

Mobile Access Portal Gateway User's Guide

TL-MAP1810-0Px TL-MAP-1810-0Sx

Code No. LIT-12011999
Software Release 4.2
Issued February 2018

Refer to the [QuickLIT website](#) for the most up-to-date version of this document.

Summary of Changes	2
Mobile Access Portal Gateway Introduction	2
MAP Gateway UI and Navigation	2
Security.....	4
Configuration Tool.....	4
Main Menu.....	5
MAP Gateway Settings.....	6
Commanding Points in MAP Gateway	9
Appendix: Creating an Audit Log	11
Appendix: Reset Button Operation and Description	14
Troubleshooting	16
Related Documentation and Videos	17

Summary of Changes

The following information is new or revised:

- Added support for BCPro™.

Mobile Access Portal Gateway Introduction

The Mobile Access Portal (MAP) Gateway is a pocket-sized web server that provides a wireless mobile user interface to Smart Equipment and Johnson Controls® branded system controllers and thermostats. Small, lightweight, and easy to use, the MAP Gateway joins the rapidly expanding list of Johnson Controls products that leverage the power of mobility and smart devices to improve daily operations. The MAP Gateway may be used as a portable device (carried from site to site, as needed by field personnel) or it may be permanently mounted on-site.

This document describes day-to-day use and features of the MAP Gateway, including where to find settings and how to navigate the screens, but does not address equipment controller details. For more information on individual controller and application settings, refer to the associated technical literature.

You can use the MAP Gateway to communicate with field controllers of several different systems, including *Metasys*®, *Facility Explorer*®, and *BCPro*™. The MAP Gateway can also talk to Smart Equipment rooftop units (RTUs) with Simplicity SMART Equipment (SSE) control boards. The MAP Gateway supports Johnson Controls branded field controllers, including FEC, FAC, VMA, PCA, PCG, and PCV Series devices. It also supports the TEC3000 Series Thermostats.

Notes:

- SSE control boards are also known as Unitary Control Boards (UCBs) in some instances.
- The MAP Gateway **cannot be used** on Smoke Control systems or *Metasys* for Validated Environment (MVE) sites.

MAP Gateway UI and Navigation

The MAP Gateway User Interface runs in a secure web browser on your computer or mobile device. It is scalable to work on computer screens and the smaller screens of mobile devices. When you first log in to the MAP Gateway, you are presented with the Access Point Legal Disclaimer as well as the MAP Gateway and License information. You must agree to this information in order to access the MAP Gateway. When you click **I Agree**, you will be able to log into the MAP Gateway to configure it and view the data of its discovered controllers. See the MAP Gateway UI [Figure 1](#). The exact view on different web browsers and different devices may vary, but the basic layout and functionality is the same.

