

Alpha XD User Manual

Effective: January 2019



Safety Notes

Alpha considers customer safety and satisfaction its most important priority. To reduce the risk of injury or death and to ensure continual safe operation of this product, certain information is presented differently in this manual. Alpha tries to adhere to ANSI Z535 and encourages special attention and care to information presented in the following manner:



WARNING! GENERAL HAZARD

GENERAL HAZARD WARNING provides safety information to PREVENT INJURY OR DEATH to the technician or user.



WARNING! ELECTRICAL HAZARD

ELECTRICAL HAZARD WARNING provides electrical safety information to PREVENT INJURY OR DEATH to the technician or user.



WARNING! FUMES HAZARD

FUMES HAZARD WARNING provides fumes safety information to PREVENT INJURY OR DEATH to the technician or user.



WARNING! FIRE HAZARD

FIRE HAZARD WARNING provides flammability safety information to PREVENT INJURY OR DEATH to the technician or user.

There may be multiple warnings associated with the call out. Example:



WARNING! ELECTRICAL & FIRE HAZARD

This WARNING provides safety information for both Electrical AND Fire Hazards.



CAUTION!

CAUTION provides safety information intended to PREVENT DAMAGE to material or equipment.



NOTICE:

NOTICE provides additional information to help complete a specific task or procedure.

ATTENTION:

ATTENTION provides specific regulatory/code requirements that may affect the placement of equipment and /or installation procedures. Alpha XD User Manual 035-512-B0-001, Rev. A6

Effective Date: January 2019 © 2019 by Alpha Technologies Services, Inc.

Disclaimer

Images contained in this manual are for illustrative purposes only. These images may not match your installation.

Operator is cautioned to review the drawings and illustrations contained in this manual before proceeding. If there are questions regarding the proper operation of this software, please contact Alpha Technologies Services, Inc. or your nearest Alpha representative.

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Alpha XD Related Documentation:

- Alpha XD Administrator's Manual (*Alpha p/n 035-511-B0*)
- Alpha XD User's Manual (Alpha p/n 035-512-B0)
- Alpha XD Installation Manual (*Alpha p/n 035-513-C0*)

1.0 Introduction

Alpha XD[™] Multi-Layered Network Assurance Software is a software suite with a complete set of applications for delivering element/network management system (EMS/NMS) solutions. The system is accessible through standard up-to-date Web browsers Google Chrome[™] and Mozilla Firefox® on Windows and Solaris machines.

Alpha XD monitors, manages, and tests Hybrid Management Sub-layer (HMS), Data Over Cable Service Interface Specification (DOCSIS®), and legacy devices in Broadband Hybrid Fiber/Coax (HFC) distribution systems. Using embedded and external HMS and DOCSIS® transponders communicating with headend controllers or Cable Modem Termination Systems (CMTS), Alpha XD monitors and tests network devices such as:

- Nodes
- Generators
- Amplifiers
- Power Supplies
- End-of-Line (EL) devices
- Headend Optical Equipment
- AlphaGateways

Alpha XD also provides up-to-date status information, such as:

- On-demand testing
- Call Scheduler

1.1 Alpha XD Features

Alpha XD offers the following features:

- An industrial database utilizing Oracle® version 12cR1
- · Scalability from dozens to thousands of monitored devices
- · An easy-to-use and intuitive graphical interface
- · Customizable user accounts with multiple levels of accessibility and privileges
- Auto-Discovery of transponders added to the network (IPv4 and IPv6)
- The ability to create groups for and manage the organization of all network elements
- Support of HMS, Alpha and other vendor's MIBs for enhanced alarm processing
- · Battery analysis that reveals battery trends and enables targeted maintenance repairs
- Integration of CheetahLight, DOCSIS and CheetahNet systems
- Keyboard localization
- Power outage monitoring
- POM Dashboard
- Trap and alarm forwarding northbound to other systems
- Internationalized and currently available in English and Spanish
- Support for secure (HTTPS) web pages. Additional configuration required. Contact Alpha Support for assistance.

1.2 Alpha XD System Architecture

The Alpha XD system design is based on a distributed architecture intended to reduce communications traffic. The distributed architecture and reduced traffic allows for additional speed, reliability, and scalability of the system.

Alpha transponders retain, in flash memory, all information (alarm limits) needed to determine whether a power supply is operating within normal ranges. Detailed alarm information is reported to Alpha XD via Simple Network Management Protocol (SNMP) traps in cases where alarms exist. Since SNMP traps do not guarantee delivery, Alpha XD uses a background synchronization process that continuously checks for lost traps and, if needed, takes remedial action.

Messages sent to Alpha XD are error messages or responses to an operator's request to view an individual transponder element. All messages sent between the Alpha XD software and managed elements are SNMP messages.

Since the transponders send only alarm messages or data requested by an operator, the amount of traffic on the network connecting the transponders and Alpha XD is greatly reduced. This limited traffic allows for a faster and more robust platform. Alpha XD can manage over 20,000 elements in the network via the latest Windows and Solaris platforms.

Since all communications between the Alpha XD software and transponders are SNMP messages, the architecture is open and standardized. This communications scheme makes all of the plant status and alarm information available for integration into a higher-level Operations Support System (OSS).



Fig. 1-1, Alpha XD System Architecture - Typical HFC Installation

1.0 Introduction, continued

1.3 Alpha XD Components

Alpha XD consists of the following five components:

- Oracle® Software
- Oracle® Database
- Alpha XD Database
- Alpha XD Application
- PCs running a Web browser

These components work together to allow the user to manage the cable system. They provide notification of problems reported by transponders, headend controllers, and inside plant equipment.

Database tables store the following information:

- Configuration data Contains network element (NE) data, alarm limits and the current status of specified devices.
- Alarm data Lists current alarms of all or selected devices and provides a historical listing of all alarms.
- Audit data Tracks changes to parameters and user activity.
- Security system data Establishes user name, password, and privilege data for all users.

1.4 Alpha XD System Deployment

A system could be viewed as a single software server accessed by Web browsers on multiple PCs, with the software monitoring devices deployed throughout the physical network. Each Alpha XD server allows up to 25 simultaneous client connections. The only limiting factor is whether the capacity of the database will enable the total number of elements to be supported. While there is no hard limit on this, performance slowly decreases as database size increases. Server database capacity has been tested and performed well with up to 20,000 transponders. Alpha XD also supports up to 25 network trackers. For networks that have the potential to grow much larger than this, multiple separate systems should be considered. Alpha XD servers communicate using standard protocols such as Simple Network Management Protocol (SNMP), and Transmission Control Protocol/Internet Protocol (TCP/IP). This provides a flexible architecture for deployment.

2.0 Getting Started

2.1 Log In to Alpha XD

Open a supported Web browser (Chrome or Firefox) and enter http://AlphaXD:9090 (Server Name) or http://172.16.0.1:9090 (IP Address).

On the Alpha XD Login page, enter a user name and password and click **Login** (Default Username: root) (Default Password: public).



Fig. 2-1, Alpha XD Login Page

2.2 Alpha XD Tab

After logging in for the first time, Alpha XD will display the Faults page by default. Subsequent logins will display the last page where the user logged out. The Alpha XD page (accessed by the Alpha XD tab, see Fig. 2-2) provides an overview of the network, its elements and the overall status of the elements. This page is seen whenever an upper level container is selected in the tree such as, the root node of the tree, regions and groups. Selecting Alpha XD Mobile from this tab will open a dialog box to select a search option for Power supplies, Transponder MAC addresses or Nodes.



Fig. 2-2, Alpha XD and Alpha XD Mobile Pages

2.3 Basic Account Actions

Changing the Account Password

Usernames and Passwords are case-sensitive.

- 1. In the top right corner of any Alpha XD page, hover over the List icon.
- 2. Click Change Password.
- 3. In the pop-up Browser Window, enter the proper information.
- 4. Click Submit.

Log Out of Alpha XD

In the top right corner of any Alpha XD page, click on the Logout icon.

				Logout Icon
Alphazo Tools Reports Faults Network Inventory Add	dministration Help		Welcome root	Change Account
Alphaba 20 Tools Reports Easily Methods Meendating of Alphaba Image: A statistic of a sta	Image Image Power Supplies Power Supplies 1 0 0 0 0 1 8 0 1 0 1 8 0 1 0 1 8 0 1 0 1 8 0 1 0 0 6 0 0 0 Network Trackers 1 1 1 1 0 0 0 0 0 0 Headend Equipment 1 1 1 1 1 0 32 2 13 3 1 1	Power Supplies Alarmed Devices Counts Click and drag to zoon in Inverter Status Rx Rx Battery Vohage Tx Current POM Cu	Image: Notice of the second	Password
E C ELHIA44 E Assigned Assigned Sour Southins			Remaining Runtime	

Fig. 2-3, Basic Account Actions

3.0 Provisioning Devices

Alpha XD interacts with devices by using defined parameters. These parameters include:

- Device types
- Alarm limits
- If the device is testable (for power supplies)
- If Alpha XD should poll the device for alarm states and how often.

These parameters are applied during discovery of the device, and are downloaded to the device in the form of a template. Templates include collections of default configurations for each type of device.

Default configurations specify general information such as communications information (device IP and MAC address) and alarm limits, all of which is stored on the Alpha XD database.

A device is considered provisioned when the parameters have been downloaded to the device. For information on finding the provisioning status of devices, see the section titled Network Inventory.

