System 800xA
PC, Network, and Software Monitoring Operation

System Version 6.0
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PC, Network, and Software Monitoring
Operation

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About This User Manual

General

Any security measures described in this User Manual, for example, for user access, password security, network security, firewalls, virus protection, etc., represent possible steps that a user of an 800xA System may want to consider based on a risk assessment for a particular application and installation. This risk assessment, as well as the proper implementation, configuration, installation, operation, administration, and maintenance of all relevant security related equipment, software, and procedures, are the responsibility of the user of the 800xA System.

This User Manual describes setup and configuration activities for Asset Optimization Asset Monitoring, Maximo Integration, SAP/Plant Management (SAP/PM) Integration, Device Calibration Integration, the Control Loop Asset Monitor (CLAM), and the Generic (HXAM-G) and Shell and Tube (HXAM-ST) Heat Exchanger Asset Monitors. This product functionality consists of system extensions to the 800xA System product.

User Manual Conventions

Microsoft Windows conventions are normally used for the standard presentation of material when entering text, key sequences, prompts, messages, menu items, screen elements, etc.

Feature Pack

The Feature Pack content (including text, tables, and figures) included in this User Manual is distinguished from the existing content using the following two separators:
Feature Pack Functionality

Feature Pack functionality included in an existing table is indicated using a table footnote (*):

* Feature Pack Functionality

Unless noted, all other information in this User Manual applies to 800xA Systems with or without a Feature Pack installed.

Warning, Caution, Information, and Tip Icons

This User Manual includes Warning, Caution, and Information where appropriate to point out safety related or other important information. It also includes Tip to point out useful hints to the reader. The corresponding symbols should be interpreted as follows:

Electrical warning icon indicates the presence of a hazard that could result in electrical shock.

Warning icon indicates the presence of a hazard that could result in personal injury.

Caution icon indicates important information or warning related to the concept discussed in the text. It might indicate the presence of a hazard that could result in corruption of software or damage to equipment/property.

Information icon alerts the reader to pertinent facts and conditions.

Tip icon indicates advice on, for example, how to design your project or how to use a certain function.

Although Warning hazards are related to personal injury, and Caution hazards are associated with equipment or property damage, it should be understood that operation of damaged equipment could, under certain operational conditions, result in degraded process performance leading to personal injury or death. Therefore, fully comply with all Warning and Caution notices.
Documentation of Third Party Software

This User Manual describes third party software to the extent that it applies to Asset Optimization. Specific information relating to the installation, setup, configuration, and operation of third party software can be found in the manufacturer’s documentation.

Terminology

A complete and comprehensive list of terms is included in System 800xA System Guide Functional Description (3BSE038018*). The listing includes terms and definitions that apply to the 800xA System where the usage is different from commonly accepted industry standard definitions and definitions given in standard dictionaries such as Webster’s Dictionary of Computer Terms.

Released User Manuals and Release Notes

A complete list of all User Manuals and Release Notes applicable to System 800xA is provided in System 800xA Released User Documents (3BUA000263*).

System 800xA Released User Documents (3BUA000263*) is updated each time a document is updated or a new document is released. It is in pdf format and is provided in the following ways:

- Included on the documentation media provided with the system and published to ABB SolutionsBank when released as part of a major or minor release, Service Pack, Feature Pack, or System Revision.
- Published to ABB SolutionsBank when a User Manual or Release Note is updated in between any of the release cycles listed in the first bullet.

A product bulletin is published each time System 800xA Released User Documents (3BUA000263*) is updated and published to ABB SolutionsBank.
Section 1  Introduction

Product Overview

Standard PC and network equipment is used extensively in automation systems. The correct behavior and status of this equipment has a significant impact on the performance, reliability, and functional availability of an automation system and thus the industrial process being controlled.

The PC, Network and Software Monitoring (PNSM) software can independently monitor the status of Information Technology (IT) Assets. By default, IT Asset status is viewable through the 800xA System Status Viewer, or through the standard faceplates provided with each of the predefined IT Assets. When used in conjunction with Asset Optimization Asset Monitoring, alarms can be generated based on error conditions, and IT Asset status is viewable through the Asset Viewer and Asset Reporter.