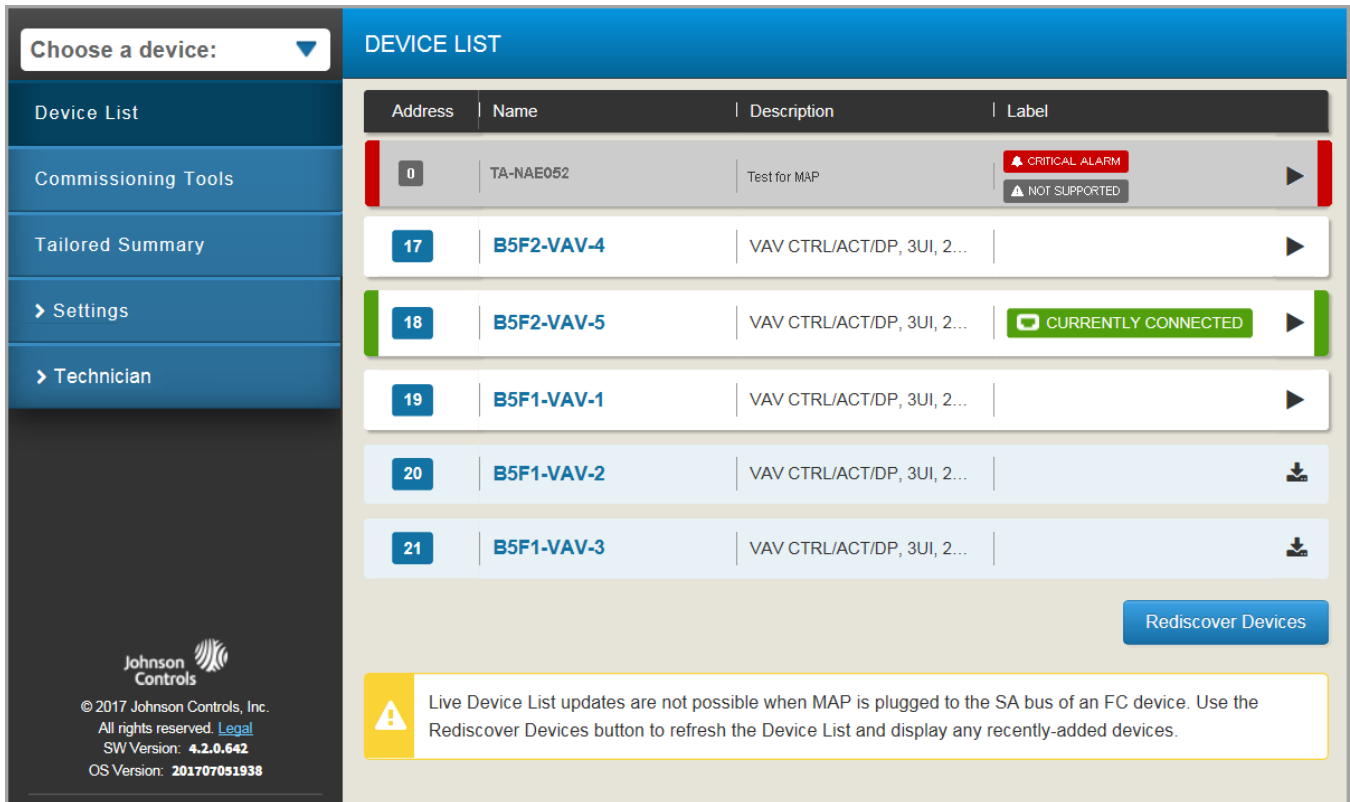
From the **Home Screen**, the left panel of the UI allows you to select a specific device from the **Choose a device** drop-down list, choose **Settings** to access and modify settings of the MAP Gateway, perform software updates and other administrative tasks depending on the user's role, or choose **Admin** to log out or change your password.

The right pane contains the full list of devices that the MAP Gateway has discovered. Each entry in the device list shows the device address, the name, a description, signal strength, and a label. A green label that says **Currently Connected** indicates that the MAP Gateway is connected directly to that device's SA Bus. If you are connected directly to the SA Bus of an SSE or UCB on Smart Equipment, you can see all devices on that network. If you are connected directly to the SA Bus on a field controller, you have the ability to see all the devices on the network, however, the device list is not automatically updated when new devices are added. Therefore, you need to click the **Rediscover Devices** button to get updates to the device list when connected to the SA bus of a field controller.

If the row is light blue and shows a down arrow icon, it indicates that the discovered device is online but its system points have not yet been read or discovered. Clicking the row instructs the MAP Gateway to retrieve the available views and points from that device. Until the device has had its points discovered, it is not selectable from the **Choose a device** drop-down list. Once the device points have been discovered, the icon changes to an arrowhead as shown in the following figures.

A light grey device list entry background with a Not Supported label indicates that the MAP Gateway identifies a device online but does not recognize it as a supported device.

Figure 1: MAP Gateway UI



The MAP Gateway uses colored bars to indicate the condition of points and alarms. These bars enable the user to quickly get the most important statuses from a long list of points. Points that are in an alarm status show red bars at left and right sides of that point's entry in the list. Points that are overridden or Out of Service show orange bars. Points that are Offline show black bars. These colors and rules match the default indicators in *Metasys* systems. Point values that are read-only show grey borders.

Navigating in the MAP Gateway UI

When using the MAP Gateway through a web browser on a computer, you see the entire user interface with the left side of the MAP Gateway dedicated to menu selections and the right side dedicated to equipment selections. You can select, view, or adjust the Device List, overall settings, and Admin Options. When navigating to other menus, a menu button appears at the top of the list to allow you to return to the home screen.

When viewing the MAP Gateway interface on a phone or mobile device, the screen displays either the menu selections on the left or the equipment selections from the right. You can slide the screen left or right to see the desired selections.

For information on MAP Gateway settings, see the [MAP Gateway Settings](#) section.