A device can become provisioned (individually or in bulk) in one of three ways:

- By Alpha XD when the device is auto-discovered. (if Automatic Download is enabled; Automatic Download is disabled by default. See the Alpha XD Administrators Manual for further information, Alpha p/n 035-511-B0-001)
- When a user manually downloads an appropriate template to the device.
- When the user sets the parameters for the device in the Device Configuration module, and downloads the appropriate parameters to it.

3.1 Configuring and Using Templates

A template is a named set of device-specific configuration parameters that can be automatically or manually associated with a device in the Alpha XD database. The template must also be downloaded to the device to complete provisioning. A default template (which exists for each device type) is automatically assigned to any newly added or discovered device.

The configuration parameters available in templates are the same as those available in the Device Configuration module, which is used to manually configure individual devices. A template is a device configuration that has been named and saved to be used again. Alpha XD contains default configuration templates for all of the expected device types that can be used in a typical network.

After associating a template with a device and downloading it to the device, the device can still be further configured using the Device Configuration module.

3.2 Template Administration

Because templates can be modified, devices that are provisioned can become out-of-sync and their templates no longer match the parameters of the templates in the database. To identify this, AlphaXD's Template Administration tab and Network Inventory tab includes colored icons and flags to display the template status of network elements.

Template Status			
Color Status			
Red Not Provisioned			
Blue	Requires Download		
Yellow Profile Mismatch			
Green Synchronized			

Table 3-1, Template Status

Viewing Templates

- 1. Click the **Administration** tab in Alpha XD.
- 2. In the **Alpha XD Administration** section of the Administration tab, click **Template Admin** (Template Admin can also be selected by hovering over the Administration tab, then hovering over Alpha XD Admin, and selecting Template Admin).
- 3. Scroll through the list to view the template.

<u>NOTICE:</u>

The template viewer display can be changed by clicking **Layout Configuration**; select the checkboxes next to the desired options to filter what is shown in the template viewer.

Modifying Templates



NOTICE:

Changes made to the Template Administration pages exist in server memory only. If the server is restarted, the pages will revert back to the default layout.

1. In the template viewer, right click a template and select **Template Configuration** from the menu.



Fig. 3-1, Template Configuration

- 2. Select one of the header tabs (Information, Property, Analog, Non-Alarmable Analog, Multi, and All Attributes) and click the Plus (+) icon to the left of the template name to expand and view the parameters.
- 3. Edit the parameters as desired and click **Save** when finished.





NOTICE:

For detailed information on configurable parameters in the different header tabs (**Information**, **Property**, **Analog**, **Non-Alarmable Analog**, **Multi**, and **All Attributes**) refer to the section titled "Configurable Parameters".

Cloning Templates

NOTICE:

- Only the transponder and chassis category can be cloned.
- This only creates a copy of the template from which it was cloned. To modify the newly-cloned template, use the **Template Configuration** function.
- 1. Navigate to the template in the template viewer.
- 2. Right-click the desired template, and click Clone.

<u>NOTICE:</u>

To automatically reload the page and immediately display the new template, check the **Reload After Clone** checkbox.

- 3. Type a name for the new template (spaces are not allowed in the clone name).
- 4. Click **OK**. The template list will reload and display the newly-cloned template (if the **Reload After Clone** checkbox is selected).

Applying Templates

Provisioning a device using a template consists of the following:

- Associating the template with the device in the Alpha XD database
- Downloading the template to the device

When Alpha XD auto-discovers a device, it automatically associates the appropriate template with it and records it in the database. Templates can also be manually associated with devices. User-created templates and cloned templates must be manually applied to devices.

A template can be associated to a single child device, or a top-level or gateway parent device for association with all child devices simultaneously.

To associate the default template with a device through Device Configuration:

- 1. Display the device in any tree view.
- 2. Right-click on a device in the tree and select **Device Configuration**.
- 3. Click the **Use Template and Save** button.



Fig. 3-3, Device Configuration

Click the Save and Download button to download the saved template parameters to the device. (This will fully
provision the device.

To manually associate a template with a device:

- 1. Display the device in any tree.
- Right-click on an element in the tree and select **Download**, then select **Alert Profile**. (This can be done for multiple devices by selecting the tree icon or selecting multiple elements).
- 3. Select a template by clicking on the **Radio Button** to the left of the template name.

	LPHA X	0 🔘 XIII 360					Welcome	root	
AlphaXD	Tools	Reports	Faults	Network Inventory	Administration	Help			
Device Limits	s Downloa	d From Alert	t Profile - T	Femplates					
Template	List:						Download Limits		
	Template	Name							
۲	* T Trar	nsponder H	IMS Tran	sponder 3100					
			_						



4. Click Download Limits.

- The download task should appear in the Active Bulk Tasks section of the window unless the task was completed before the window opened, in which case the task will be displayed in the Completed Bulk Tasks section of the window.
- 6. Details of the task can be viewed by clicking on the button to the left of the task ID number.

3.3 Configurable Parameters

Up to seven tab options will display when Device Configuration is selected from a device's local context menu or Template Configuration from the Template Administration page. Since device parameters vary from one type of a device to another, the type of device selected determines which tabs are displayed. The Information and Property tabs are always displayed, regardless of device type.



Fig. 3-5, Device Configuration Page Menu

From the Device Configuration's main page, select a tab and then click on the button to the left of the device to be configured.

Information Tab

- Name Source name
- Type Device type
- Status Poll Off Timer Remaining (mins) Indicates number of minutes left for the Status Polling off timer.
- · Last Status Update Time Time and date stamp indicating when the last status update occurred
- Last Status Change Time Time and date stamp indicating when the last status change occurred
- · Failure Count Number of times attempts to communicate with the device failed
- Device Communications Handler Displays the internal class definition of the device
- CTTopoObject Type Displays the internal device type definition
- Discover State Indicates the discovery state (incomplete or complete) of the device
- Is Top Level Container Indicates if the device is a parent
- Is Schedulable Indicates if schedules can be created for and applied to the device
- Top Level Parent Indicates if the device acts as a parent for other network elements
- · Gateway Parent Indicates if the device acts as a communications point for other devices
- · Last Update Time Time and date stamp indicating when the last update occurred
- Last Download Time Time and date stamp indicating when the last download occurred
- MAC Address MAC address of the device
- Device Type Category of the device
- · Category Displays the general classification of device type
- Template Type Type of template used to configure the device
- · Modifier Displays the Alpha personality ID
- Group Name Displays the internal grouping nomenclature
- · Application Displays the default domain name in which the device exists
- Active Template Displays the name of the template/alert profile associated with this device

Property Tab

The editable Property tab is the location to specify if the device is to be managed by Alpha XD (included in AlphaXD's status monitoring function), and to establish the device's polling parameters (if and how often Alpha XD polls the device for alarm states).

The Property tab also includes the five user-definable fields that can include additional information about the device such as manufacturing or installation information or other notes and comments about the device. For information on using these fields, see the section titled User-Defined Configuration Fields.

- Display Name Device display name
- · Managed Determines if the device will be managed by Alpha XD
- IP Address The IP address of the device
- · Netmask The netmask value used to determine a subnet for the device
- Status Polling Enabled Determines if Alpha XD will poll the device for status information
- Failure Threshold Internal value indicating the number of attempts made before determining a communications failure
- Status Polling Interval The frequency, in seconds, at which Alpha XD polls the device for status information. This applies only when Status Polling is enabled
- User Name A user-defined name for the device
- · User Comment A user-defined descriptive comment assigned to the device
- · Protocol Specific Data Data pertinent to a particular protocol used by the device
- Location A user-defined description of the device's physical (non-network) location
- User Field 1-5 Areas for additional user-defined information
- · Community The name of the network community to which the device belongs
- Write Community The name of the network write community to which the device belongs
- SNMP Port The Alpha XD server port number assigned for SNMP communications
- Hub Container Hub assignment for power supply transponders so they are seen in the POM Dashboard. (To be seen on the POM Dashboard map the location must also be set).

Analog Tab

The Analog tab displays the values of a device's analog attributes. Most values can be edited by the user. Each row lists an attribute name, the units its value represents (i.e., current, voltage, etc.) and four alarm limits (i.e., LoLo, Lo, Hi, and HiHi). The values of these attributes are expected to stay within a predetermined range. When properly configured, alarms are generated any time the values exceed one or more of these ranges.

- Units Unit value for the parameter (i.e. Voltage, Amps, etc.)
- Alarm Limit (LoLo, Lo, Hi, or HiHi) A setpoint or limit value specified by the user that is used for generating alarms when the parameter's actual value exceeds the limit
- Enabled Enables/disables alarming
- Priority Assigns a priority level to each alarm, with a level of 1 being the highest or most important priority
- Deadband A user-defined value used to create a deadband for values returning from an alarm condition

These values are included in the default Alpha XD templates for applicable devices. These values can be modified for individual devices, or for all of the devices of the same type at one time. Individual devices should be modified using the Device Configuration module. Use the Template Admin page to modify the template for a specific device type, and then apply the change to all of the devices of that type.

Non-Alarmable Analog Tab

This editable page displays the value of attributes that are required to operate within a predetermined range, but do not generate an alarm when the value is out of range. This page also displays a checkmark in the Requires Download column when the value displayed for an attribute does not match the value for that attribute in the database. When this occurs, the template for that device should be downloaded, or the device should be configured using the Device Configuration module. If the Device Configuration module is used to edit the attribute, be certain to save the change to the database and download the value.

- Nominal The nominal value for the parameter
- Units Unit value for the parameter (i.e. Voltage, Amps, etc.)

