Off,” “Active,” “true” and so on for a binary object. Commandable objects with priority levels also include the current active priority level, for example: “Off @ Schedule (16).”

Summary information for log objects shows the last archive timestamp, and for other object types may show description or some other information.

**Following Links**

Click on any object to see its default view. For most objects, especially those capable of off-normal color indication, this displays its properties table (Figure 6-3).

![Property table shows configuration information as well as status information.](http://192.168.1.101/status/index)
If you accessed the status summary of a Web Supervisor, you may be prompted to sign on again when you click an object that resides in a JACE station. Just enter your username and password for that station, and the link will continue.

If you click on an object with a special view, such as a log, calendar, schedule, or GxPage (graphic) object, you typically see that view (instead of its property table).

**Returning to the Status Summary**

Just click the browser's **Back** button to return to the status summary. Realize, however, that you will be looking at the “cached” copy. Click your browser’s **Refresh** (reload) button to update the status summary with current information.

**Status Queries**

The Status servlet also supports custom status queries, using an HTTP form with filter fields for Swid, Type, Status, and Summary. In each field, an asterisk (*) functions as a wildcard. The sort selection arranges query results alphabetically, by the selected field.

The URL for the status query form is:

```
http://<host>/status/queryForm
```

(where `<host>` is the IP address or host name of your Web Supervisor or JACE). Hit ENTER after typing this URL in the address bar of your browser.

This produces the status query form, as shown in **Figure 6-4**.

**Figure 6-4** Status Query form allows a custom query by Swid, Type, Status, or Summary.
**USING THE STATUS QUERY FORM**

If you execute the “default” query form, meaning all wildcards (*) and default sort and MIME types—the result is the same as if you accessed the status summary (index). By making changes in the query form, however, you can filter (reduce) the number of objects returned, and/or reorder the results and output type.

Entries you put into Swid, Type, Status, and Summary Filter fields are case-sensitive. You can combine multiple filter entries, or leave any or all filters at wildcards (*).

The following topics apply to the status query form:

- Example Form Entries
- Type Filter Reference
- Query Output Selections
- Saving Status Queries

**Example Form Entries**

Simply leave everything in the query form at default except for “Sort by,” changing it from “swid” to “status.” When executed, this would still return all objects, but it would place all objects that do not have an “ok” status at the top (Figure 6-6).
Another commonly used filter is for Status “in_alarm.” Note that this is different than the Alarm servlet routine, which checks for instances of unacknowledged alarms.

An object in alarm may have remained in alarm even after being acknowledged. In this case, the object would not appear using the Alarm servlet, but would when using a Status query filtering on the status “in_alarm” (Figure 6-7). This returns only objects that are currently in alarm.

You might also wish to use the status query to find out current values or states within the system. For example, to see the current states of binary output objects (BOs), you could filter on “Type,” entering only BO. If you also enter “*(16)” in the Summary filter, you will see only BO objects under schedule-level control (Figure 6-8).
**Type Filter Reference**

For some object types, the status query processes “abbreviated” Type strings, as shown in Table 6-1. Object types not listed use “full” Type strings (e.g. AnalogLog), but will work with wildcard (*) characters, for example, *Log returns all log objects.

<table>
<thead>
<tr>
<th>Object Types</th>
<th>Abbreviations</th>
</tr>
</thead>
<tbody>
<tr>
<td>AnalogInput, AnalogOutput, AnalogOverride</td>
<td>AI, AO, AOvrd</td>
</tr>
<tr>
<td>BinaryInput, BinaryOutput, BinaryOverride</td>
<td>BI, BO, BOvrd</td>
</tr>
<tr>
<td>Calendar</td>
<td>Cal</td>
</tr>
<tr>
<td>Comparison (depending on function)</td>
<td>A &gt; B, A &lt; B, A &gt;= B, A &lt;= B, A = B, A != B</td>
</tr>
<tr>
<td>FunctionGenerator</td>
<td>Func</td>
</tr>
<tr>
<td>Logic (depending on function)</td>
<td>A_AND_B, A_OR_B, A_XOR_B, A_NOT_B</td>
</tr>
<tr>
<td>Loop</td>
<td>LOOP</td>
</tr>
<tr>
<td>Math (depending on function)</td>
<td>ABS, AVG, ACOS, ASIN, ATAN, COS, DIFF, DIV, EXP, LOG, LN, MAX, MIN, MULT, POW, RESET, SIN, SQRT, SUM, TAN</td>
</tr>
<tr>
<td>MultistateInput, MultistateOutput, MultistateOverride</td>
<td>MSI, MSO, MOvrd</td>
</tr>
<tr>
<td>Program</td>
<td>Prog (default, is configurable for a Program object)</td>
</tr>
<tr>
<td>Schedule</td>
<td>Sched</td>
</tr>
<tr>
<td>Totalizer</td>
<td>Total</td>
</tr>
</tbody>
</table>

**Query Output Selections**

Output from a status query is selectable in a number of MIME types, including text/html, text/plain, text/xml, text-tab-separated-values, text-comma-separated values, and application/x-tridium-datax (note this last selection is for future use).

These output selections allow you, for example, to block-select some portion (or all) of the query results and copy into a spreadsheet, as needed. In this scenario, either the tab-separated or comma-separated values selections would be useful.

Note that the default selection (text/html) is the only one that provides color indication of status (same output type used for the status summary).

**Saving Status Queries**

If you configure a query that you would find useful in the future, simply execute it, then **bookmark** the results in your browser (add it to your Favorites). The setup of your status query is saved within the URL, so it will be recalled the same way again. For more information, see the “Bookmarks” section on page 1-8.
Application Database

A Web Supervisor archives log data from logs located in its own station (as well as remote JACE controllers) in an SQL application database. This database also archives alarm and alert notifications and acknowledgments. You can access this archived data from your browser, using indexes and a special SQL query form.

This chapter provides information on viewing application database data from a browser. Included are explanation of the various URLs that produce indexes, as well as an introduction to the SQL query form.

The following main topics are explained in this chapter:

• About Application Database Data
• Viewing Appdb Tables
• Using the SQL Query Form
About Application Database Data

Data in the appdb (SQL application database) of a Web Supervisor is organized in a collection of tables. Essentially, each table is an archive, and corresponds one-to-one with a particular log (object). Logs that archive may reside in different stations, including the Web Supervisor station and remote JACE controller stations.

Figure 7-1 Each archive is populated from a particular log object in the system.

LOG VERSUS ARCHIVE

For any log, the most recent data is held in its data buffer. The size of a log's buffer is configurable, but many logs have a default buffer size of 60 (records). Logs are typically configured to have a “rotating buffer,” meaning that after collecting the buffer-sized number of records (say 60), each new record will overwrite the oldest.