Asset Optimization functionality is not available unless Asset Optimization Asset Monitoring has been installed and a license has been purchased. Refer to System 800xA - Asset Optimization, Configuration (3BUA000118*) and System 800xA - Asset Optimization, Operation (3BUA000150*) for detailed information pertaining to Asset Optimization Asset Monitoring.

Once PNSM is installed in the 800xA System, the data can be used to:

- Generate alarms
- Produce historical reports
- Update live trends and graphics
- Receive alert or trap messages from ESXi Server

Basic computer monitoring builds upon this framework to simplify the process of monitoring workstation nodes in an 800xA system. Workstation nodes are
monitored for key health indicators and alarms are generated if monitored values deviate from expected limits.

Product Scope

PC, Network and Software Monitoring is comprised of the following components:

- An OPC server (PC, Network and Software Monitoring Server) that supplies IT Asset data to the system.
- A set of IT Aspect types that access the IT status data inside the Operator Workplace making the IT status data available to any 800xA System client application.
- A set of predefined Object Types that allow a user to easily set up monitoring for many commonly used devices.
- An interface to Asset Optimization Asset Monitoring that generates alarms based on the state of the IT assets.
- SNMP Trap service to receive the trap messages from IT devices and generate alarm & event notifications in the system.

Data comes into the system through Windows Management Instrumentation (WMI) technology. WMI is a standard interface for IT instrumentation, and it supports a number of communications protocols, including the Simple Network Management Protocol (SNMP). SNMP is the standard communications protocol used to monitor and manage network devices.

The PC, Network and Software Monitoring Server uses WMI to access live status information that is sent to the operator workplace by the standard OPC interface. The operator workplace makes the data available for use by any part of the system. It is accessible by properties on the asset objects configured in the operator workplace.

Asset Optimization Asset Monitoring uses OPC properties to access data, and determine if alarm conditions exist by using user-defined configuration data. If an alarm condition exists, Asset Optimization Asset Monitoring generates alarm messages to the Operator Workplace. The alarm messages are then integrated into the normal alarm stream and displayed using the standard alarm display tools.
In addition to the OPC access to IT device data, PC, Network and Software Monitoring Server receives the trap messages from IT devices. The trap messages are converted into the alarm and event messages.
The architecture drawing is as shown in Figure 1:

**Figure 1. PC, Network and Software Monitoring Architecture**

PC, Network and Software Monitoring uses the following terms to define its structure:

- **IT Assets:**
  - Represent real things such as computers, routers, switches, printers, etc.
  - Typically specified using an IP address.

- **IT Devices:**
  - Components of IT Assets. Parts of the IT Asset that have information to monitor.
  - May be a physical device (example, network card) or a software component (e.g. Operator Workplace).
  - IT Assets typically consist of multiple IT Devices.
  - The same IT Device may exist in different types of IT Assets (e.g. the same process may run on different computer configurations).
Properties:
- Individual data elements that can be monitored on an IT Device (example, error rate on a particular port on a particular switch).
- Many properties may exist on a single IT Device.

Basic Computer Monitoring consists of a set of predefined 800xA system objects and a configuration tool that together provide the functionality required for configuration and monitoring.
Section 2  IT Assets in 800xA

Basic Computer Monitoring

Basic Computer Monitoring automatically monitors all 800xA System workstation nodes and alerts the operator of potential workstation resource problems through alarm messages.

Alarm State

When a workstation goes into a low resource state an alarm will appear on the Alarm and Event list. It will indicate the workstation that has the problem and will indicate a Computer Problem of type Resource Alarm, as shown in Figure 2.

![Figure 2. Alarm and Event List Showing Resource Alarms](TC08133A)
Basic Computer Monitoring

The operator will then need to call up the faceplate for the specific asset to see the exact cause of the problem. Figure 3 shows an example alarm faceplate.