Multi Tab

This editable tab displays multi-valued device parameters. Each value can be independently configured to be either in a disabled or alarm state. An enumerated parameter generates an alarm if its current value is configured to be an alarm condition. If the value changes to another value that is also configured to be an alarm, another alarm is generated. A return occurs when the value changes to a state or value that is configured with the alarm parameter disabled.

- Value A value associated with a particular parameter state
- Description A text description associated with a particular parameter state
- Enabled Enables/disables alarming
- · Severity Indicates the level of severity associated with each alarm
- Priority Assigns a priority level to each alarm with a level of 1 being the highest or most important priority
- Nominal The nominal value for the parameter
- Units Unit value for the parameter (i.e. Voltage, Amps, etc.)

Misc Tab

- Nominal The nominal value for the parameter
- Units Unit value for the parameter (i.e. Voltage, Amps, etc.)

All Attributes Tab

Displays the device's total configuration parameters in one scrollable page. This page also displays a checkmark in the Requires Download column when the value displayed for an attribute does not match the value for that attribute in the database. When this occurs, the template for that device should be downloaded, or the device should be configured using the Device Configuration module. If the Device Configuration module is used to edit the attribute, be certain to save the change to the database and download the value. Of the different table headings (display, alarmable, configurable, controllable, and requires download), only display can checked or unchecked. All other headings are for information only.

- Display This parameter can be checked or unchecked to be visible in data display.
- Alarmable Indicates whether or not this parameter generates alarms.
- Configurable Indicates if values can be configured in Device Configuration or Template Admin.
- Controllable Indicates if a parameter can be configured remotely (i.e. placing a power supply into standby).
- Requires Download Indicates that a change has been made but the change has not yet been downloaded on the device.

<u>NOTICE:</u>

The display for XM3 Apps parameters is turned off by default. This can be enabled in the **All Attributes** tab for XM3 power supplies.

3.0 Provisioning Devices, continued

After modifying a template or device configuration, the following buttons at the bottom of the pages perform the following actions:

Template and Device Configuration Actions					
Menu Option	Action				
Save and Download	Click this button to save the changes to the template or device configuration in the database, and download it to the device.				
Reload	Click this button to abandon changes made, and restore the template or configuration to the last saved parameters.				
Required Download All	To apply a checkmark in the Requires Download field for all displayed devices. Alpha XD uses the checkmark in the Requires Download field to determine which elements to include in a Bulk Download operation.				
Use Template and Save	Click this button to apply the template to the selected device, and save the template changes in the database.				
Edit Template	Click this button to make changes to the selected template.				

Table 3-2, Template and Device Configuration Actions

3.4 Configuring an Individual Device

Use AlphaXD's Device Configuration module to change one or more parameters of an individual device.

To Display the Device Configuration Module:

- 1. Display the device in any tree view.
- 2. Right-click the device and select **Device Configuration**.
- 3. Click the various tabs (see the section titled "Device Configuration Parameters") and modify the fields as desired.

4.0 Alpha XD Tabs

Alpha XD and its functions are divided into seven tabs at the top of the Web page (from left to right):

- Alpha XD
- Tools
- Reports
- Faults
- Network Inventory
- Administration
- Help



NOTICE:

The Administrator's tab (along with other administrator-related functions) is covered in detail in the Alpha XD Administrators Manual (Alpha p/n 035-511-B0-001).

Refer to the following sections on utilizing the features available in each tab.

4.1 Alpha XD

The Alpha XD tab provides an overview of the network, its elements, and the overall status of the elements divided into 3 columns across the page. Data in the middle column refreshes once per minute. Tree status icons refresh every 30 seconds.



Fig. 4-1, Alpha XD Tab

The Information icons throughout the Alpha XD page are color-coded alarm statuses:

- Red (Critical)
- Orange (Major)
- Yellow (Minor)
- Green (OK)
- Blue (Standby due to AC Power Fail Power Supply Devices Only)
- Purple (Status polling is turned off for this device)

The left-side column, called the **Tree View**, features color-coded, text-based displays of network elements in multiple configurations. The tree view provides the ability to sort, search and toggle which devices are shown. Devices can also be re-organized into groups. The highest-level visible device reflects the highest alarm status of any of its child devices; when expanded, the child device itself reflects its alarm status. Child devices of a transponder do not have status polling; their status is always purple.

To select a Tree View, use the Drop-Down Menu. Each default tree serves a certain function:

- Native: The native view displays all of the managed network elements, grouped by their communications relationships.
- HFC: The HFC (Hybrid Fiber Coaxial) view displays all headend controllers (HECs) and virtual headend controllers (vHECs), as well as associated devices, such as nodes, amplifiers, power supplies, and generators

To seach the currently selected Tree, click the Magnifying Glass icon.

A **Quick Search Filter** is activated when an object in the tree is selected and the user begins to type a display name. The display name that matches what the user has typed will be highlighted.

Use the Plus (+) icon to see any child devices, then select a Device to see the device parameters in the right column.

The List icon offers a list of functions for the Tree View:

- Toggle Sort: Toggles the organization of the tree between alphanumeric sorting and no sorting.
- Refresh Tree: Pulls the latest information from the database to refresh the currently selected tree.
- Save Tree State: Saves the state of the tree (e.g. Which elements are expanded, which elements are collapsed).
- Stop Real-Time Updates: Stops the system from updating the devices every 30 seconds.
- Editing Tree Panel: Edit and create customizeable Tree views via an editing window. (See the section titled "Using the Editing Tree" for more info)

To refresh the currently selected Tree, click the **Refresh** icon This icon becomes active when a new device is discovered.

Multiple devices can be selected and manipulated at once using the Shift-click or Ctrl-click functions.



Fig. 4-2, Alpha XD Tab - Tree View

The information icons above the tree view are clickable hyperlinks. The number below the colored information icon details how many devices in the currently selected tree have the corresponding status. **Click** on the **Colored Information Icon** to open a new tab that displays details on each of the devices related to the selected status.

The Tree View also provides a local context menu for each network element. Different elements display different options on their local menus. Refer to the following page for detail on the each action of the local context menu.

Right-click a network element to display its local context menu:

- Tree
- Navigation
- Device Configuration
- Bulk property Upsate
- Data Display
- Battery Analyst
- Battery Tests
- Reports
- Battery Analyst Reports
- Current XM360 Report
- Historical XM360 Reports



Fig. 4-3, Sample Local Context Menu

Local Context Menu Actions				
Menu Option	Action			
Tree	Expands All - Expands the network element into it's child devices.			
Status Polling	On (Alarms are being generated), Off (Alarms are not being generated), Off 4 Hours, Off 8 Hours, Off 16 Hours, Off 24 Hours, Off 48 Hours (Status Polling off for the selected amount of time. Once expired, Status Polling will return to on. To view the remaining Status Polling off time, view the Device Properties table for the device), Stop Active Command.			
Poll	Lock Poll - Commands a HEC 360 to poll the selected transponder. This feature is useful for limiting the return path communications to the transponder so a spectrum analyzer can examine the return path transmission signal characteristics. High Power Poll - Assists in isolating forward path transmission problems. Polls the selected transponder once at a higher than normal downstream power level, for one polling cycle (including retries). If the transponder does not detect the HEC 360 at the normal transmit power level, but does at the higher power level, this indicates a forward path problem in the cable plant. High Power Polling does not interrupt normal polling and alarm acquisition.			
Navigation	Displays the device in other trees/contexts.			
Device Configuration	Displays the element's configuration information from the database.			
Data Display	Launches the Data Display module in a separate browser tab or window. Note that the new window is essentially a pop-up. If your browser is set to prevent pop-ups, this menu option will not work.			
Reports	Configuration Report - Produces a report of the element's configuration information that can be saved, printed, or exported. Status Report - Produces a report of the element's current status that can be saved, printed, or exported. Quick Alert Report - Produces a report of the element's current alarm status that can be saved, printed, or exported.			
Download	All - Performs a download of the current configuration parameters for all attributes. Changes - Performs a download of the current configuration parameters that have been changed. Alert Profile - Performs a download of configuration parameters from the specified template or alert profile. Generic Firmware - Performs a download of generic transponder firmware as well as device module firmware for supported devices.			
Bulk Property Update	Updates the selected property value in multiple devices at one time.			
Reset Transponder	Resets the chosen transponder and all of its children devices.			
Rediscover	Performs a rediscover of the element, restoring default parameters.			
View Alerts	Parent Alerts - Will display alerts for each device that is a Parent of the target device in the selected tree. Child Alerts - Will display alerts for each device that is a Child of the target device in the selected tree.			
Force Sync Alerts Now	Allows the operator to synchronize the alarms present on the device with the information in the database.			
QAM Data Displays	Opens a new tab with the selected QAM data display of the device (Menu options include a Constellation Map, Equalizer, Spectrum, and for the Network Tracker Plus, Test Downstream Options). Note: If the function is not supported by the transponder firmware it will not appear as a menu item.			
Map Location	Opens a new tab in Alpha XD where the user can map the location of the device.			
Current XM360 Reports	Opens a new window with a link to the Current XM360 Report.			
Historical XM360 Reports	Opens a new window with a link to Historical XM360 Reports.			