For any log that is configured to archive, the archive holds the oldest and largest collection of data—in fact, since the log first started! When a log “archives,” the data currently in its buffer is sent to the appdb (typically the Web Supervisor) and appended to the existing data in its archive (table).

Therefore, at the moment a log archives, its archive often contains all records for that log. Over time archives often grow to contain thousands of records.

Most logs are configured to automatically archive once daily, and/or at a “near full” condition, meaning when the log buffer is 80% full. Also, if you have “Admin-level” command rights for a log and you can access it from a system graphic, you can manually command it to archive (see “Administrative Commands,” page 2-12).
Only logs that have archived are included in the appdb. Other logs in the system may **not** be configured (or commanded) to archive—only buffered log data is available.

**Station Archives and Application Archives**

By default, two (2) special archives exist for each station—these are sourced from the station's **audit log** and **error log**. They can be considered “station archives.” The data in these two logs (and archives) looks different from other logs and archives.

- The **audit log** records all user-issued commands and other changes (schedules and calendars, for example) made by a web browser user or a JDE user. It also records all engineering changes made in the station database by a JDE user.
- The **error log** records messages and warnings that relate to different functions in the station, including station startup events.

All other archives are sourced from “application” logs in that station, such as analog logs and binary logs. Your system probably has most logs configured to automatically archive, but be aware that some logs may not.

**Archive Names**

Archives in the appdb are named using this convention:

```
ARCHIVE.<STATION>.<SWID>  (all capitals, see Figure 7-2).
```

**Figure 7-2 Archives have names based on STATION.SWID.**

For example, for a station named “WebSup23,” the following tables may appear:

- **ARCHIVE.WEBSUP23_SERVICES_AUDITLOGSERVICE** (for the audit log)
- **ARCHIVE.WEBSUP23_SERVICES_ERRORLOGSERVICE** (for the error log)
- **ARCHIVE.WEBSUP23_LIBAPPS_VAV1_LOGS_ZONETEMP** (example application log)

and many more like this, plus from logs in other stations too, such as

- **ARCHIVE.JACE1_LONTRUNK_DEV1_CONTROL_LOGS_ROOM211T**
- **ARCHIVE.JACE3_LONTRUNK_DEV6_CONTROL_LOGS_HWSUPPLY**

It is not uncommon for a Web Supervisor's appdb to contain hundreds or even a few thousand archives, with each archive capable of storing thousands of records.
NOTIFICATIONS (ALERTS AND EVENTS)

The appdb typically includes four (4) special tables that are not archives (sourced from a log), but instead hold data from received from the alarm subsystem. As shown in Figure 7-3, these tables almost always appear in the appdb, alert tables at the top (archives in the middle), then event tables at the bottom.

Figure 7-3 ALERT and EVENT tables are not archives, but store details on alarming.

The names of these tables in the appdb are as follows:

- **ALERT. ALERTHISTORY**—Stores all occurrences of alerts (runtime or COS) from binary objects and multi-state object, plus each alert acknowledgment (the time and user).
- **ALERT. UNACKEDALERTS**—Stores only alerts not yet acknowledged by any system user.
- **EVENT. EVENTHISTORY**—Stores all event occurrences (alarms), such as application alarms (alarm low, alarm high, fault, etc.) and system alarms (device up or down, station up or down, etc.), plus each alarm acknowledgment (the time and user).
- **EVENT. UNACKEDALARMS**—Stores only alarms not yet acknowledged by any system user.

Viewing Appdb Tables

The Web Supervisor (or any JACE-NP running the database service) includes an HTTP interface to its appdb. This allows you to use an ordinary browser to view the data in any table in its SQL database.

Two different indexes are provided into an appdb, they look and operate very similar. Both are described in the following sections.

- Using the Appdb Index
- Using the Archive Index

Note

No specific user rights are needed to access the “main” appdb index, apart from a valid station user account (user name and password). Curiously enough, however, you must be assigned “Admin-read” privileges to access the archive index, which is a “subset.”
**USING THE APPDB INDEX**

The URL to access the alphabetical index of all appdb tables is:

```
http://<host>/appdb/index
```

(where `<host>` is the IP address or host name of your Web Supervisor).

Hit ENTER after typing this URL in the address bar of your browser.

This produces the application database index, as shown in **Figure 7-4**. It includes all archives plus the four alert and event tables.

**Figure 7-4** Appdb (database) index lists all tables in the SQL database.

All tables in the database are listed alphabetically by name. Click on a link to see text output (**Figure 7-4**). Use the browser **Back** button to return to the index.

**Notes**

- Clicking on a table’s name is the same as clicking on “text/html.”
- Links “text/plain” and “text/comma-separated-values” are also identical.
- Links “application/x-tridium-datax” are for future use. Such a link typically produces a download box to save as a file, but there is no current use for it.

Note that data tables can be quite big. The output results may take several seconds and produce a large HTML page. The oldest data is at the top, most recent data at bottom.

**Tip**

By default, tables with more than 2,500 records display only the first 2,500 (a “warning” reminder is displayed). To view more records, click in the address bar to highlight the URL, and press the END key to place the cursor at the end of the URL. Type in:

```
&limit=n
```

(where `n` is some number greater than 2500).

If you want to import a table’s data into a spreadsheet such as Microsoft Excel, you can select “text/plain” and follow the procedure on page 5-15, starting with step 3.
Viewing Appdb Tables

Using the Archive Index

The URL to access archives (only) in the appdb is:

http://<host>/archive/index

(where <host> is the IP address or host name of your Web Supervisor).

Hit ENTER after typing this URL in the address bar of your browser.

This produces the archive index, as shown in Figure 7-5. It includes all archives, but not the four alert and event tables.

Note You must have “admin-read” privileges to view this index. Otherwise, you just see a blank page with “Archive Index” at the top.

Figure 7-5 Archive index lists all archives in the appdb by STATION.SWID.

Archives are list alphabetically by “STATION.SWID.” Click on a link to see data (Figure 7-5). Use the browser Back button to return to the index.

Notes

• Clicking on an archive’s name is the same as clicking on “text/html”

• Links “text/plain” and “text/comma-separated-values” are also identical.

• Links “application/x-tridium-datax” are for future use. Such a link typically produces a download box to save as a file, but there is no current use for it.

Note that archives are often quite big. The output results may take several seconds and produce a large HTML page. The oldest data is at the top, most recent data at bottom.

Note Archives with more than 2500 records display a warning. See the Tip on page 7-5.

If you want to import a table’s data into a spreadsheet such as Microsoft Excel, you can select “text/plain” and follow the procedure on page 5-15, starting with step 3.
Using the SQL Query Form

HTTP access to the appdb includes a query form, in which you can enter custom queries into the appdb using standard SQL syntax. Typically, this is useful only if you have some previous SQL experience.