![Alarm Faceplate](TC08131A)

*Figure 3. Alarm Faceplate*

When a workstation is in the low resource alarm state, the faceplate will indicate in red, the type of resource problems and the actual value of the resource. Depending on the resource, the faceplate indicates the free memory and disk space or the used CPU load and non-paged pool.

The details of the alarm are also sent to the NT Application log. The event contains the time of the occurrence of the error, the workstation node, and the resource that caused the alarm. The source for the events in the log is VBRuntime.

**Normal State**

The faceplate has two ways to indicate that the resource is normal and not in an alarm state:

- **Computer nodes that have never been in an alarm state:** Normal in green.
- **Computer nodes that have returned to normal from an alarm state:**
  Normal in green with details about of previous alarm state. The format is as follows:

  Normal (Last State: *previous alarm state*)

  For example:

  Normal (Last state: CPU Overload)

### PNSM System Status Viewer Aspect

PNSM has a System Status viewer aspect that can be used to see the status of all workstation nodes being monitored in a single display.

This aspect is found in the Control structure under the IT Server object. Selecting this aspect calls up the viewer as shown in Figure 4.

![Figure 4. PNSM System Status Viewer](TC08138A)

All workstation nodes monitored appear under the Basic Computer Monitoring subdirectory. The description column indicates **OK** if the resource is healthy or **Basic Computer Device-ResourceAlarm** if the workstation node is in a low resource state. Right click the row for the workstation node in alarm to call up a context menu and select the faceplate option.
Process Monitoring

Overview

In versions prior to 5.1, the Computer Node IT assets monitoring of processes such as Handle/ Memory/Thread was preconfigured. In 800xA Release 5.1, one instance of light generic computer process asset type should be configured for every software process to be monitored. It is normally not required to monitor all processes but only processes suspected of high resource utilization on need basis.

Faceplate

This faceplate displays the resource utilization alert status of a monitored software process.

Figure 5 displays the Light Generic Computer process Asset.

For a detailed description of the steps to configure a Light Generic Computer Process Asset refer to the section Light Generic Computer Process Configuration in 800xA PC, Network, and Software Monitoring Configuration (3BUA000447*)
When the monitored process is successfully configured and operational, all resource related status will be updated in the faceplate as shown in Figure 5.

**Alarm List**

Alarms are generated when a process is monitored using a light generic computer process asset and the monitored resource exceeds the preset value as defined in the
Process.alarm and Process.Alert aspect. Refer to Figure 6

Table 1 lists the alert status for Light Generic Computer Process under different operating conditions.

Table 1. Process monitoring alert Status

<table>
<thead>
<tr>
<th>Condition</th>
<th>Alert Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>The process to be monitored is not configured</td>
<td>None</td>
</tr>
<tr>
<td>The process to be monitored is configured but not running</td>
<td>Bad</td>
</tr>
<tr>
<td>The process to be monitored is running but the process resources exceed the alarm pre-sets.</td>
<td>Alarm</td>
</tr>
<tr>
<td>The process to be monitored is running but the process resources exceed the alert pre-sets.</td>
<td>Warning</td>
</tr>
</tbody>
</table>

Figure 6. Alarm List - Light Generic Computer Process Alarm

Table 1 lists the alert status for Light Generic Computer Process under different operating conditions.

Figure 6. Alarm List - Light Generic Computer Process Alarm

Table 1 lists the alert status for Light Generic Computer Process under different operating conditions.
PNSM Device Library

PC, Network and Software Monitoring Device object types are a part of PNSM device library that can be readily used for device monitoring. They contain one or more preconfigured IT devices that monitor important conditions/status. The faceplate view provides the overall device status.

The device object type when installed and configured, automatically monitors the device conditions and alerts the operator of potential device problems through alarm messages.

For more information on prerequisites, installation/postinstallation procedures refer to 2PAAxxxxxx Release Notes for each device object type located in ABB SolutionsBank.

PNSM Device Library Aspects

Aspects of PNSM Device Library from Operations point of view are described in this section.