Table 4-1, Local Context Menu Actions

The middle column gives a visual overview of the different categories of devices. The information icons display the current status and number of alarms. The devices are separated into five categories (from top to bottom):

- Power Supplies
- Fiber Nodes
- Network Trackers
- Headend Equipment
- AlphaGateway

Clicking on each individual box changes the display on the right column. The right column provides specific data about the selected device category in the middle column. Clicking on a colored information icon will open a new tab containing details about the associated devices. In this tab, the devices can be mapped and the device details can be exported to a CSV file. The alarm icons and graphs can be hovered over or clicked for detailed information. The toolbar above the graphs provide additional utilities for the selected devices. Some of these options may be unavailable on device type.



Fig. 4-4, Alpha XD Tab - Middle and Right Column

AlphaGateway Summary Screen

Selecting the AlphaGateway device category from the middle column will provide specific data on Alarmed Device Counts (Rx, Output Power, Tx, AC Input), Top Ten Alarms, and Ports By Type (Camera, WiFi, Unused, Unknown).



Fig. 4-5, AlphaGateway Summary Screen

Selecting the "AGD Search" icon in the upper toolbar will launch an input window where the user can search all AlphaGateways by MAC Address or IP Address. If any port on an AGD contains the entered MAC or IP Address as one of its list of connected devices, the AGD name will appear under the AlphaGateway page heading. Clicking on the name will select the device in the tree.

Selecting one of the sections of the pie chart in the Ports By Type section will replace the section with the Type By Customer section, displaying stacked bar charts representing alarm severities. Selecting one of the sections of the stacked bar chart will launch a separate tab in the web browser that will contain a tabular list of the details for each port in the selected stacked bar chart section. Within this list the ports can be configured for the Attached Device Type, Customer ID, and Attached Device Model. These configuration changes can also be done in Device Configuration for the ports.

To return to the Ports By Type screen, select the Go Back button in the Type By Customer section.

Using the Editing Tree

Clicking **Editing Tree Panel** in the Alpha XD tab will load the currently selected tree into the Editing Tree tool in the left panel. In the right panel, the user can select a tree for editing. Elements from the tree in the left panel can be copied over to the right panel. This tool is best used to create groups of elements in a tree that are easy to sort through.



Fig. 4-6, Editing Tree Panel

The list icon in the right panel provides the user with editing tools:

- Refresh Tree: Refreshes the currently selected tree in the panel.
- Save Tree State: Save the current visible state of the tree (which elements are expanded and collapsed).
- Edit Tree: Opens a form field to edit the Name, Description, and Owner of the currently selected tree.
- Delete Tree: Opens a dialog box to confirm deletion of the currently selected tree.
- Add New Element: Adds a new elements to the currently selected tree.
- Delete Element: Deletes the selected element from the tree.
- Add Tree: Opens a form field to add a new tree with a Name, Description, and Owner.
- Move Node: Moves the selected element.
- Paste: Pastes the node into the right panel that was copied from the tree in the left panel.

The list icon in the left panel also provides the user a few editing tools:

- Copy Node Alone: Copies the node without any child elements. (Click Paste in the right panel's list icon to paste the copied node)
- Copy Node with Children: Copies the node with all of its child elements. (Click Paste in the right panel's list icon to paste the copied node)
- Swap Views: Swap the left and right trees to the opposite panel.

Device Pages



If polling is disabled for a device, Alpha XD will display a message stating "Sorry! Data is currently unavailable for this device".

Whenever a device is selected in the tree view of the Alpha XD tab, a device is shown in the right column. Device pages contain information unique to the type of device that was selected (power supply, fiber node, network tracker, GX2 chassis, Prisma chassis, or AlphaGateway Device). On every device page, the ten most recent device alarms (as well as the severity) are detailed in the Device Alarms section. Hovering over an alarm in the device's alarm section provides additional details. The device picture can also be hovered over to display additional device information/details. A generic device image will be shown if the device was not integrated into Alpha XD.

Power Supply Device Page



Fig. 4-7, Power Supply Device Page

NOTICE:

- The Alpha Apps section of the Power Supply Device Page is only available with an XM3 that has an Apps card installed.
- DM3.0 Transponders will have links to Constellation, Equalizer, and Spectrum tools under the Transponder section.
- On-demand Major/Minor Alarm Analysis is available for DM3, DSM3, IDH4, and IDH3 tranpsonders monitoring XM2s and XM3s.

Fiber Node Device Page

The Fiber Node device page is divided into six sections.



Fig. 4-8, Fiber Node Device Page

The Dynamic Module Diagram displays a semi-realistic module diagram whose data is read from the device. The modules, their .png pictures, their positions, and their statuses are read from the device and used to create the diagram. Certain module segments of the diagrams are clickable and will display a current realtime display of selected measurements when clicked.

The Gauges section displays measurements of the DOCSIS SNR, DOCSIS Receive Power, DOCSIS Transmit Power, and Fiber Node Primary Feed Line Power Voltage. For the OEX, the Gauges section displays measurements of the Primary Voltage, Optical Receive Power, Optical Transmitter Power, and Transmitter Bias Current.

The optical receiver and device switches panel display the color status of the receivers and their index. A/B Switches are depicted by switches that display the A/B Switch status. Clicking on the switch graphic allows the user to change the A/B Switch settings. If the switch is pointing upward - prefer A; if pointing upward with a lock - force A; if pointing downward - prefer B; if pointing downward with a lock - force B. The animated dashed line indicates the active path (non-existant Optical Receivers are purple).

The RF port panel displays the color status (if supported by the transponder) and attenuation state of the RF ports. It also displays active RF ports and their index (non-existant RF ports do not display an index). Attenuation state of the RF ports may be modified by clicking one of the three states.

The Return Lasers panel displays the color status of Return Lasers and their index (non-existant return lasers are purple).

Network Tracker Device Page

The Network Tracker device page is divided into three sections.



Fig. 4-9, Network Tracker Device Page

The Channel Levels section displays the measured power level (in dBmV) by channel frequency (MHz). Hover over the channel level bars to view the Frequency, Channel Number, and Power Level.

GX2 Chassis / Prisma Chassis Device Page

The GX2 Chassis and Prisma Chassis device pages are divided into three sections.

GX2 Chassis View Properties	Device Alarms	
	Hover over for more info	
		22242445646
	Fan Current 05	10/17 10:36:28
	Fan Current 05	10/17 10:36:28
	Input Signal 05	10/17 10:36:28 Device
	Link 05	10/17 10:36:28
	RX Opt Pwr 05. Onlicel Singel Status 05	10/17 10:36:28 Alarms
	Optical Optical Optical Society 05	10/17 10:36:28
	Optical Power 05	10/17 10:36:27
	Optical Signal Status 05	10/17 10:36:27
		rsi la
		PS2
ARRIS	OmniStar GX2	



The bottom pane details each card installed in the GX2/Prisma, as well as the current status of the installed card (Red - Critical, Orange - Major, Yellow - Minor, Green - OK). When a module in the diagram is selected, the Device Alarms pane is overwritten with the module details table.





AlphaGateway Device Page

The AlphaGateway device page is divided into three sections.



Fig. 4-12, AlphaGateway Device Page

The AlphaGateway Items section displays realtime data for the SMG-01PE-21. It contains the Model, Transmit Power, Receive Power, SNR/(RxMER), IP Address, MAC Address.

Clicking on the right port arrows allows the user to either turn on, turn off, or reset the ports.

The Connected Devices drop down menus display the MAC address and IP address of connected devices to that port. Up to date information on Data Rate In, Data Rate Out, Link Status, Output Power, Device Type, Device Model, and Customer is displayed in the port tables.

Alpha XD Mobile Page

Selecting Alpha XD Mobile from this tab will open a dialog box to select a search option for Power supplies, Transponder MAC addresses or Nodes. Select the desired search option. Once the search option is selected a search text box for that option will appear. Begin to enter the search criteria in the text box. Once the minimum character limit is reached, the Search button becomes active and can be clicked *(data from a sample Transponder MAC search is shown below)*.

Once the Search button is clicked the Device Selection page appears.





Device selection: Filter device list		
00 90 ea 18 6f 2a		
00 90 ea 18 6f 2a	^	
No. of devices in list: 1	•	
Please make a selection		
Get Transponder		

Fig. 4-14, Device Selection Screen

-1.		9-01-004		< 8 YORK 100 P
<> 0	0	♠ 10.673.57	c	0 + 0
× RLPHR)				
Ayrust	ten a	Reports	faults	Release Investory
		Modify Transpore	Ser	
				Remove Device
Display No	atter			
DOCSIS	0000ea106/2a			
Transport	IN MAC			
00.90-44	18.07.24			
Node				
node2	5			
Power Sug	ally Model			
Uniformation				12
Other Bar	Terry Date			
January	1970			
Bern C	-			
Other .				10
	and some diversion in			
and a second sec	ng re hassing			
and the second second				
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100 million - 100 million				
\$tart.ex	of Update Trun	sponder		

Fig. 4-15, Modify Transponder Screen

Select the device to edit from the list and click the **Get Transponder** button.

After the **Get Transponder** button is clicked the Modify Transponder page is displayed. From here the following fields can be changed.

Display Name Node Power Supply Model Oldest Battery Date Battery Chemistry Battery Amp Hr Rating Tamper Polarity

If using a mobile device, an option to update the device location to the user's position is available. Select **Update Location** to do so. Once the fields are changed click the Update Transponder button. After this the information will be saved to the database. To remove the device from the system, click the **Remove Device** button on this page.

NOTICE:

Once the **Update Transponder** button is clicked, the data is saved so the data entered will also appear in the Device Configuration page for the device.