Note
SQL details are outside the scope of this document. More detailed information can be found in the Niagara Framework SQL Tutorial manual, available as a link from a Web Supervisor's Help Index. Refer to the "Help Index" section on page 8-7.

OPENING THE SQL QUERY FORM

The URL for accessing the appdb SQL query form is:

http://<host>/appdb/queryForm

(where <host> is the IP address or host name of your Web Supervisor).

Hit ENTER after typing this URL in the address bar of your browser.

This produces the SQL query form, as shown in Figure 7-6.

Note
No special user rights are required to access this form, only a valid station user name and password. However, be aware that SQL statements can be issued that remove data or entire tables from the appdb. Use this feature with caution.

Figure 7-6 SQL query form is available, but requires SQL syntax knowledge.
Typically, the SQL “select” statement is used to retrieve data. All queries run against a particular database table, which you must type in exactly as it appears in the database. The wildcard asterisk (*) is also typically used to select all fields (columns) in an archive, coupled with a “where” condition that limits which records are selected.

**SELECT STATEMENT EXAMPLES**

Table 7-1 shows a few example SQL queries using the select statement. You can experiment with the query form using similar statements modified to name appdb tables in your system. (The “select” statement is never destructive to appdb data).

<table>
<thead>
<tr>
<th>Query Entry Example</th>
<th>What It Does</th>
</tr>
</thead>
<tbody>
<tr>
<td>select * from ARCHIVE.JACESIM_SERVICES_AUDITLOGSERVICE where source not like ‘position’</td>
<td>Lists all fields (*) for all audit log records, except those related to repositioning objects.</td>
</tr>
<tr>
<td>select username, tstamp, auditaction from ARCHIVE.JACESIM_SERVICES_AUDITLOGSERVICE where username='admin'</td>
<td>Lists only the fields specified (in that particular order), for all audit log records for user “admin.”</td>
</tr>
<tr>
<td>select * from ARCHIVE.JACESIM_SERVICES_AUDITLOGSERVICE where tstamp='2002-07-12 00:00:00'</td>
<td>Lists all fields (*) for all audit log records that have timestamps after midnight, July 12, 2002.</td>
</tr>
<tr>
<td>select * from archive.demoR2_sim_logicscreens_energymgmt_oalog where value='true'</td>
<td>For station demoR2. Lists all fields (*) for records of the BinaryLog object OAOLog created by a transition to On (true).</td>
</tr>
</tbody>
</table>

**Tip**

To avoid typing table names in queries, open another browser window and and sign on to the station to display the database (appdb) index ([http://<host>/appdb/index](http://<host>/appdb/index)). In the index, find the table you wish to query, and then drag backwards over its name (right-to-left) until it is completely highlighted. Press CTRL-C to copy this to the clipboard. You can now paste this name inside your SQL query form (in your other browser window), as needed, using CTRL-V.

**QUERY OUTPUT SELECTIONS**

Output from an SQL query is selectable in a number of MIME types, including text/html, text/plain, text/xml, text-tab-separated-values, text-comma-separated values, and application/x-tridium-datax (note this last selection is for future use).

These output selections allow you, for example, to block-select some portion (or all) of the query results and copy into a spreadsheet, as needed. In this scenario, either the tab-separated or comma-separated values selections would be useful.

In addition, you can also bookmark any query, which will save all settings you entered in the query form. For more information, see the “Bookmarks” section on page 1-8.
Station Indexes

Each Niagara station includes a number of servlets with indexes into the station's database. Some of these indexes are explained in more detail in other sections of this document, but are re-listed here to provide a central point of reference.

Included are the URLs and a brief description for each of the station indexes to various resources in a Niagara station. In alphabetical order, the list of available indexes include:

- Appdb and Archive (SQL) Indexes
- Database Index
- Directory Index
- GxPage Index
- Help Index
- Log Index
- Status Index

Note

For the URLs provided in this chapter, you can enter them directly in the address bar of your current browser window (already used to access the system), or open a new browser window and enter them there.

If you open a new browser window and enter a provided URL, you will need to sign on to that station again. See “Connecting to the System (Signing On),” page 1-4, for more information.
Appdb and Archive (SQL) Indexes

A system’s SQL application database stores a system’s archived log data as well as data about alarms and alerts. Refer to Chapter 7, “Application Database,” for more details.

Accessing the SQL Indexes

The appdb (application database) is typically available from any Web Supervisor station. Some systems may also be configured with a JACE-NP controller hosting an appdb, in which case the URLs provided in Table 8-1 also apply.

Table 8-1  SQL application database access URLs.

<table>
<thead>
<tr>
<th>URL</th>
<th>Req’d User Rights</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>http://&lt;host&gt;/appdb/index</td>
<td>none</td>
<td>Lists all tables in the application database, with hyperlinks to the data for each table (in various text format outputs).</td>
</tr>
<tr>
<td>http://&lt;host&gt;/archive/index</td>
<td>admin-read</td>
<td>Lists all log archives in the application database, with hyperlinks to the data for each (in various text format outputs).</td>
</tr>
</tbody>
</table>

Database Index

A station’s db servlet provides an index that hierarchically lists all objects (nodes) in the station’s database (for which you have at least “operator read” rights), complete with links to available views. Typical views for most objects include “properties” and “links.”

Note

If you lack any read rights for any parent object, it is not available—nor are any of its child objects (regardless of their particular security settings).
ACCESSING THE DATABASE INDEX

URLs shown in Table 8-2 apply to the db servlet in any station. Enter them in the address bar of your browser to view information about objects, as needed.

Table 8-2  Database index URLs.

<table>
<thead>
<tr>
<th>URL</th>
<th>Req’d User Rights</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>http://&lt;host&gt;/db</td>
<td>operator-read</td>
<td>The database index (Figure 8-1). Lists accessible objects (nodes) in the station database, with links to available views for each.</td>
</tr>
<tr>
<td>http://&lt;host&gt;/db/&lt;swid&gt;$Properties</td>
<td>operator-read for status properties (only)</td>
<td>A properties view (Figure 8-2). Can be typed in directly for any specific object (by Swid). Typically, you just select the properties view (Properties.html) for an object listed in the index.</td>
</tr>
<tr>
<td>http://&lt;host&gt;/db/&lt;swid&gt;$Links</td>
<td>operator-read</td>
<td>Can be typed in directly for any specific object (by Swid). Typically, this URL results from selecting the “links view” (Links.html) for an object listed in the database index.</td>
</tr>
</tbody>
</table>

Properties view

From the database index, a properties view for an object provides a “snapshot” table listing the properties for which you have rights to read. If you have admin-read rights for the object, you will see all properties (Figure 8-2).

Figure 8-2  Properties view shows some properties (operator) or all properties (admin).
Links view

From the database index, a links view for an object provides a listing of which properties (if any) are linked, and the swid.property link address for each (Figure 8-3).