Faceplate

Faceplate provides Reduced, Faceplate and Extended views to monitor the device. The object and device parameter configurations like Device IP address, WMI property value etc, are done from configuration tab of the Faceplate. The device condition is displayed in the Reduced view of the Faceplate as shown in Figure 7.
Figure 7. Reduced View of the Faceplate
The device information is displayed in the Reduced view of the Faceplate as shown in Figure 8. This view provides basic information about the device name, description, location and the contact information.

The different states of the IT assets are:

Normal - Green
Alarm - Red
Alarm List

When one or more monitoring signals of the device go to an abnormal state, an alarm appears in the Alarm and Event list indicating a problem with the device. Alarm messages are displayed as shown in Figure 10.
Right click on alarm row in the alarm list for different views such as Faceplate view as shown in Figure 11. To view the device summary click the **Conditions** tab.

*Figure 11. Browsing to a faceplate element from alarm list*

Right click on alarm row in the alarm list to go to Webserver aspect view. **Figure 12** shows WebServer aspect.
Asset Monitor

Asset Monitor executes at scheduled intervals and checks for any fault conditions (as configured in the Device Configuration) in the device. Asset Monitor generates an alarm for the active faults in the device being monitored.

Figure 13 Displays the Asset Conditions View.

Figure 12. Browsing to a webserver aspect from alarm list
Section 2  IT Assets in 800xA

Product Identification and Serial Information

This aspect displays information about the device.

Figure 14 displays the Product Identification

Figure 13. Asset Conditions View

Figure 14. Product Identification

Figure 15 displays the device serial number information.
Product Documentation

The related documentation of the IT Asset is provided along with the object type. The document includes technical information, operating instructions, maintenance information.

Graphic Element

This feature provides an overall status of monitoring signals for this device. This graphic element can be used in graphics display for device monitoring.

Figure 16 shows the Graphics Display.
Figure 16. Graphics Display
Simple Network Management Protocol (SNMP) and Traps

Overview

Simple Network Management Protocol (SNMP) is a protocol for managing IT assets on network. It is used for collecting information from assets such as servers, workstations, printers, hubs, switches, and routers on a network. The SNMP has following versions.

- SNMP v1 - Community-based security
- SNMP v2 - Community-based security
- SNMP v3 - User-based security

SNMP provides the ability to send traps, or notifications, to advise a user when one or more conditions have been met. In order to monitor the IT assets in System 800xA, SNMP trap support is added to PC, Network and Software Monitoring.

SNMP Trap is an unsolicited message that is initiated by an IT asset (agent) and sent to the network management system (manager). If an event has occurred, the agent communicates it to the manager using the Trap. Traps are sent asynchronously and not in response to the queries from the manager. The manager is responsible for performing an action, based on the Trap it receives from the agent. SNMP trap messages are presented as Alarms or Events in System 800xA. It is possible to configure the severity and notification type (alarm or event) for every trap message.
ESXi Server Monitoring

Overview

Virtualization for 800xA has been supported for a basic physical server configuration running the full VMware ESXi. ESXi is embedded directly into the firmware of the server allowing the server to boot directly into ESXi. ESXi does not support the service console (and does not support any management software) that was available in ESX. Hence monitoring of ESXi server hardware using OPC server is not possible.

Apart from this SAN devices, which are connected in the ESXi network, have the capability to generate SNMP traps. In order to monitor the ESXi server hardware and SAN devices in System 800xA, SNMP trap support is added to PC, Network and Software Monitoring.

SNMP Trap is an unsolicited message that is initiated by an IT asset (agent) and sent to the network management system (manager). If an event has occurred, the agent communicates it to the manager using the Trap. Traps are sent asynchronously and not in response to the queries from the manager. The manager is responsible for performing an action, based on the Trap it receives from the agent. SNMP trap messages are presented as Alarms or Events in System 800xA. It is possible to configure the severity and notification type (alarm or event) for every trap message.

💡 Configure error or warning trap messages as alarms and information trap messages as events.