4.2 Tools

FCC Scheduler

The FCC Scheduler is a specialized tool used to quickly and easily create a 24-Hour Test as required by the FCC. The scheduled test will collect Visual Power, Aural Power, and Visual/Aural Separation data levels on each analog channel defined in the device channel plan. Each data point is measured once every 6 hours over a 24-hour period and is stored in the database for use in creating an FCC 24-Hour Report.

To add a schedule:

- 1. Enter a unique schedule name (this cannot match any names made previously for the FCC Scheduler) and click the **Arrow** icon.
- 2. Choose a device from the list that appears and click the Arrow icon.
- 3. Choose a month, day and year for the starting date in the calendar window that opens.
- 4. Enter a starting hour (numerical value between 0 and 23; 0 = midnight, 23 = 11p.m.) and click the **Arrow** icon.
- 5. Click Submit Schedule.

	PHA XD	🔘 XM360					Welcome n	oot 🖻
AlphaXD	Tools	Reports	Faults	Network Inventory	Administration	Help		
FCC Sched	ler							$\overset{\varphi^{W}\phi}{\overset{\varphi^{W}\phi}}{\overset{\varphi^{W}\phi}}{\overset{\varphi^{W}\phi}}{\overset{\varphi^{W}\phi}}{\overset{\varphi^{W}\phi}}{\overset{\varphi^{W}\phi}}{\overset{\varphi^{W}\phi}}}{\overset{\varphi^{W}\phi}}{\overset{\varphi^{W}\phi}}}}}}}}}}}}}}$
Start O	ver							
Schedule N	ame TestFC	C Scheduler	→					
Device Sel	ection 🗲							

Fig. 4-16, FCC Scheduler

The new schedule can be viewed and managed in the **Reports** tab under **Scheduling**. The user can view the schedule, view the results, edit the schedule (only if it hasn't yet taken place), remove the schedule, disable the schedule, and add to the schedule.

XM3 Apps



NOTICE:

XM3 Daily and XM3 Monthly Schedules must be enabled for this tool to function properly. See the sub-section titled "Scheduling" for details on enabling this feature.

The XM3 Apps page contains 3 tabs that detail battery information and utility power events: Battery Backup, Utility Power Events (Monthly), and Utility Power Events (Lifetime).

Battery Backup

The Battery Backup page shows a Tree Level overview of the state of the batteries in each system. There are two pie charts for each tree:

- Battery Backup: The amount of backup power (measured in hours) that the batteries can provide.
- Battery Life: The remaining service life (measured in years) that the batteries can provide.

The key on the left of the page describes the colors associated with the state of the batteries.

Battery Backup			
Color	Status		
Blue	Calculating		
Dark Green	>3 Hours		
Light Green	2 - 3 Hours		
Orange	1 - 2 Hours		
Red	<1 Hour		

Battery Life			
Color	Status		
Dark Green	>5 Years		
Light Green	3 - 5 Years		
Yellow	2 - 3 Years		
Orange	<2 Years		
Red	Now		

Table 4-2, XM3 Apps - Battery Status

Clicking on a particular tree will show a Region Level overview of the state of the batteries. Clicking on a section of the pie chart in the Region Level overview will open a tab with detailed statistics on the state of the batteries.





Fig. 4-17, XM3 Apps - Battery Backup Pages

Utility Power Events

The Utility Power Events tabs show a Tree Level overview of the utility power events that have occured in each system over a given period of time:

- Utility Power Events (Monthly): The numbers of events that have occured, measured on a monthly basis.
- Utility Power Events (Lifetime): The number of events that have occured, measured over the course of the service life.

The key on the left of the page describes the colors associated with the number of utility power events that have occured in the system within the given time frame.

Utility Power Events			
Color	Status		
Dark Green	<3 Events		
Light Green	4 - 9 Events		
Orange	>9 Events		

Table 4-3, XM3 Apps - Utility Power Events

Clicking on a particular tree will show a Region Level overview of the utility power events. Clicking on a section of the pie chart in the Region Level overview will open a tab with detailed statistics on the events. The Export to CSV button allows the user to generate a CSV file for data. The Back button takes the user to the previous level.





Fig. 4-18, XM3 Apps - Utility Power Events Pages

ScoreCard



NOTICE:

To prevent unwanted traps, this feature is disabled in the transponder by default. This feature is enabled by setting the Enable Tracking Traps nominal value to 2 on either the Device Configuration or Template Admin page of the desired transponder.

The Key Performance Indicator (KPI) ScoreCard page shows a series of informational graphs that depict ongoing system metrics. Data to populate the graphs is sent daily in the form of SNMP traps from the transponder(s) (if supported) to all configured trap destinations.

To view data on the KPI ScoreCard:

- 1. Define the data parameters by:
 - Selecting the **Power** or **Optical** radio button.
 - Selecting the range from the **Select Range Drop-Down Menu**.
 - Selecting the metric from the Select Metric Drop-Down Menu.
 - Selecting the device from the Select Device Drop-Down Menu.
- 2. Click Get Data to populate the page with data and graphs.

To change the Tree, click on the **Change Tree** icon in the top right corner of the KPI ScoreCard window.

Once the data is displayed, it can be saved locally by clicking **Export to CSV**. Changing any of the data parameters will grey out the graphs and the data must be reset by clicking **Reset All**.

Hovering over any of the graphs or plotted coordinates will reveal additional details.

	Range	Select Metric	Select Device		
					Change
				nativ	
Reset All Get Data Export CSV	Power Select Range: Optical Rolling Year	Select Metric: Return Laser V	Select Device: Worst 8		
Graph Type: • Line Bar D	ansmit Power (mWatts) OCSIS 0026970840fd				
Sort By	80 80 70 80 40 92/08 02/07 02/08 02/09	02/10 02/11 02/12			
Legend Moze over pot to see legend Click series label to toggle data Click series from Par Partice Lever Von Par Perior Lever Von Par Partice Lever Von Par					



Signal Analyst



NOTICE:

The Signal Analyst must first be configured with the Signal Analyst Designer for data to be displayed.

The Signal Analyst tool is an interactive map that displays information relating to the status of fiber nodes, power supplies, headends, hubs, GX2s, and Prisma Chassis' in the network. On the map, devices are categorized by the shape of the icon and device status is categorized by the color of the icon.

Signal Analyst Icons		
Color	Status	
Green	No Alarms	
Yellow	Minor Alarm	
Orange	Major Alarm	
Red	Critical Alarm	

Signal Analyst Icons			
Shape	Device		
Diamond	Fiber Node		
Hexagon	Power Supply		
Circle	Headend / Hub / GX2 / Prisma		

Table 4-4, Signal Analyst Icons

When hovered over, the icons display the name, location and transmission path of each fiber node in the network, along with any associated power supply connections. Clicking the device will open the device's Web page. Transmission paths between the fiber nodes help isolate faults in the network. Each transmission path is depicted as a line between fiber nodes and can be assigned an upstream or downstream path.

/ NOTICE:

The alert status of the icons and paths can take up to a few minutes to update.

NOTICE:

When a device is added or moved, it adds or modifies the GPS coordinates in its device configuration.



Fig. 4-20, Signal Analyst

Signal Analyst Designer

The Signal Analyst Designer tool is used to configure devices to be shown in the Signal Analyst tool. Connections between power supplies and fiber nodes are configured on this page and are represented by different colors:

Signal Analyst Designer Icons		
Color	Status	
Pink	Unconnected	
Blue	Connected	
Green Line	Upstream Connection	
Blue Line	Downstream Connection	
Dark Blue Line	Power Supply Connections	

Table 4-5, Signal Analyst Designer Icons

Additional device details can be seen in the **Hover** window when hovering over a device on the map and as a tooltip.





To add a device to the Signal Analyst Designer:

- 1. Ensure that the proper tree is selected.
- 2. Navigate to the desired location on the map for the new device.
- 3. On the desired location, click the map.
- 4. In the Add Device panel, expand or collapse the devices (if adding a power supply, the Show Power Supplies checkbox must be checked).
- 5. Select the **Radio** button for the desired device.
- 6. Click Add.

Relocate a device by dragging and dropping its icon to a new place on the map. This will alter the GPS coordinates in the device's configuration.

To remove a device, select an existing device, and click **Remove Node** or **Remove PS** in the Edit panel.



NOTICE:

Even when a device is deleted from the map, the device's location is still saved in the database and will reappear if the map is redrawn.

To add a fiber span connection between two devices:

- 1. On the map, select a downstream Fiber Node.
- 2. In the edit panel, enter a Span Name for the connection.
- 3. In the edit panel, select the **Radio** button for the desired upstream connecting device.
- 4. For the Fiber Span Type, select Upstream To or Downstream From.
- 5. Click Next.
 - If the "Upstream To" relationship type is selected, the Edit Node panel will display any unassigned Return Laser endpoints contained within the "downstream" fiber node that are available to be assigned as origination endpoints in the "upstream" Fiber Span.
 - If the "Downstream From" relationship type is selected, the Edit Node panel will display any Optical Receiver endpoints contained within the "downstream" fiber node that are available to be assigned as termination endpoints in the "downstream" Fiber Span.
- 6. Select the **Checkbox(es)** of the Return Laser(s) or Optical Receiver(s) endpoints.
- 7. Click Save.

To add a power connection between a node and power supply:

- 1. On the map, select a **Power Supply**.
- 2. In the edit panel, enter the **Power Connection Name**.
- 3. Select the Radio button for the fiber node that is powered by the selected power supply.
- 4. Click Add.

To edit an existing fiber span or power node connection, click on an existing device to open the edit panel and repeat the steps used to add a fiber span or power node connection.