**Figure 8-3** An object’s link view lists linked properties (if any), with target information.

Directory Index

As a web-server, any Niagara station provides directory access to view files and directories used by the station (both station-specific files and Niagara runtime files).

Note

As a user, you require “general admin-read” rights for this type of access. If you do not have these rights, you will see “Page cannot be found” results instead of directories.

Typically when you access a station using only the host IP address or host name, you are directed to a specific view. This is your default page.

In the unlikely event that a default page is not configured (and you have general admin-read rights) you see the root-level directory index, as shown in Figure 8-4.

**Figure 8-4** Root-level directory index (typically not available, due to default page).
ACCESSING THE DIRECTORY INDEX

Because a default page is most likely configured for your station(s), you will not be able to see the “root-level” directory index, similar to what is shown in Figure 8-4.

However, you can type in URLs for specific directories (as shown in Table 8-3) and then navigate to see listings of files and other subdirectories.

Table 8-3 Directories under the root-level of the Niagara host.

<table>
<thead>
<tr>
<th>URL</th>
<th>Req’d User Rights</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>http://&lt;host&gt;/stations</td>
<td>general admin-read</td>
<td>Contains all station-specific files and subdirectories used by the currently running station. If a Web Supervisor or JACE-NP, may also include subdirectories for other stations.</td>
</tr>
<tr>
<td>http://&lt;host&gt;/tridium</td>
<td></td>
<td>Contains Java class files for different object types. If a Web Supervisor, also doc files.</td>
</tr>
<tr>
<td>http://&lt;host&gt;/nre</td>
<td></td>
<td>Contains important host files and licensing files (in the lib subdirectory). If a JACE-NP or Web Supervisor, also contains all executable for the Niagara Framework (Niagara Runtime Environment).</td>
</tr>
<tr>
<td>http://&lt;host&gt;/tridiumx</td>
<td></td>
<td>Contains subfolders for the various Niagara modules installed on the host, including Java class files and doc subdirectories.</td>
</tr>
<tr>
<td>http://&lt;host&gt;/backups</td>
<td></td>
<td>Exists if the station has the Backup Service. Contains backup zip files for the station database and SQL application database.</td>
</tr>
</tbody>
</table>

When navigating in subdirectories, note that files are indicated by a “Size” entry (in KB) and that directories are listed in bold type (Figure 8-5). Click on directories to see their contents in the browser window. Click the Parent Directory to return back.

Figure 8-5 Subdirectories are in boldface and files have a Size entry in KB.
GxPage Index

The GxPage index is a listing of GxPages (graphics), by station Swid. Each listing is a link to that GxPage (Figure 8-6).

Figure 8-6  GxPage index provides a listing of GxPages (graphics) with hyperlinks.

ACCESSING THE GX INDEX

The URL for accessing the Gx index for a station is:

http://<host>/gx/index

This produces the Gx index, as shown above in Figure 8-6.

Typically, you can click on any listed GxPage to view it. Click your browser's Back button to return to the index.

Notes

- No specific user rights are needed to see the Gx index. However, if you lack read rights to any listed GxPage, you cannot view it (“Not authorized message”).
- Your system may include JACE stations that do not serve GxPages. For such a station, you receive a “Page cannot be found message” if trying the Gx index.
Help Index

The Help index provides access to online documents for the Niagara Framework. It is the same Help included in the engineering tool (JDE, or Java Desktop Environment). The home page also includes a number of links designed specifically for station access when using a browser, such as other indexes and query forms, as shown in Figure 8-7.

Figure 8-7  Help index is intended for use mainly with a Web Supervisor station.

ACCESSING THE HELP INDEX

The URL for accessing the Help index in a station (Web Supervisor recommended) is:

http://<host>/nav

This produces the Gx index, as shown in Figure 8-6 above. Click on any link for more Help screens, or specific online documents.

Notes

- The Help index is best served by a Web Supervisor station, which includes all resources to support the various links such as manuals and graphics. If accessing the Help index in a JACE station, please realize that some items may be absent.
- No specific user rights are needed to access the Help index, however, some browser view links (Prism-related) require admin-read rights.
Log Index

Every Niagara station provides basic HTTP text-access to its logs, including a log index. The index lists all logs that you can access, and provides hyperlinks to them. For more information, see “Log Data in Text Formats,” page 5-16.

Accessing the Log Index

The URL to launch a station's log index is:

http://<host>/log/index

This produces the log index. Click on any link to see the log's buffered data.

Status Index

Stations with the WebUI Service (Web Supervisor and many JACEs) include a status servlet that provides a text-based status summary, using an “index” URL. This index features color indication for objects with “off-normal” conditions.

For more information, see Chapter 6, “Status Information.”

Accessing the Status Index

The URL to launch a station's status index (summary) is:

http://<host>/status/index

This produces the status summary. Click on any link to see an object's default view.
My System

This appendix provides tables for you to write down connection information about your system. You can print out or photocopy this appendix, and then write in the specific information for your system. Included is a small wallet-sized area that you can photocopy and keep with you for quick reference.

• My Web Supervisor
• My JACE Controllers
• Wallet “Quick Reference” Cards

Note

It is possible that your system was engineered with stations that use a “non-standard” HTTP port (and not port 80). If so, you need to include a colon (:) and this port number after the IP address or host name when you type any URL string in your web browser.

• For example, your system administrator tells you that your Web Supervisor has an IP address of 192.168.1.21, and is using an HTTP port of 312.
  To connect to your Web Supervisor, you must type in the following URL in the address bar (location bar) of your browser: http://192.168.1.21:312

• This same thing applies when you are typing in specific URLs for that station. For example, if you want to view the status index for the station above, you would need to type in this URL: http://192.168.1.21:312/status

My Web Supervisor

If your system has a Web Supervisor, you typically connect to it for system access. If your system has multiple Web Supervisors, enter them all in Table A-1.

<table>
<thead>
<tr>
<th>Description</th>
<th>IP Address (e.g. 192.168.1.101)</th>
<th>Host Name (optional if IP address)</th>
<th>Port (if not 80)</th>
<th>Connect URL (http://&lt;IP address OR Host Name&gt;)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>http://</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table A-1 My Web Supervisor(s).
### My JACE Controllers

Your system may have JACE controllers that you access instead of (or in addition to) a Web Supervisor. You can enter them in Table A-2 in your likely order of interest.

<table>
<thead>
<tr>
<th>Description</th>
<th>IP Address (e.g. 192.168.1.134)</th>
<th>Host Name (optional if IP address)</th>
<th>Port (if not 80)</th>
<th>Connect URL (http://&lt;IP address OR Host Name&gt;)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>http://</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>http://</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>http://</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>http://</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>http://</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>http://</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>http://</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>http://</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>http://</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>http://</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>http://</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>http://</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>http://</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>http://</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>http://</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>http://</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>http://</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>http://</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>http://</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>http://</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>http://</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>http://</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>http://</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>http://</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>http://</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>http://</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>http://</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>http://</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>http://</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>http://</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>http://</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>http://</td>
</tr>
</tbody>
</table>
# Wallet “Quick Reference” Cards

You may find it helpful to print these out, fill them in, and cut and fold for your wallet.