ℹ️ The device specific object types for ESXi Server Monitoring are included in the PNSM Library. Refer to the object type release notes for the configuration information.

ℹ️ Refer to System 800xA 5.1 Virtualization (3BSE056141*) to set up the virtual environment.
An alarm for a trap message is meant to alert the user about a possible fault in an IT Device. An alarm is always reported in the unacknowledged & inactive state. The alarm disappears from the alarm list as soon as user acknowledges it.

Event list includes informational messages that do not require any particular action to be taken.

**Figure 17** shows the Traps represented as alarms in the 800xA system.

<table>
<thead>
<tr>
<th>AckState</th>
<th>EventTime</th>
<th>AckTime</th>
<th>ObjectName</th>
<th>ObjectDescription</th>
<th>Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>4/19 23:54:16</td>
<td>xxxxxxx</td>
<td>10</td>
<td>HP ESXi server</td>
<td>cpqDM2AcceBatteryFailed</td>
</tr>
<tr>
<td>2</td>
<td>4/19 23:54:16</td>
<td>xxxxxxx</td>
<td>10</td>
<td>HP ESXi server</td>
<td>cpqES2AcceBadDataTrap</td>
</tr>
<tr>
<td>3</td>
<td>4/19 23:54:15</td>
<td>xxxxxxx</td>
<td>10</td>
<td>HP ESXi server</td>
<td>cpqESAcceBatteryFailed</td>
</tr>
<tr>
<td>4</td>
<td>4/19 23:54:15</td>
<td>xxxxxxx</td>
<td>10</td>
<td>HP ESXi server</td>
<td>cpqH2AppError</td>
</tr>
<tr>
<td>5</td>
<td>4/19 23:54:15</td>
<td>xxxxxxx</td>
<td>10</td>
<td>HP ESXi server</td>
<td>cpqH2FirmwareSupplyDegraded</td>
</tr>
<tr>
<td>6</td>
<td>4/19 23:54:15</td>
<td>xxxxxxx</td>
<td>10</td>
<td>HP ESXi server</td>
<td>cpqH2PosError</td>
</tr>
<tr>
<td>7</td>
<td>4/19 23:54:14</td>
<td>xxxxxxx</td>
<td>10</td>
<td>HP ESXi server</td>
<td>cpqH2ThermalCpuFanFailed</td>
</tr>
<tr>
<td>8</td>
<td>4/19 23:54:14</td>
<td>xxxxxxx</td>
<td>10</td>
<td>HP ESXi server</td>
<td>cpqH2ThermalSystemFanDegraded</td>
</tr>
<tr>
<td>9</td>
<td>4/19 23:54:14</td>
<td>xxxxxxx</td>
<td>10</td>
<td>HP ESXi server</td>
<td>cpqH2ThermalSystemFanFailed</td>
</tr>
<tr>
<td>10</td>
<td>4/19 23:54:14</td>
<td>xxxxxxx</td>
<td>10</td>
<td>HP ESXi server</td>
<td>cpqH2ThermalTempDegraded</td>
</tr>
<tr>
<td>11</td>
<td>4/19 23:54:14</td>
<td>xxxxxxx</td>
<td>10</td>
<td>HP ESXi server</td>
<td>cpqH2ThermalTempFailed</td>
</tr>
<tr>
<td>12</td>
<td>4/19 23:54:14</td>
<td>xxxxxxx</td>
<td>10</td>
<td>HP ESXi server</td>
<td>cpqH2CorrectableMemoryLogDisabled</td>
</tr>
<tr>
<td>13</td>
<td>4/19 23:54:14</td>
<td>xxxxxxx</td>
<td>10</td>
<td>HP ESXi server</td>
<td>cpqH2CorrectableMemoryError</td>
</tr>
</tbody>
</table>