To remove an existing connection between two nodes, select the line connecting the two nodes and click **Delete**.

4.3 Reports

Alpha XD offers the following types of reports:

Report Types and Outputs				
Report Type	Output			
Device Reports				
Device Configuration Report	PDF			
Device Status Report	PDF			
Device Inventory by Type	PDF, CSV			
Provisioned Transponders Report	PDF, CSV			
Transponder Firmware Report	PDF, CSV			
Fault Reports				
Alert Report by Category	PDF, CSV			
Alert Listing Report	PDF, CSV			
Active Alert Status Report by Device	PDF, CSV			
Device Dead Report	PDF, CSV			
Alert Analysis Report	PDF, CSV			
Power Supply Alert Report	PDF, CSV			
Power Outage Summary Report	CSV			
Power Outage Detail Report	CSV			
Performance Reports				
Battery Analyst Report	PDF, CSV			
Battery Summary Report	HTML, CSV			
Scheduler Report	PDF, CSV			
Page Alert On-Call Report	PDF, CSV			
Power Supply Test Status Report	PDF, CSV			
Current XM360 Reports	PDF			
Historical XM360 reports	PDF			

Table 4-6, Report Types and Outputs

To generate any of the following reports, select the desired report and follow the onscreen instructions and filters.

Device Report Descriptions			
Device Reports			
Device Configuration Report	The Device Configuration Report contains the configuration information stored in the database for a selected device.		
Device Status Report	The Device Status Report displays the current data for all measured attributes of the device.		
Device Inventory by Type	The Device Inventory by Type report displays all monitored devices, grouped by device type.		
Provisioned Transponders Report	The Provisioned Transponders Report displays the display name, MAC address, IP address, last download date/time, last update date/time, the contents of user field 1-5, and the location.		
Transponder Firmware Report	The Transponder Firmware Report is used to view device firmware versions in the Alpha XD system. Firmware versions are gathered from the following OIDS: docsDevSWCurrentVers (3348 and 3349 DOCSIS®), commonVendor (Non DOCSIS® HMS), and firmwareVersion (CL Legacy devices). The report displays the display name, IP address, MAC address, device modifier, and the firmware version.		

Table 4-7, Device Report Descriptions

Fault Report Descriptions			
Fault Reports			
Alert Report by Category	The Alert Report by Category contains detailed alert information for the selected device types (categories) and severities, grouped by categories (e.g., all fiber nodes, all power supplies, etc.) for a specified data range.		
Alert Listing Report	The Alert Listing Report lists the alert information for the selected categories and severities, grouped by severity.		
Active Alert Status Report by Device	The Active Alert Status Report by Device lists the currently active alerts for the selected categories and severities. This report is analogous to the alarms displayed in real-time in the Notifier.		
Device Dead Report	The Device Dead report lists devices that are either not communicating or are not present in the network.		
Alert Analysis Report	The Alert Analysis Report displays selected devices having the most numerous repeat alarms. This is a diagnostic tool that allows users to identify those devices most often generating repeat alarms.		
Power Supply Alert Report	The Power Supply Alert Report contains multiple filters that allow analysis of the alerts that were generated on specific power supplies during a designated time period.		
Power Outage Summary Report	The Power Outage Report contains multiple filters that allow analysis of the Pass/Fail Thresholds on power supplies during a specified time period.		
Power Outage Detail Report	The Power Outage Detail Report contains multiple detailed filters that allow analysis of the monitor Pass/Fail Thresholds on power supplies during a specified time period.		

Table 4-8, Fault Report Descriptions

	Performance Report Descriptions				
Performance Reports	Performance Reports				
Battery Analyst Report	The Battery Analyst Report contains the results from automatic (background) and/or manual (on- demand) power supply tests. Results can be filtered for the report by specifying either devices or schedule names.				
Battery Summary Report	The Battery Summary Report provides the ability to display power supply test result summaries in two different formats. The first format, the All Tests, Single Power Supply format, provides all of the test results for one power supply. The Latest Test, Multiple Power Supplies format provides one test result (the most recent result) for each power supply in the list.				
Scheduler Report	The Scheduler Report can contain information regarding either details or results of selected schedules.				
Page Alert On-Call Report	The Page Alert On-Call Report produces a listing of the technician on-call schedules.				
Power Supply Test Status Report	The Power Supply Testable Report (PDF) contains information regarding the selected power supply's last test time and if testing is disabled/enabled. The CSV version of the data contains the additional information of Battery Test Groups associated with a device and if a Power Supply is testable or not.				

Table 4-9, Performance Report Descriptions

XM360 Certification Report Descriptions						
Reports						
Current XM360 Certification Reports	Provides current information with regard to Power Supply, Battery and Transponder reports. Also, enclosure location and Plant Loading Reports are displayed.					
Historical XM360 Certification Reports	Provides historical information with regard to Power Supply, Battery and Transponder reports. Also, enclosure location and Plant Loading Reports are displayed.					

Table 4-10, XM360 Certification Report Descriptions

Reports

Hovering over Reports on the Tabs Bar opens a window allowing the operator to select Reports/Scheduling/Scheduler Reports. Selecting reports opens the page shown below.

X ALPHA XD	360			
ohaXD Tools Repo	orts Faults Network Inventory Admin	istration Help		
	Device Reports	Output	Performance Reports	Output
	Device Configuration Report	PDF •	Battery Analyst Report	CSV T
	Device Status Report	PDF *	Battery Summary Report	HTML Y
	Device Inventory by Type	csv •	Scheduler Report	CSV *
	Provisioned Transponders Report	CSV T	Email Alert On-Call Report	CSV •
	Transponder Firmware Report	CSV T	Power Supply Test Status Report	CSV •
	Fault Reports	Output	Network Tracker Reports	Output
	Alert Report by Category	CSV •	FCC Pre-Test Report	CSV *
	Alert Listing Report	CSV •	FCC 24hr Variance Report	CSV •
	Active Alert Status Report by Device	CSV T	FCC 6month Variance Report	PDF *
	Device Dead Report	CSV Y		
	Alert Analysis Report	CSV T		
	Power Supply Alert Report	CSV T		
	Power Outage Summary Report	CSV Y		
	Power Outage Detail Report	CSV Y		
	XM360 Certification Reports	Output		
	XM360 Polling Report	View		
	XM360 Unknown Report	View		

Fig. 4-22, Reports Page

Viewing XM360 Certification Reports (Polling, Unknown) will open the following screens (sample data shown):

X	ALPHA XI	1 (C) xm360								We	lcome roo	ot	
phaXD	Tools	Reports Fau	its Network Inve	ntory A	Administration	Help							
M	360 Po	olling Hi	story										Export to
Repo	ort Name			Status	Error Details	s Start Date	End Date	Number of Events	Known Reports	Unknown Rep	orts		
Full	Charter Tab	le Data Downloa	d (API), 12/4/2018	3 0	OK	12/4/18, 12:17 PM	12/4/18, 12:17 PM	14	1	13			
Full	Charter Tab	le Data Downloa	d (API), 12/1/2018	3 0	OK	12/4/18, 12:01 PM	12/4/18, 12:01 PM	0	0	0			
Full	Charter Tab	le Data Downloa	d (API), 12/4/2018	3 0	OK	12/4/18, 12:07 PM	12/4/18, 12:07 PM	14	0	14			
Full	Charter Tab	le Data Downloa	d (API), 12/4/2018	3 0	OK	12/4/18, 12:33 PM	12/4/18, 12:33 PM	14	1	13			
haXD	Tools 360 Pl	Reports Faul M Certifi Polling Run Id	Its Network Inve ication U Site Id	ntory A nkno Cert Report	udministration wn Rep t Link	Help Dort	_	_	Comm	Weld	come root	: Model I	Export to
	12		99-532-CE	https://ym	360 alpha con	Documents/XM Report	+ 70449d95-a756-4f	55-bcd6-6aace97cd	224 pdf ALPH4	195GXI	PN-3	2	018-12-04
	13		99-533-AD	https://xm	360 alpha.com	/Documents/XM_Report	t 37fdf782-0e34-410	1-a9b7-190e9daf77	Bondf MK F2	7 SID G	PN-3	2	018-12-04
	14		99-533-E	https://xm	360.alpha.com	/Documents/XM Report	t 85506db0-e9b9-42	db-b3b4-dede5146	6faf.odf ALPHA	195GXL	PN-3	2	018-12-04
	1		00 000 L	The post / All	o o o o o o o o o o o o o	, o o control Min_hcpoi	C0000000000000000000000000000000000000	ab 5551 0000140	ALL THE	1 I D D D T L		1 6	0.0 12 0.

99-352-CF	https://xinsoc.aipita.com/bocuments/xin_Report_70449095-a736-4135-bcu6-6aace97cu224.pu1	ALPHA 1930AL	PIN-D	
99-533-AD	https://xm360.alpha.com/Documents/XM_Report_37fdf782-0e34-41d1-a9b7-190e9daf773c.pdf	MK E27 SLD G	PN-3	
99-533-E	https://xm360.alpha.com/Documents/XM_Report_85506db0-e9b9-42db-b3b4-dede51466faf.pdf	ALPHA 195GXL	PN-3	
29-027-ACD	https://xm360.alpha.com/Documents/XM_Report_6f28c97c-5425-4a7d-bf77-0c7045cc3ed8.pdf	ALPHA 195GXL	PN-3	
99-088-B	https://xm360.alpha.com/Documents/XM_Report_426ebefb-dffa-49c1-afbd-576801f5355e.pdf	ALPHA 195GXL	PN-3	
00-007-ARC	https://ym360.alpha.com/Documents/VM_Report_af/b/df2_012a_/f0f_0aa7_97000606a22f.ndf	ALDUA 105CVI	DNI-2	

Fig. 4-23, XM360 Certifications Reports

2018-12-04

2018-12-04

28 29

Scheduling

The scheduler allows for collecting data on a set of user-specified devices or template attributes. Data can be collected on-demand or continuously, on a user-specified schedule. Multiple schedules can run simultaneously.