<table>
<thead>
<tr>
<th>System Access for: If Found, Please call:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Main Access: http://</td>
</tr>
<tr>
<td>Access #2 http://</td>
</tr>
<tr>
<td>Access #3 http://</td>
</tr>
<tr>
<td>Access #4 http://</td>
</tr>
<tr>
<td>Access #5 http://</td>
</tr>
<tr>
<td>Access #6 http://</td>
</tr>
</tbody>
</table>

## Commonly Used Web Supervisor URLs
(work only with Web Supervisor or JACE with database service)

<table>
<thead>
<tr>
<th>URL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alarms http:///alarm</td>
</tr>
<tr>
<td>Appdb (index) http:///appdb/index</td>
</tr>
<tr>
<td>Appdb (query) http:///appdb/query</td>
</tr>
<tr>
<td>Archives http:///archive/index</td>
</tr>
<tr>
<td>Help (online) http:///nav</td>
</tr>
</tbody>
</table>

## Commonly Used Web UI URLs
(work with Web Supervisor and any JACE with Web UI Service)

<table>
<thead>
<tr>
<th>URL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Logs (chart) http:///chart/log</td>
</tr>
<tr>
<td>Status (index) http:///status</td>
</tr>
<tr>
<td>Status (query) http:///status/queryForm</td>
</tr>
</tbody>
</table>

## Commonly Used Universal URLs
(work with all Niagara stations)

<table>
<thead>
<tr>
<th>URL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Logs (text) http:///log/index</td>
</tr>
<tr>
<td>Prism (main) http:///prism</td>
</tr>
</tbody>
</table>
Prism Servlet

Each Niagara station includes a prism servlet, a text-based utility that provides basic troubleshooting and maintenance access. This appendix provides a brief explanation of the following prism topics:

- About the Prism Servlet
- Identifying Basic Station Parameters
- Backing Up a Station
- Viewing External Link Data
- Other Prism URLs

About the Prism Servlet

The prism thread (Persistent and Real-time Information Synchronization Manager) is at the heart of every station. Using “prism URLs,” the prism servlet provides basic HTTP (browser) access to prism to review basic station configuration, verify various operations, and even perform a station backup in XML.

Prism access is universal among any Niagara host platform—the same prism URLs apply whether accessing a station in a Web Supervisor, JACE-NP, or a JACE-4 or -5.

Note

Prism-access to a station requires you to have “admin-read” rights. If you try to access a prism URL without sufficient user rights, you receive a “401 - Access Denied” result.

Indentifying Basic Station Parameters

The URL for basic prism access to any running station is:

http://<host>/prism

This produces the main prism page (Figure B-1), showing important configuration information about the station. In particular, the first few lines show the station's name, Niagara release level, host name, and total number of objects (nodes).

This page is useful for troubleshooting. Access to this page, for instance, verifies that a station is running—and provides statistics on how long it has been since it was restarted (upTime). If station issues arise, your system-support people may direct you here first.
Appendix B  Prism Servlet

Parameter Areas

The main prism page has these basic parameter areas:

- **Station/host information block**—Provides basic configuration of the station and host, including station name, Niagara software release level, host name, memory usage, object (node) count, and runtime statistics.

- **Client session/active users**—Shows connections to the station from JDE users and/or other Niagara stations (not from browser users, however).

- **Installed services**—Lists the Niagara services currently running in the station.

- **Installed modules**—Lists the Niagara modules installed on the host platform.

- **Web Server**—Lists the number of active web server threads and running servlets (browser access adds an active thread).

- **Operating system (os)/host info**—An “os.arch” of “x86” if a Web Supervisor or JACE-NP, or “ppc” if a JACE-4 or JACE-5. The “os.name” is “Windows NT” if a Web Supervisor or JACE-NP, or “VxWorks” if a JACE-4 or JACE-5.

- **JVM (Java virtual machine) parameters**—JVM vendor, version and class paths.

- **User settings**—Reflects host configuration, for example, time zone.

- **Public Dirs**—Lists directories on the host used in “public” (no password) access to the station. Typically, no directories are listed.

- **License information**—Lists the Niagara license information for the host, including organization ID, project ID, customer name and site, and licensed modules (features), including expiration dates.

Like other all-text views, prism pages are static. Use your browser’s Refresh (reload) button to update frequently changing statistics, such as memory usage and current time.
Backing Up a Station

Another prism function is the ability to download a station's database directly in your XML-capable browser (such as Internet Explorer 4.x or higher, or Netscape Communicator 4.7 or higher). Once downloaded, the database can be saved on your PC as an .xml file for possible restoration later—or perhaps just for examination.

The prism URL to backup a station's database (in XML) is:

http://<host>/prism/backup

Although not recommended for routine backups, which are done more efficiently using the JDE, it remains an option. Be aware that for a large station database, this backup (download) process can take a long time to complete—an hour or more.

If a Web Supervisor or JACE-NP station, the following URL causes the station backup to be stored locally (on the remote JACE-NP or Web Supervisor PC):

http://<host>/prism/backupLocal

Progress is displayed by the “exported” listing of all Swids in the station, in text format.

Caution

A backupLocal replaces any existing station database (in .xml format) on the remote host. Before entering this URL, please get approval from your system administrator.

PRISM XML ACCESS

Related to this, prism is also capable of downloading the XML-formatted portion of the database for any single object, given its proper station Swid in this URL:

http://<host>/prism/xml/<Swid>

For example:

http://192.168.1.131/prism/xml/demoR2/Sim/Displays/Home

downloads in XML from station “demoR2” the database portion for the GxPage object “Home,” which resides in the Swid shown above.

Viewing External Link Data

The prism servlet includes a URL that lets you see the status of external links—that is, inter-station links (between stations). Most systems with a Web Supervisor, for instance, have many external links between the Web Supervisor station and JACE stations. Each external link is characterized by its two halves: a subscription or receiving side, and a publication or sending side.

The URL for viewing status of external links is:

http://<host>/prism/externalLinks

This produces a “snapshot” of all external links in process by the station (Figure B-2).
Figure B-2  Prism external links lists current inter-station links, with statuses and values.