**Figure 17. Traps Represented as Alarms**
Figure 18 shows the Traps represented as events in the 800xA system.

<table>
<thead>
<tr>
<th>PriorityLevel</th>
<th>EventTime</th>
<th>ObjectName</th>
<th>LongMessage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>4/19 23:54:15</td>
<td>10 cpcDa2AcceStatusChange: &quot;Accelerator Board Status Change. This trap signifies the status of the Accelerator Board.&quot;</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>4/19 23:54:15</td>
<td>10 cpcDa2PhyDrvThresPassedTrap: &quot;Physical Drive Threshold Passed. This trap signifies that the threshold for the physical drive has been passed.&quot;</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>4/19 23:54:15</td>
<td>10 cpcDa2PhyDrvStatusChange: &quot;Physical Drive Status Change. This trap signifies the status of the physical drive.&quot;</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>4/19 23:54:15</td>
<td>10 cpcDa2SpareStatusChange: &quot;Spare Drive Status Change. This trap signifies that the spare drive has been activated or deactivated.&quot;</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>4/19 23:54:15</td>
<td>10 cpcDa2LogDrvStatusChange: &quot;Logical Drive Status Change. This trap signifies the status of the logical drive.&quot;</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>4/19 23:54:15</td>
<td>10 cpcDa2AcceBadDataTrap: &quot;Accelerator Board Bad Data. This trap signifies that the accelerator board has bad data.&quot;</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>4/19 23:54:15</td>
<td>10 cpcDa2AcceStatusChange: &quot;Accelerator Board Status Change. This trap signifies the status of the accelerator board.&quot;</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>4/19 23:54:15</td>
<td>10 cpcDa2PhyDrvThresPassedTrap: &quot;Physical Drive Threshold Passed. This trap signifies that the threshold for the physical drive has been passed.&quot;</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>4/19 23:54:15</td>
<td>10 cpcDa2PhyDrvStatusChange: &quot;Physical Drive Status Change. This trap signifies the status of the physical drive.&quot;</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>4/19 23:54:15</td>
<td>10 cpcDa2SpareStatusChange: &quot;Spare Drive Status Change. This trap signifies that the spare drive has been activated or deactivated.&quot;</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>4/19 23:54:15</td>
<td>10 cpcDa2LogDrvStatusChange: &quot;Logical Drive Status Change. This trap signifies the status of the logical drive.&quot;</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>4/19 23:54:15</td>
<td>10 cpcDa2GenericTrap: &quot;Generic trap.&quot;</td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>4/19 23:54:15</td>
<td>10 cpcDa2ThermalConfirmation: &quot;The server is operational again. The server has previously been shut down due to thermal issues.&quot;</td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>4/19 23:54:15</td>
<td>10 cpcDa2FanConfirmation: &quot;The server is operational again. The server has previously been shut down due to fan issues.&quot;</td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>4/19 23:54:15</td>
<td>10 cpcDa2ThermalCpuFanOk: &quot;The CPU fan status has been set to ok. Any previous errors have been resolved.&quot;</td>
<td></td>
</tr>
</tbody>
</table>
Deprecated IT Asset Faceplates

A set of IT Asset object types are deprecated since the release of 800xA 5.1. New enhancements (Process Graphics 2 and Native Language Support) are not applied to deprecated IT Asset type objects. Replacements for deprecated IT Asset type objects are available in PNSM Device Library.

The deprecated IT Asset type objects are delivered with ABB PNSM VB Graphics Extension. To access these object types add the system extension.

The PC, Network and Software Monitoring has two types of preconfigured IT Faceplates:

- **IT Faceplates**: The following IT Assets contain IT Faceplates:
  - Printer IT Faceplate.
  - Hirschmann RS2 IT Faceplate.
  - Symmetricom XLI Clock Faceplate.

- **Auto-Populating Faceplates**: All other IT Assets contain Auto-Populating Faceplate.

Refer to *System 800xA - PC, Network and Software Monitoring, Configuration (3BUA000447*)* to set up and configure the faceplates described in this section.

Printer IT Faceplate

The faceplate aspect for the printer contains a set of elements that provide information on the working status of the printer. Although the colors of some of the element values may change, none of the values are acknowledged.