A Template-Based schedule performs data collection on all managed devices using the templates selected for the schedule. Selecting templates is similar to selecting devices for a Device-Instance-Based schedule, except after selecting the devices for the schedule, the Schedule Manager displays the templates used by the devices, and executes data collection on all managed devices using those templates.

To Create a Template-Based or Device-Instance-Based Schedule:

- 1. Click Add New.
- 2. On the following page select a **Template-Based** schedule (based on a template the devices are using) or a **Device-Instance-Based** schedule (based on a specific device).
- 3. Enter a **Schedule Name**. (This name cannot begin with a number and must not contain spaces or special characters.)
- 4. Click Continue.
- 5. Use the Search Criteria Properties to generate lists of devices to include in the schedule.
- 6. Click Search to obtain a list of devices that match the filter criteria.
- 7. To include a device in the schedule, select the Checkbox next to the device (multiple devices can be selected).
- 8. Click **Add**. (For a template-based schedule, the search results list changes from listing the devices to listing the templates associated with the devices.)
- 9. Select the Attributes tab.
- 10. Select the Checkboxes to collect data for the desired attributes.
- 11. Click Search.
- 12. To include an attribute in the schedule, select the Checkbox next to the device (multiple devices can be selected).
- 13. Click Add.
- 14. Select the Timing tab.
- 15. Select the One Time, Weekly, or Monthly tab and fill out the form fields.
- 16. Before leaving the Timing tab, it is important to click **Commit Timing Changes**, otherwise the selected timing parameters will not take effect.
- 17. Click Add Schedule.

To Clone a Schedule:

- 1. On the Scheduling page, scroll to the desired schedule.
- 2. At the right end of the desired schedule, click **Add From**.
- 3. Enter a **Schedule Name** (This name cannot begin with a number and must not contain spaces or special characters.)
- 4. Click **Continue**.
- 5. Make any desired changes to the cloned schedule and click Add Schedule.

To filter the schedules for easier management, click the **Schedule Name Drop-Down Menu** and select the desired criteria. Enter a value into the form field and click **Apply Filter**.

To view a schedule's results, navigate to the Schedule Management page by hovering over the **Reports** tab and clicking **Scheduling**. Find the desired schedule and click **View Results**.

Scheduler Reports

The Scheduler Reports is a licensed feature that allows the user to setup Alpha XD to generate scheduled reports from the Schedules in Schedule Management. These reports can be generated on a daily or weekly basis and can be setup to be e-mailed automatically. These generated reports are stored on the Alpha XD server in the following path: \Alpha XD\webclient\reporting\schedulerReports.

To purchase the license for the Scheduler Reports option contact your Alpha sales representative.

Any Schedule in Schedule Management can be setup in Scheduler Reports. Once one of the Schedules in Schedule Management is setup in Scheduler Reports, it cannot be selected again (it is removed from the Schedules dropdown on the Create Scheduler Reports page).



Fig. 4-24, Scheduler Reports Management

To add a Scheduler Report, click Add Scheduler Report. This will open the Create Scheduler Reports page.

ALPHA XD X11360				
AlphaXD Tools Reports	Faults Network Inventory	Administration	Help	
Create Scheduler Repo	ort			
Schedules:	*required			
Interval: 💿 Daily 🔍 Wee	kly *required			
Hour to Repeat:	*required			
Status: O Enabled O Disa	bled *required			
Optional, email addresse	s to send reports to:			
Emails to Include	Add			
Cancel Reset Sut	omit			

Fig. 4-25, Create Scheduler Report

In the Create Scheduler Report page click the *Schedules* drop down box to select one of the Schedules from Schedule Management. If there are no Schedules setup in Schedule Management nothing will appear in this drop down box. Also, the Schedule in Schedule Management needs to be Enabled and had run at least once for there to be data in the Scheduler Report.

Select the *Interval* in which it is desired to generate the report, Daily or Weekly. A Weekly report will retrieve one week's worth of data and a Daily report will retrieve 24 hours' worth of data.

Select the Hour to Repeat, 0:00 - 23:00.

Select the Status of the Report Generation. This needs to be Enabled for the report to be generated.

If it is desired to have the report e-mailed when generated enter an e-mail address in the *Emails to include* text box and then click the **Add** button. Additional e-mail addresses can be added after each click of the **Add** button.

Click the Submit button to save the settings for the Scheduler Report.

Once a Scheduler Report is created it can be deleted or edited by clicking the Edit button for the item.

4.4 Faults

Notifier

Alarms are generated when a fault or failure is detected in a network device. The Alpha XD Faults page displays current alarms (Alerts tab) and historical events (Events tab) for discovered and provisioned devices in the HFC domains using AlphaXD's Notifier application. The Dashboard tab is a visual display of the Faults Notifier data. Alarm displays are color-coded to provide a quick indication of alarm severity:







- In order to view events, a filter must first be applied (typically a filter with a date range).
- The default filter can be altered and applied but it cannot be saved.

The Fault Notifier layout is completely customizable to allow the user to see the most relevant and desirable information first.

To customize the view in the Fault Notifier:

- Hover over the List Icon and click Field Selection. Select/de-select the desired fields to be shown on the bottom half of the page, then click Update.
- Hover over the List Icon and click Filter Selection, and select/de-select the desired fields from the drop-down
 menus. The filter can then be saved after changing the Name property.
 - Assigning the filter will apply the filter to the currently selected Alerts or Events tab.
- Click the Plus Icon to add another tab (customize the tab with the Field Selection and Filter Selection options).
- Hover the List Icon and click Layout Selection. From here, the user can either save the current layout displayed on the screen, or select an already configured layout profile.

PDF and CSV reports of the data can be generated by hovering over the List Icon and clicking CSV or PDF.

The Dashboard tab contains detailed illustrated graphs relating to the various alarms.

Power Outage

The power outage monitoring (POM) of Alpha XD actively tracks power supplies affected by a commercial power outage. The module closely monitors the condition of the effected power supply's batteries to provide a clear picture of the situation in the field in order to prioritize truck routes and avoid network outages. The organization and functionality of the page is nearly identical to the Notifier page.

The power outage monitoring module combines information from a power supply's configuration data with real-time data received from power supply transponders, combined with user-customized parameters, to determine when a power supply triggers an alert that will be monitored by the power outage monitoring application.

Two available options for customizing the view in POM are **Field Selection** and **Layout Selection**. The **Field Selection** option allows the user to select the fields desired for display. The **Layout Selection** option allows the user to save the current layout to the database and/or select a layout from the database to be applied to the display.

Two Alpha XD services (in addition to the device-configuration information) provide the information to the power outage monitoring application.

The Battery Administration service and the CTPowerOutageMonitoringProcess service perform the required processing of input voltage alarms, dynamic determination of duration values and aggregation of alert information. From this information, displayed alerts are created, updated, and/or deleted. Consolidating the alert processing within these services allows the power outage application to update in virtually synchronous fashion.

Specifically, the two services provide the following information:

- Static device information concerning power supply characteristics (i.e., battery string configurations)
- Device measurement information concerning total string voltage
- · An algorithm to determine duration of standby remaining
- An algorithm to determine potential truck dispatch time
- Processing of input voltage drop alarms (the threshold drop is externally parameterized)
- Aggregation of input voltage alarm information into a new critical alarm with a predetermined attribute

Additionally, the CTPowerOutageMonitoringProcess:

- Traps power supply input voltage drop alerts
 - Checks for an active critical alert with a predetermined attribute
 - If one exists, updates outage occurrence count and interval data
 - If one does not exist, creates new critical alert with associated default values (for example, 24-hour occurrence count, alarm status, standby status)
- Updates active alerts on a periodic cycle
 - The interval values, current status, and alarm status of each active alert are updated at a pre-determined interval
- Purges severity alerts after a specified "time to live" interval has expired (specified in pomMessageTimeToLiveInHours, described later in this chapter)
 - Power supplies that have active Power Outage Monitoring alerts are checked after the specified interval for their status (standby or normal)
 - If the power supply is not in standby and input voltage has returned to normal, its alert will be purged from the active alert list when the normal status duration exceeds the "time to live" interval (specified in pomMessageTimeToLiveInHours, described later in this chapter).

Portable DC Generator Monitoring

Alpha XD can identify when a portable generator is attached to a Power Supply during a commercial power outage. POM will check the average battery voltage each monitoring cycle, (every 3 minutes), and identify if the device is still in standby but the average battery voltage has exceeded the "Generator Thresholds". If so, the **Standby Remaining** column will be changed to read "**Generator Attached**" in lieu of the calculated **Estimated Standby Remaining** time and the POM calculation will cease calculations as long as the average battery voltage remains above the threshold. If the average battery voltage dips back down below the threshold and the device remains in standby, the **Standby Remaining** calculation will resume from where it had stopped before.

When a generator is sensed Alpha XD will:

• Flag a device in the Tree Viewer with an indicator that a generator is attached.