<table>
<thead>
<tr>
<th>Address</th>
<th><a href="http://192.168.1.101/pr%D0%B8%D0%B7%D0%BC/extlinks.html">http://192.168.1.101/prизм/extlinks.html</a></th>
</tr>
</thead>
<tbody>
<tr>
<td>stationName</td>
<td>WebBus</td>
</tr>
<tr>
<td>release</td>
<td>2.701.321.84</td>
</tr>
<tr>
<td>username</td>
<td>configproxy</td>
</tr>
</tbody>
</table>

Subscriptions (36)

```plaintext
SubscriptionTable (36)

<table>
<thead>
<tr>
<th>/some/loc/URI/123/456/Prism/Control/Coil/Valve (0)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sessions /client/session [localAddress: 192.168.1.120, groupId: 456, as name disabled:Connected, interest=1]</td>
</tr>
<tr>
<td>Values:</td>
</tr>
<tr>
<td>99.70% (ok)</td>
</tr>
<tr>
<td>Subscribers:</td>
</tr>
<tr>
<td>0 /db/abc/xyz/abcdef/ghi/prism/Control/Coil/Valve</td>
</tr>
<tr>
<td>/some/loc/URI/123/456/Prism/Control/Filter (1)</td>
</tr>
<tr>
<td>Sessions /client/session [localAddress: 192.168.1.120, groupId: 456, as name disabled:Connected, interest=1]</td>
</tr>
<tr>
<td>Values:</td>
</tr>
<tr>
<td>99.70% (ok)</td>
</tr>
<tr>
<td>Subscribers:</td>
</tr>
<tr>
<td>0 /db/abc/xyz/abcdef/ghi/prism/Control/Filter</td>
</tr>
</tbody>
</table>
```

Listed first are the station’s subscriptions, with the total number in brackets [n].

Each subscription lists the Swid of the “publishing” (sending) object and output, connection session info, last value received, and status and Swid of the receiving object and input. If a sending station is offline, the received value is typically “null”, and the status of the link is “needSub.”

Publications are listed at the bottom, with each publication showing the Swids of the sending object and output, and the receiving object and input. Publication listings are actually built by the remote sending station(s), and may be absent if a station is offline.

**Other Prism URLs**

This other prism URL is also available:

**RESOURCE COUNT**

This prism URL shows the “resource count” breakdown for a station:

```
http://<host>/prism/resources
```

Resource counts are measurements of RAM usage in the station. They are tallied in this page as “objects” (not to be confused with Niagara objects, such as log objects, etc.). Percentage figures (shown in parentheses) are typically more useful to get an idea of how RAM resources are allocated within the station’s database. You can click on listed “children” links to see what other Niagara objects they contain, and what their resource count breakdown is.
Direct-Dial Access

This appendix provides information about using your PC to directly dial into your system, using a modem “dial-up” connection over a telephone line. You can then use your browser to access the running station.

Notes

- Many Niagara systems do not include direct-dial access. If you are not sure, ask your Niagara system administrator. You must get additional connection information (phone number, host user and password) for your dial-up link to any Niagara host (Web Supervisor or JACE), as described in later sections.
- Your PC requires a working (and tested) modem, with an available phone line for calling the system. The Niagara host you are calling requires configuration to support dial-in access, including its own modem and a dedicated phone line.

The following main sections apply to direct dial access:

- Direct Dial Overview
- Direct-Dial Configuration
- Dialing the Niagara Host
- Disconnecting from the Host

Direct Dial Overview

Direct-dial access varies from the more typical network (LAN) connection because you must first establish a dial-up network (modem) connection before you can access station data. In this case, the effective network size for this connection is “two” (2), your “client” PC and the remote “server” host, a Web Supervisor or a JACE controller. The phone connection between these two points must be maintained during your access.

Direct-dial access is also much slower than access through a LAN (56K versus 10MB or 100MB), which means graphics and other pages take a lot longer to display.

Direct-dial access also differs from dial-up access through an ISP (Internet Service Provider), because when you dial and connect to the Internet this way, your (client) PC can access most any server host that has a “public” or Internet IP address. However, because of limitations of your modem (56Kbps maximum), this access is also slow.
Direct-Dial Configuration

Instead of the “normal” connection method used by your browser—typically a LAN (network) connection, or perhaps a dial-up connection to an ISP, you must have your PC and modem **directly dial** that Niagara host.

First, you must obtain additional connection information. Then you use it to configure dial-up access on your PC.

**Additional Connection Information**

The administrator for your Niagara system should provide you with the following information to make the dial-up link to a Web Supervisor or JACE controller:

- **Phone number** of the modem attached to the remote Niagara host.
- **Host user name**. This host user must have “dial-in” privileges.
- **Password** for this host user.

This information is in addition to the host IP address, station user name, and station password that you will need once the dial-in modem (host) connection is made. Refer to the “Your Connection Information” section on page 1-3.

**Windows Configuration**

In Windows, you configure for direct dial by making a new “connection object” for any Niagara host that you need to directly dial. Each connection object can store the dial-up/host information listed above.

---

**Note**

The exact procedure to create “connection objects” and use dial-up networking varies by Windows types, that is, Windows 2000, NT, XP, 95, or 98. The following example shows steps used with a Windows 2000 system and Internet Explorer.

**Direct Dial Configuration Example**

For example, the Niagara system administrator supplied this connection information:

- Niagara host phone number: 555-0101
- Host user name: Facman
- Host password: r5sebud
- Host IP address: 192.168.1.191
- Station user name: RobertB
- Station password: cub42long

The first three items are used to make the dial-up (modem) connection to the Niagara host, either a Web Supervisor or JACE controller. The last three items are used to access the station running on that host.
Using Internet Explorer, the following procedure is used:

1. From the menu bar, select Tools > Internet Options.

   ![Internet Options](image)

2. Click the Connections tab.

   Any existing dial-up connection objects appear in the window.

   ![Connections Window](image)

   - If you already have a dial-up object created for accessing the Niagara host, you can skip ahead to the next section “Dialing the Niagara Host,” page C-7.
   - If you are not using Internet Explorer, you can add a dial-up connection object through a wizard launched from the Start menu. Do this by clicking Start > Settings > Network and Dialup Connections > Make New Connection. Follow the remaining wizard steps given in this procedure.
3. In the Dial-up settings area, click the Add button. 
   A Network Connection Wizard starts.
   Select **Dial-up to private network** and then click Next.

4. In the Phone Number to Dial dialog, do the following:
   a. Click **Use Dialing rules**.
   b. Type the **Area code** and **Phone number** of the Niagara host.
   c. Click **Next**.

5. In the **Connection Availability** dialog box, click **Next**.
   This makes the connection you are creating available to all users on this PC.
6. At the **Finished** dialog box, do the following:

   a. Type a name for the connection. This is the name that will appear in the Connections tab of the Internet Explorer’s **Internet Options** dialog.

   b. Click **Finish**.

   The wizard ends, and a `<Connection Name>` Settings dialog appears.

7. In the Dial-up settings fields, do the following:

   a. In the **User name** field, type the supplied host user name.

   b. Leave the **Password** field blank, and press **OK**.

   (Alternately, you could enter the supplied host password, but this would allow anyone with access to your PC to make this dial-up connection.)