Security

The MAP Gateway uses security certificates to authenticate itself to web browsers. Refer to the *Mobile Access Portal Gateway Network and IT Guidance Technical Bulletin (LIT-12012015)* for information on installing and using security certificates.

The first time you log in to the MAP Gateway, the Change Password and Passphrase web page appears. You must change the Admin password and Wi-Fi passphrase. MAP Gateway passwords must have at least eight characters, at least one digit (0–9), and one upper case letter (A–Z). The Wi-Fi access point passphrase must have at least eight characters, but there are no other restrictions.

Follow these simple rules to add complexity to your password:

- Use a password that is at least eight (8) characters in length (and preferably longer than eight characters).
- Do not use dictionary words in your password.
- Use uppercase and lowercase letters.
- Use numbers.
- Use symbols such as \$, %, &.

If you forget the Admin password, you can reset the MAP Gateway to the factory password that is located in the original Quickstart Guide. For this reason, you should maintain physical security of the *Mobile Access Portal Gateway Quick Start Guide (Part No. 24-10737-16)* with the passphrase on it to discourage unauthorized attempts to access equipment.

Configuration Tool

Field Controllers use the Configuration Tool (CCT or PCT) to configure content displayed for the MAP Gateway. You can configure the display after you select the hardware in the Hardware Definition Wizard of the Configuration Tool. Once a display is configured for and downloaded to a controller, a MAP Gateway is able to use the configuration data to determine what information it shows for that controller.

Note: The default controller setting of the CCT divides configured points into generic sections of Input, Output, and Miscellaneous. These sections do not always match what is shown in the MAP Gateway. Therefore, some points displayed in the Inputs list in the CCT may show up in the Parameter Category in the MAP Gateway. However, you may use a custom display object in the CCT to define how the groupings of points appear in the MAP Gateway.

For more information on how to define CCT, see *Control Tool Help. (LIT-12011147)*.

Display Configuration

Use a custom display object to determine how information displays in the MAP Gateway UI.

For the MAP Gateway, the Display Configuration allows you to:

- define which folders and points appear on the home page
- define the order and groupings of folders and points on the home page
- edit point user names and descriptions using the Mass Edit feature

After you configure the display and download the application to the controller you can then click **Rediscover Devices** in the MAP Gateway Device List page. The MAP Gateway is refreshed and reads the new display information.

Main Menu

Table 1: MAP Main Menu Descriptions

Menu Selection	Description
Device List	<p>When the MAP Gateway is connected to a network, it detects the devices on that network and populates the Device List. You can select individual devices to view or command directly from the list or by using the Choose a device drop-down list. Selecting a device takes you to that device's home page.</p> <p>If a device in the Device List has a down arrow icon and the device row is light blue, its points were not downloaded to a MAP Gateway. Click the device to read and show the points. A right pointing arrow in a white device field indicates that the points have been read and may be viewed or edited by clicking the device row. If a device row is grey, the device is seen on the network, but is not supported by MAP and its points cannot be viewed or edited.</p> <p>If you do not see devices that you believe should be on the network, or that have been added to the network since a MAP Gateway was added - click the Rediscover Devices button to have the MAP Gateway clear and repopulate the device list.</p>
Commissioning Tools, Sites and Trunks	<p>MAP 4.2 provides a new framework for technicians, installers, and balancers to perform basic commissioning and validations steps.</p> <p>Note: Data which is part of MAP 4.2 Commissioning Tools is stored in the web browser's storage. Clearing web site data for your browser will cause the loss of Commissioning Tool's sites, trunks, and commissioning data.</p> <p>For more information on Commissioning Tools, visit uLearn at https://jcpublish.kzoplatform.com/containers/957891534378768109.</p> <p>Sites and Trunks</p> <p>A site is a freely definable organizational unit, for Commissioning Tools, that helps you keep track of the trunks to which devices are connected by maintaining a list of the trunks you have assigned to each site. A site and its trunks are usually associated with a certain location in your facility and are used to associate trunks with certain equipment systems.</p> <p>For more information on adding Sites and Trunks, visit uLearn at https://jcpublish.kzoplatform.com/containers/957891534378768109.</p>
Device and Point Checkout	<p>The Device Checkout validation option allows an installer or technician to verify the point wiring for each controller on an MS/TP trunk and provide a report on each device that captures the verification steps.</p> <p>For more information on Device and Point Checkout, visit uLearn at https://jcpublish.kzoplatform.com/containers/957891534378768109.</p>
Tailored Summaries	<p>Similar to the Tailored Summary views found in SCT and SMP, MAP 4.2 allows users to apply summary definition files to a set of devices discovered on an MS/TP trunk.</p> <p>The Tailored Summary MAP view is in the form of a "tile" for each controller instead of a table to optimize the viewing area of the points per device being displayed. Once a summary definition is applied, you are able to sort the tiles based on one of the points in the definition. You are also able to select one or more devices in the view and command or override points found on each controller.</p> <p>For more information on Tailored Summaries, visit uLearn at https://jcpublish.kzoplatform.com/containers/957891534378768109.</p>