*Table 2* lists the Printer IT Faceplate elements.

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Title</td>
<td>Name of the IT Asset in which the Generic Printer IT Faceplate resides.</td>
</tr>
<tr>
<td>Name</td>
<td>Administratively-assigned name for this managed device, assigned at device end.</td>
</tr>
</tbody>
</table>
Figure 19 shows the properties in the Printer IT Faceplate that indicate certain error conditions that may prevent printer operation. The different operating states are Normal (green), Active (yellow), or Bad (red).
Table 3. Printer IT Faceplate Properties

<table>
<thead>
<tr>
<th>Property</th>
<th>State</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Normal (Green)</td>
</tr>
<tr>
<td>Available</td>
<td>Printer available for printing.</td>
</tr>
<tr>
<td>Door Open</td>
<td>All monitored printer doors closed.</td>
</tr>
<tr>
<td>Paper Jam</td>
<td>No paper jam.</td>
</tr>
<tr>
<td>Low Paper</td>
<td>Sufficient paper in printer for printing.</td>
</tr>
<tr>
<td>Low Toner</td>
<td>Sufficient toner in printer for printing.</td>
</tr>
<tr>
<td>No Paper</td>
<td>Sufficient paper in printer for printing.</td>
</tr>
<tr>
<td>No Toner</td>
<td>Sufficient toner in printer to continue printing.</td>
</tr>
<tr>
<td>Offline</td>
<td>Printer in online and ready to receive data.</td>
</tr>
<tr>
<td>Service Request</td>
<td>Printer is operating normally.</td>
</tr>
</tbody>
</table>
Hirschmann RS2 IT Faceplate

The faceplate aspect for the Hirschmann RS2 (Figure 20) contains a set of properties that provide the health of the Hirschmann RS2.

Figure 20. Hirschmann RS2 IT Faceplate (Example)

Table 4 lists and describes the Hirschmann RS2 IT Faceplate elements.

Table 4. Hirschmann RS2 IT Faceplate Elements

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Title</td>
<td>Name of the IT Asset that contains the IT Faceplate.</td>
</tr>
<tr>
<td>Device Name</td>
<td>Administratively assigned name for the managed device.</td>
</tr>
<tr>
<td>Description</td>
<td>Textual description of the device.</td>
</tr>
</tbody>
</table>
Table 4. Hirschmann RS2 IT Faceplate Elements (Continued)

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>System Up Time</td>
<td>Time since the network management portion of the device was last initialized. Displayed in the format of \textit{n}nn\textit{h} \textit{nnm} \textit{nn}s, where \textit{n} is a number, \textit{h} is hours, \textit{m} is minutes, and \textit{s} is seconds.</td>
</tr>
<tr>
<td>Power Status</td>
<td>The power supply status. The Hirschmann RS2 has 2 power supplies. The states of the power supplies can be ok, failed, notInstalled, or unknown. The normal state for the power supply is ok unless the power supply is not installed.</td>
</tr>
</tbody>
</table>

The following columns are displayed for each interface on the IT Asset.

<table>
<thead>
<tr>
<th>Interface Index</th>
<th>Corresponds to the physical connections on the Hirschmann IT Device.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating Status</td>
<td>Current operational state of the interface. The states are up, down, or testing. If the state is testing then no operational packets can be passed.</td>
</tr>
<tr>
<td>Media Available</td>
<td>Current state of the remote connection. The states are other, unknown, available, notAvailable, remoteFault, invalidSignal, remoteJabber, remoteLinkLoss, remoteTest, offline, autoNegError.</td>
</tr>
<tr>
<td>Total Input</td>
<td>Total number of octets received on the interface, including framing characters.</td>
</tr>
<tr>
<td>Total Output</td>
<td>Total number of octets transmitted out of the interface, including framing characters.</td>
</tr>
<tr>
<td>Media Speed (Mbps)</td>
<td>Estimate of the current bandwidth of the interface in bits per second. For interfaces that do not vary in bandwidth or for those where no accurate estimation can be made, this object contains the nominal bandwidth.</td>
</tr>
</tbody>
</table>

Symmetricom XLI Clock Faceplate

The faceplate aspect for the Symmetricom XLI Clock (Figure 21) contains a set of elements that provide the general health of the device.