   The connection object is now ready for dialing. You should make sure that your PC’s modem is ready and tested before trying a connection.

   - If you accessed the wizard through the Internet Explorer, the new connection appears in the list of Dial-up settings. See **Figure C-1**.
   - If you accessed the wizard through the Start menu, you can start the dial-up connection by merely clicking Dial. See **Figure C-2**. Open your browser and continue with the next procedure, starting with step 5.
Figure C-1  Internet Explorer showing new Niagara dial-up connection object.

Figure C-2  Dial-up connection dialog if done from Start menu.
Dialing the Niagara Host

If using Internet Explorer, you can set the connection method from the Internet Options dialog (from the menu bar, Tools > Internet Options > Connections tab, as shown in Figure C-1).

**Note**
After your dial-up session to the Niagara host is over, you typically should set the following options on the Connections tab back to their original settings.

1. Click *Always dial my default connection*.
2. Click on the dial-up Niagara host needed, to highlight it.
3. Click *Set Default*. (If this connection is already default, this is already set).
4. Click *OK* to close the dialog.
5. In URL of the browser, type the host IP address supplied by your Niagara system administrator into the *address bar* (location bar) in your browser.
   You can include the leading `http://` portion (or omit it if desired). (Do not include “www” characters.)

6. Press ENTER.
   The *Dial-up Connection* dialog appears.
   Type in the *host* password and press *Connect*. 

---

Dialing the Niagara Host

C–7

Niagara Browser Access Guide

Revised: August 15, 2002
Dialing the Niagara Host

Your modem goes off-hook and dials the remote Niagara host. Depending on how your modem is configured, you may hear connection noises such as dialing and carrier negotiations between the two modems.

You may also see results in the status pane of the Dial-up Connections dialog.

7. A successful host connection collapses the Dial up Connections dialog and typically places a Dial-Up Monitoring icon in your system tray. You are connected to the Niagara host, but not yet signed into the station.

8. Typically, a popup dialog box prompts for your station user name and password. If not, re-enter the host’s IP address in your browser’s URL.

9. Type your supplied station user name.

10. Press TAB to move to the next field, and type your supplied station password. (Each password character you type displays as an (*) asterisk.)

11. Press ENTER to send your logon information to the station. If accepted (information is correct), your assigned home page begins to display. This may be a top-level graphic of your system, a graphic plus a menu frame, or something completely different, depending on how your system was built.
If not accepted, you will be re-prompted (the popup dialog box remains with the entered user name, but the password is cleared). Check your information, correct any errors, and try again. Note: Within any browser window, three logon tries are permitted before you receive a “401 Error: Access Denied.”

**Disconnecting from the Host**

After you are finished with your dial-up access, you should always end by **disconnecting**. This does not mean simply closing your browser window (the dial-up connection remains active).

Instead, click the **Dial-up Monitor icon** in the system tray (lower right of screen), which produces a connection Status dialog (Figure C-3). Then click **Disconnect**.

**Figure C-3** End your dial-up access by disconnecting the host connection.

![Dial-up Monitor Status](image)

**Note** You can also simply **right-click** the Dial-up Monitor icon, and then select **Disconnect**.
A

acknowledge 4-2, 4-4
alarms 4-4
alerts 4-6
unsuccessful 4-5
acronyms and terms viii
adding
  events in a schedule 3-8
  holidays 3-14
  special events 3-10
address bar, browser 1-4, C-7
admin commands 2-12
alarms 4-1, 7-4
acknowledging 4-4
alerts 4-2
currently in 6-7
display page 1-7, 4-4
events (alarms) 4-2
history 7-4
status color indication 2-4, 6-7
summary 4-3
alarms and alerts 4-3, 7-4
alerts 4-1
acknowledging 4-6
display page 4-6
history 7-4
analog
  log 5-2
  output commands 2-9
timed override 2-10, 2-11
appdb viii, 7-2
  index to 7-5

appendix
  My System A-1, C-1
application database. See appdb
archive command,clear command 2-12
archives 5-2, 5-13, 7-2
  index to 7-6
  name convention 7-3
  vs. logs 7-2
audit log 1-12, 7-3

B

Back button 1-7
backup, prism B-3
binary
  log 5-2
  output commands 2-9
timed override 2-11
blinking red status 2-4
bookmarks 1-8, 6-8, 7-8
bounding box 1-9
browser viii, 1-2, 1-7
  address bar 1-4, C-7
  Back and Forward buttons 1-7
  bookmarks (favorites) 1-8
  closing window 1-11
  controls 1-6
  Refresh button 1-7
  requirements 1-2
  window 1-8
  buffer, log 5-2, 7-2
C

calendar 3-3, 3-13
   scroll arrows 3-13
   view 1-10

cleanup Specials command 2-12

closing browser window 1-11, 1-12

color
   in status summary 6-4
   logs in chart 5-14
   of elements in GxPage 2-4

commands 1-3
   administrative 2-12
   analog output 2-9
   binary output 2-9
   bounding box 1-9
   CAUTION 1-9
   default labels 2-8
   issuing 2-6
   menus 1-9, 2-8
   multi-state output 2-10
   priority levels 2-8
   timed override 2-10

connecting to the system 1-4
   direct-dial access C-2

control bar, log chart 5-3, 5-4, 5-6
   button definitions 5-6
   toggling on or off 5-4

control commands 2-8

cursor 1-6, 5-4

cyan color
   in GxPage 2-6
   in status summary 6-4

database (station) index 8-2, 8-3

deleting
   events in a schedule 3-9
   holiday 3-16
   special events 3-12

dial-up access C-2

directory index 8-4, 8-5

disconnecting (dial-up access) C-9

down status 2-5

E

error log 7-3

events in schedule 3-2
   adding 3-8
   deleting 3-9
   modifying 3-7

Excel, importing text data into 5-15

external links, viewing B-3

F

FAQs 1-12

fault condition 2-4, 6-4

favorites 1-8

filter
   log selector 5-12
   status query 6-6

firewall 1-2

Forward button 1-7

frequently asked questions 1-12

G

graphics. See GxPage

GxPage ix, 2-2
   image elements in 2-2
   index of 8-6
   status (color) indication in 2-3
   text elements in 2-2
Index

H

Help index 8-7
history, alarms and alerts 7-4
holidays 1-10, 3-3, 3-13
  adding 3-14
  colors of 3-14
  deleting 3-16
  examples 3-17
  list 3-14
  schedule for 3-4
home page 1-12
host name 1-3, 1-4, C-7
host user and password C-5
HTTP ix, 1-2
  port number A-1
hyperlink ix, 1-6