Fig. 4-27, Tree View with Flagged Device

• Indicate "Generator Attached" in the **Standby Remaining** column of POM when the POM senses a generator has been attached.

Power Outage Events									
Information		Severity	Tot	als	Percent Of Total				Applications
Server:rallo	ver:rallo Critical (0	0%				HFC 0	
Applied Filter: nor	ne	Major	2	2		100.00%			
Quick Filter: none		Minor	0	0		0%			
Session Duration:	: 00:05:57	Warning	0		0%				
Applied Layout: n	one	Info	0		0%				
		Clear	0		0%				
		Unknown	0			0%			
Standby Status	Status Started	Status Duration	Standby Remaining	Gen Status	Gen Onsite	Gen Elapsed	Gen Remaining	Gen M	odel
Standby On	07/28/2017 12:43:07	01:48:01	Generator Attached	Running	07/28/2017 12:50:22	01:38:23	Unknown		tationary
Standby On	07/28/2017 12:40:45	01:50:23	Generator Attached	Running	07/28/2017 12:47:22	01:41:23	30:01:48		DCX2000

Fig. 4-28, "Generator Attached" in POM

- Display the Gen Status in a new column in POM. This column will display one of the following values:
 - Running
 - Stopped at mm/dd/yyyy hh:mm:ss Service?
 - Removed at mm/dd/yyyy hh:mm:ss
 - Power Restored at mm/dd/yyyy hh:mm:ss
- Display the **Gen Onsite Time** in a new column in POM. This will display the clock time at which the generator was attached to the device.
- Display the **Gen Elapsed Runtime** in a new column in POM. This will display the total elapsed runtime of the attached generator.
- Display the **Gen Model** in a new column in POM. This will display the model of the attached generator.

- Allow the user to manually reset the **Gen Elapsed Runtime** by right clicking on the event and selecting "Refuel Generator."
- Allow the user to manually set the **Gen Model** of the attached generator by right clicking on the event and selecting the generator type. Possible types are DCX2000, DCX3000, Stationary, Other, and Unknown.

<u>NOTICE:</u>

If a stationary generator is being monitored by the transponder and Alpha XD senses the Stationary generator is running, Alpha XD will automatically populate the Gen Model field as Stationary in POM.

- Allow the user to manually indicate a Generator has been removed by right clicking on the event and selecting "Remove Generator" (The Generator removal can also be set from right clicking the device in the tree and selecting "Remove Generator").
- Display the **Gen Remaining** in a new column in POM. This will display an estimated runtime remaining for the attached generator.



The Gen Model must be set to either a DCX2000 or DCX3000 before the Gen Remaining field indicate an estimated time. Until the Gen Model is set to one of the two types the field will indicate Unknown.

POM Dashboard

The POM Dashboard allows the user to view live and historic power supply/transponder statuses displayed on a map and in the form of charts.

To access the POM Dashboard, select Faults and then **POM Dashboard** from the menu bar.



Fig. 4-29, Access POM Dashboard

Overview

The POM Dashboard allows the user to view live and historic power supply/transponder statuses displayed on a map and in the form of charts. This information can be filtered by preconfigured Regions, Areas, and Hubs. See the Alpha XD Administrator's Manual (P/N: 035-511-B0-001) for instruction of how to configure the regions, areas, and hubs and how to assign devices.

To view the mapped and charted data select the desired location filters on the right of the page and then click the Map Live Button. Information for all devices associated with the selected filter will be displayed.



NOTICE:

If there are devices associated to the filter but do not have a location they will not appear on the map but will be included in the charts. Also, there will be a message below the location filters stating there are devices that cannot be displayed because they are missing coordinates.



Fig. 4-30, POM Dashboard

To Clear the Map click the Clear Map button.

Page Information

Color Codes:

When "Live" Data is viewed, the color codes are as follows:

Green - Normal: Devices that do not have an outage.

Blue - Not Reporting: Devices that do not have an outage but are not reporting.

Yellow - Inverter On: Devices that currently have an outage and are running on batteries.

Red - Service Outage: Devices that had an outage and now have a service outage.

When "Historical" Data is viewed, the color codes are as follows:

Green - Normal: Devices without an outage in the selected time span.

Yellow - Inverter On: Devices that had an outage and were running on batteries in the selected time span.

Orange - Service Outage/Pass: Devices that had an outage and had a service outage during the selected time span but the batteries lasted longer than expected (the set threshold in the PowerOutageMonitoring_Parameters.xml file).

Red - Service Outage/Fail: Devices that had an outage and had a service outage during the selected time span and the batteries did not last as long as expected (the set threshold in the PowerOutageMonitoring_Parameters.xml file).

Мар

The map displays the locations of the devices associated to the location filter and the status of each device. Depending on the level of zoom, devices in close proximity of each other will be clustered on the map. The clusters will only contain devices with the same status. The number of devices in the cluster will appear under the cluster circle. To zoom in on the map and see the individual devices in the cluster click on the desired cluster. Hovering the mouse pointer over an individual device will display a tooltip with the device display name. Clicking on an individual device will display the Display Name, IP Address, MAC Address, Status, Number of Outages, and Standby Time Remaining.

Power Outage Events Chart

This chart displays the total number of devices associated to each condition. Hovering the mouse pointer over a bar makes a tooltip appear that displays the number of devices associated to the condition. Click on a bar to open the "POM Event Details" page to view information about the devices associated to the selected bar. From the "POM Event Details" page the displayed data can be exported to a CSV report.



Fig. 4-31, Power Outage Events Chart

Runtime Remaining Chart

This chart displays the number of devices that fall under the displayed time estimates for the remaining runtime of the devices with a power outage. There is also a category to displays the number of devices that are running on a generator. Hovering the mouse pointer over a bar makes a tooltip appear that displays the number of devices associated to the condition. Click on a bar to open the "PS Outage Details" page to view information about the devices associated to the selected bar. From the "PS Outage Details" page the displayed data can be exported to a CSV report or routes can be mapped to the device(s).



Fig. 4-32, Runtime Remaining Chart

Pie Charts

These charts display the percentage of devices in the different statuses. The pie charts shown depend on what location filter is set. If filtered on a Region, the Area pie chart is displayed. If filtered on an Area, the Hub pie charts are displayed. If filtered on a Hub, the specified Hub pie chart is displayed. Hovering the mouse pointer over a pie chart slice makes a tooltip appear that displays the number of devices associated to the condition. Click on a pie chart slice to open the "POM Event Details" page to view information about the devices associated to the selected bar. From the "POM Event Details" page the displayed data can be exported to a CSV report. The name buttons below the pie charts are clickable and will automatically export the Outage Details to a CSV file.



NOTICE:

Only outage details will be exported from the pie chart, Normal and Not Reporting devices will not be included in the CSV report.



4.5 Network Inventory

AlphaXD's Network Inventory page offers the ability to manage the configuration of network devices from a single location. The Network Inventory page provides a summary, as well as detailed information, about the configuration status of the devices in the network.

The page is divided into two sections:

- The top half of the page summarizes the configuration status of devices in the chosen network, grouped by device type.
- The bottom half of the page displays individual information for the device or devices selected in the top section.

To View and Manage Devices in the Network:

- 1. Choose a tree view to display by selecting a tree from the **View Name Drop-Down Menu**. (Selecting native will display all managed elements in the network.)
- 2. In the Configuration Status Summary pane, clicking a table cell with a number will display all of the devices in that category on the bottom half of the screen.
- 3. Select one or several devices and right-click to display the local context menu and configure the device as normal.

Selecting the right-hand drop-down menu reveals 2 options, **CSV** and **Field Selection**. The **CSV** option allows the currently displayed bottom half of the Network Inventory screen to be exported to a CSV report. The bottom half shows all devices that match the selected Tree and upper-half cell. Only columns that are currently displayed will be exported. The **Field Selection** option allows the user to select multiple fields for display, or to be hidden.



Fig. 4-34, Network Inventory Page

/ NOTICE:

For more information on configuring devices or templates, see the section titled "Provisioning Devices".

4.6 Administration — XM360 Configuration

To Configure the XM360 Integration, select the **Administration** button on the XD Tab bar. From the drop down window, select **Alpha XD Admin**. From the next window, select **XM360 Configuration**. The Configure XM360 Integration page will appear allowing the operator to enable the configuration, log in, name and set a start time and date for the polling run. Additionally, the operator may force a polling run from this window. This page also displays the last time the polling ran and when the next poll is scheduled to run.



Fig. 4-35, Location of XM360 Configuration via Administration Button

REC ELEMENT MONTORING	D D XM360						
AlphaXD Tools	Reports Faults Network Inventory A	dministration Help	-	-	-	_	
Configure XI	1360 Integration				Force	e Polling Run	
Status	● Enabled ◎ Disabled						
User Name	ContinuityTest						
Password	••••••						
Report Name	Full Charter Table Data Download (API)						
Start Date	2018-12-04						
Hour	2:00	ic Standard Time)	Ŧ				
Last Run Next Run	Wed Dec 05 2018 12:17:42 GMT-0800 (Paci	ific Standard Time)					
Update E	ack						

Fig. 4-36, XM360 Configuration Window

4.7 Help

Technical Support information can be found in the Help tab along with links to the latest Alpha XD documentation.

The latest Alpha XD Version is listed at the top of the page.

Click View the Alpha XD User Guide from the Alpha website to load the User Manual PDF.

Click View the Alpha XD Administrator Guide from the Alpha website to load the Administrator Manual PDF.



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