Table 1: MAP Main Menu Descriptions

Menu Selection	Description
<p>Live Trend</p>	<p>The Live Trend allows a technician to quickly select up to four points on a controller to poll and trend real time.</p> <p>During the trend session, any point of the device can be commanded or overridden to see the reaction in the trend view session. You can save the trended data collected during the session into a report.</p> <p>For more information on the use of Live Trend, visit uLearn at https://jcpublic.kzoplatform.com/containers/957891534378768109.</p>
<p>AirFlow Balancing</p>	<p>The AirFlow Balancing function allows a Balancing Contractor to set the flow parameters using the VAV application in an intuitive user interface. During a balancing session, the velocity pressure autocalibration process is initiated before the balancing step occurs and the polarity setting on the damper is reversed if the actuator was linked incorrectly.</p> <p>For critical zones like lab spaces, a dual point balancing process is available to improve the accuracy of the control over the full range of flow. The balancing feature results is packaged for each device into a summary report. For more information on AirFlow Balancing, visit uLearn at https://jcpublic.kzoplatform.com/containers/957891534378768109.</p>

MAP Gateway Settings

This section describes how to adjust the settings of the MAP Gateway according to user level.

Figure 2: MAP Gateway Settings Menu (Administrator)

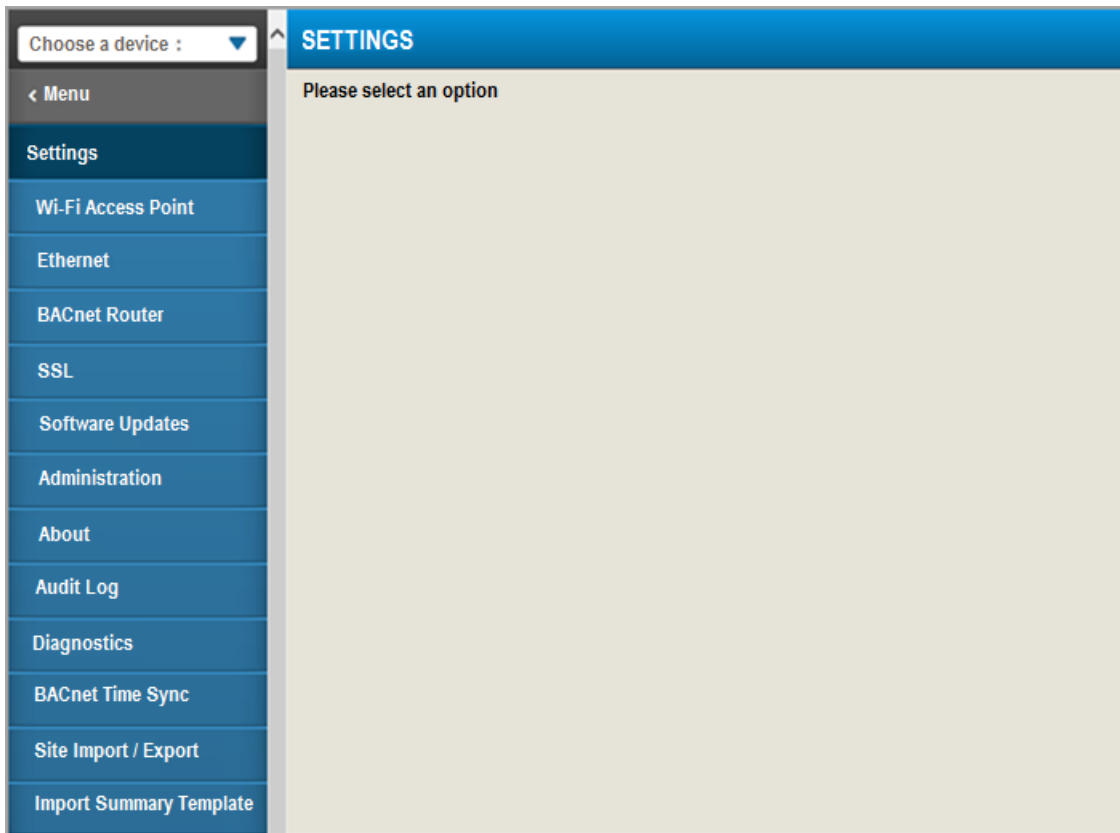


Table 2: MAP Settings Menu Descriptions

Menu Selection	Description
<p>Wi-Fi Access Point Settings</p>	<p>The MAP Gateway acts as an access point for connecting Wi-Fi devices such as cell phones, tablets, and laptops to your field controllers, wireless thermostats, and rooftop units on a building management network. All Admin and Technician users can change the Wi-Fi SSID and the Wi-Fi Passphrase fields under the Wi-Fi Access Point settings . The default settings for these two fields are included in the <i>Mobile Access Portal Gateway Quick Start Guide (Part No. 24-10737-16)</i>, which ships with each MAP Gateway.</p> <p>To access the Wi-Fi settings, click Wi-Fi Access Point in the Settings menu on the MAP Gateway UI. The first time you log in to the MAP Gateway, the system prompts you to change the Wi-Fi Passphrase. The Passphrase must be a minimum of eight characters.</p> <p>For more information on setting a secure password see Security.</p>
<p>Ethernet Settings</p>	<p>Access the Ethernet Settings screen from the Settings Menu when logged in as either an Admin or Technician user.</p> <p>If you are using Ethernet, you must have the MAP Gateway plugged into an external power source before connecting the coordinator.</p> <p>Note: A grey field is read-only; a white field can be edited.</p>