Table 5 lists and describes the Symmetricom XLI Clock Faceplate elements.

The Indicator section (Table 6) displays the current setup of the device. The values are displayed in green when the communication with the device is good, and the word \textit{bad} is displayed in red if there is no communication with the device.
Section 2  IT Assets in 800xA

Symmetricom XLI Clock Faceplate

Figure 21. Symmetricom XLI Clock Faceplate

Table 5. Symmetricom XLI Clock Faceplate Elements

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>The name as retrieved from the device</td>
</tr>
<tr>
<td>Description</td>
<td>The description as retrieved from the device</td>
</tr>
<tr>
<td>Location</td>
<td>The location field as retrieved from the device</td>
</tr>
</tbody>
</table>
The Fault section (Table 7) displays the status of key device indicators. The options for each indicator are ok (in green), fault (in yellow) and bad (in red). The values in this section will cause the IT Asset to go into an alarm state if one or more of them are in a fault condition. No re-alarming will occur for multiple faults.

<table>
<thead>
<tr>
<th>Table 7. Fault Section of Symmetricom XLI Clock Faceplate</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Indicator</strong></td>
</tr>
<tr>
<td>Primary Reference</td>
</tr>
<tr>
<td>Secondary Reference</td>
</tr>
<tr>
<td>IRIG</td>
</tr>
<tr>
<td>Auxiliary Reference</td>
</tr>
<tr>
<td>Primary Power</td>
</tr>
<tr>
<td>Secondary Power</td>
</tr>
<tr>
<td>Rubidium Oscillator</td>
</tr>
</tbody>
</table>
Auto-Populating Faceplates

Auto-Populating Faceplates contain the title of the IT Asset in which the faceplate resides and column headings. An embedded component queries the IT Asset for information to display and creates a list containing important status information for the IT Asset.

An example for Auto-Populating IT Faceplate is shown in Figure 22.

The Auto-Populating IT Faceplate contains the following elements:

- The Title is the name of the IT Asset in which the IT Faceplate is contained.
- A Device Name column contains the property names of the alerts from the IT Asset.
- A Status column contains the property values of the alerts from the IT Asset. The color of the alert is also determined by the health of the property:
  - Normal (green).
  - Alert limit exceeded (warning) (yellow).
  - Alarm limit exceeded (red).
  - Bad (no communication with device) (red with white cross).

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>DAC</td>
<td>The operational status of the digital-to-analog converter.</td>
</tr>
<tr>
<td>Time Error</td>
<td>The status of the timer error indicator.</td>
</tr>
<tr>
<td>Timeout</td>
<td>The status of the timeout indicator.</td>
</tr>
</tbody>
</table>

Table 7. Fault Section of Symmetricom XLI Clock Faceplate (Continued)
Figure 22. Auto-Populating IT Faceplate (Example)
Revision History

Introduction

This section provides information on the revision history of this User Manual.

The revision index of this User Manual is not related to the 800xA 6.0 System Revision.

Revision History

The following table lists the revision history of this User Manual.

<table>
<thead>
<tr>
<th>Revision Index</th>
<th>Description</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>-</td>
<td>First version published for 800xA 6.0</td>
<td>August 2014</td>
</tr>
<tr>
<td>A</td>
<td>Updated for 800xA 6.0.1</td>
<td>October 2015</td>
</tr>
</tbody>
</table>

Updates in Revision Index A

The following table shows the updates made in this User Manual for 800xA 6.0.1.

<table>
<thead>
<tr>
<th>Updated Section/Sub-section</th>
<th>Description of Update</th>
</tr>
</thead>
<tbody>
<tr>
<td>Section 2 IT Assets in 800xA</td>
<td>Subsection added for SNMP and Traps.</td>
</tr>
</tbody>
</table>
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