I

images in GxPages 2-2
importing text data into Excel 5-15
index 8-1
  appdb 7-5, 8-2
  archive 7-6, 8-2
  directory 8-4, 8-5
  GxPage 8-6
  Help 8-7
  log 8-8
    station database 8-2, 8-3
    status 8-8
  integer log 5-2
Internet Explorer 1-2, 1-8, 3-13, C-2, C-7
IP address 1-3, 1-4, C-7

J

JACE ix, 1-4, 1-12, 3-2, A-2, B-1
Java 1-2
JDE 7-3, 8-7, B-2, B-3

L

legend, log chart 5-3, 5-4, 5-5
  toggling on or off 5-4
license information B-2
limits
  alarm 4-2
    in command 2-7, 2-9
links table 8-4
list holiday 3-14
location bar 1-4, C-7
log chart 1-10, 5-3
  areas 5-3
  control bar 5-4, 5-5, 5-6
  legend 5-4
  multiple logs 5-9
  saved log charts 5-7
  units 5-12
  viewing 5-3
  y-axis 5-12
  zoom in 5-5
  zoom out 5-5
log selector 5-8
  filter 5-12
    for single item 5-14
    selection filters 5-10
  start and end times 5-11
  text output options 5-14
  title 5-8, 5-10
logging on 1-4
logs
  buffer 5-2
  charting multiple 5-9
  charts 5-2, 5-3
  color in chart 5-14
  data 5-2
  index 8-8
  types 5-2
  vs. archive 7-2
M

maximizing
browser window 1-8
log chart data area 5-4

menu
drop-down 6-7
Internet Explorer 1-2
Netscape Communicator 1-2
right-click 1-9, 2-6, 2-11, 2-12
Microsoft VM (virtual machine) 1-2
modem (direct-dial) access C-2
modifying
holidays 3-14
schedule 3-7
schedules 3-6
multi-state
log 5-2
output commands 2-10
timed override 2-10
multi-state log 5-2
My System appendix A-1, C-1

N

Netscape Communicator 1-2, 1-8
Network Connection Wizard (dial-up access) C-4
notifications (alerts and alarms) 7-4

O

objects ix, 2-1, 2-4, 2-6, 6-3
alarm limits 4-2
alerts (binary objects) 4-3
alerts and alarms 7-4
database index 8-2
resources B-4
security groups 4-4, 4-6
status of 6-1, 6-2
status query 6-6
total number in station B-1
type abbreviations 6-8
off-normal status 2-3, 6-4
orange color
in GxPage 2-4
in status summary 6-4
out of service status 2-6, 6-4
override (timed)
  analog 2-10, 2-11
  binary 2-11
  multi-state 2-10
override commands 2-10

P

password 1-3, 1-4, 1-12
port, HTTP A-1
priority
  command levels 2-8
  special events 3-10
prism B-1
  backup function B-3
  external links B-3
  license data B-2
  main page B-1
  main parameters B-2
  resource count B-4
  servlet B-1
  XML access B-3
Index

properties table 6-4, 8-3
public access 1-5
publication B-4

Q

queryForm 6-6
  appdb 7-7
  status 6-5, 6-6
quick reference cards A-3

R

red color
  in GxPage 2-4
  in status summary 6-4
Refresh button 1-7, 4-3, 6-2, 6-5
resource count, prism B-4
right-click commands 1-9, 2-6, 2-12
rights 1-3, 1-9, 1-10, 1-12, 2-4, 2-6, 2-12, 4-2, 4-4, 4-5, 4-6, 8-2, 8-4, 8-6, B-1
rotating buffer, log 5-2

S

schedule 3-2
  cleanupSpecials command 2-12
  events 3-2, 3-7, 3-8, 3-9
  holiday 3-2, 3-4
  special events 3-5, 3-10, 3-12
  summary view 3-3
  weekly 1-10, 3-4
select statement, SQL query 7-8
selector, logs 5-8
signing off 1-11
signing on 1-4, 1-12, C-8
snapshot 1-7, 4-3, 6-2, 8-3, B-3
special events 3-2, 3-5
  adding 3-10
  deleting 3-12
SQL
  application database 7-2
  query examples 7-8
  queryForm 7-7
station ix
  archives 7-3
  directories 8-4
  indexes 8-1
  multiple 1-12
status 2-3, 2-4, 6-2
"off-normal" colors 6-4
down 2-5
fault 2-4
in alarm 2-4
index 8-8
indication in GxPages 2-3
summary 6-2, 6-3
status line
  browser 1-11
  command limits 2-7
  log chart 5-4
string log 5-2
subscription B-4
summary 4-3
  alarms and alerts 4-3
  schedule 3-3
  status 6-3
Swid x, 6-3, B-4
system administrator 1-3, 1-4, 1-9, 1-12, A-1, B-3, C-7

T

tables, SQL (appdb) 7-2
terms and acronyms viii
text data, importing into Excel 5-15
text in GxPages 2-2
title bar, window 1-8
Type filter, status query 6-8
U

unacknowledged alarms 4-1, 6-4, 6-7
units, log chart 5-12, 5-13
URL. x, 1-4, 4-3, 4-4, 4-6, 5-7, 5-8, 5-16, 6-3, 6-5, 7-5, 7-6,
7-7, 8-3, 8-5, 8-6, 8-7, A-1, B-1, B-3, B-4
user
  name 1-3, 1-4, C-2
  password 1-3, 1-4, C-2
  rights 1-3

V

value range in command 2-7
views (special) 1-10
VM (virtual machine), Microsoft 1-2

W

wallet-sized quick reference A-3
web browser. See browser
Web Supervisor x, 1-4, 1-12, 3-2, 4-3, 5-2, 6-2, 6-5, 7-2,
7-5, 7-6, 7-7, 8-7

WebUI Service x, 5-8, 6-1
weekly view, schedule 1-10, 3-4
wildcard 3-11, 3-15, 6-6, 7-8
window controls 1-8

X

x-axis in log chart 5-5
XML x, 5-14, 6-8, 7-8, B-3

Y

y-axis in log chart 5-12
yellow color
  in GxPage 2-5
  in status summary 6-4

Z

zoom in 5-5
zoom out 5-5
You can help make this manual even better!

Please help us make our documentation as useful as possible. Use this form to advise us of errors, descriptions that are not clear, or provide any other helpful information.

**Mail this form to:**

Tridium, Inc.
3951 Westerre Parkway, Suite 350
Richmond, Virginia 23233
Attention: Tridium Documentation Team

**Or fax is to us at:** (804) 747-5204

**Or e-mail your comments to us at:** documentation@tridium.com

Thank you for taking the time to help us improve our documentation!

### Documentation Comment Form

<table>
<thead>
<tr>
<th>Document Title:</th>
<th>Niagara Browser Access Guide</th>
</tr>
</thead>
<tbody>
<tr>
<td>Document Version:</td>
<td>Niagara Release 2.3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Page #</th>
<th>Problem Found or Suggested Change</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Your Name:**

**Your Company:**