<p>BACnet Router</p>	<p>An updated connection type has been added for CCT and SCT to utilize MAP 4.2 as a BACnet Router to make a SA or FC Bus connection for transferring files to and from a controller, commissioning sessions with CCT or using the new SCT Trunk Utility Feature. This functionality eliminates the need for the BTCVT.</p> <p>Note: For the new IP controllers, MAP 4.2 can be used to connect to the SA Bus for use just on the one IP controller.</p> <p>For more information on the BACnet Router visit uLearn at https://jcpublish.kzoplatform.com/containers/957891534378768109.</p>
<p>SSL Settings</p>	<p>The SSL Settings screen shows the currently installed security certificate (if any) and allows you to install both a Private Key and a new certificate. Only an Admin user can perform the following procedure. Refer to the <i>Mobile Access Portal Gateway Network an IT Guidance Technical Bulletin (LIT-12012015)</i> for information on how to use SSL Certificates in a MAP Gateway.</p>
<p>Software Updates</p>	<p>This menu option allows for a software update package to be loaded into the MAP for updates.</p> <p>Note: The following procedure can only be performed by an Admin or Tech user.</p> <ol style="list-style-type: none"> 1. On the Settings menu, select Software Updates and click Choose File to navigate to the location of the new software image. 2. Click Upload to transfer the file into the MAP Gateway. 3. Click the Install button to have the MAP Gateway use the new file. 4. The MAP Gateway goes offline temporarily while the updates are applied, during which time you may see a Connection Problem message.
<p>Administration Settings</p>	<p>The Administration Settings screen can only be viewed by an Admin User. On this screen, an administrator can add or delete users, define user roles, and change passwords.</p>
<p>About Screen</p>	<p>The About screen can be viewed by any user and shows the versions of the various software components that make up the MAP Gateway software.</p>

Table 2: MAP Settings Menu Descriptions

Menu Selection	Description
Audit Log	<p>The Audit Log feature allows an Admin user to download and view a log of user actions on the MAP Gateway. When you select download, a text file containing entries for the following events is created.</p> <p>The log entry format contains (when available and applicable) the date, time, device name, timestamp, process name (process ID) and a message describing each event. The log is not cleared through software updates or factory resets of the MAP Gateway.</p> <p>Note: If a power failure occurs, the time and date stamp are not persisted and need to be set; therefore, some of the log entries may not have an accurate date and time stamp (for example, if the device lost its time setting from a power failure).</p> <p>For information on how to create an Audit Log see Appendix: Creating an Audit Log.</p>
Diagnostics	<p>The Diagnostics screen provides a method for product support personnel to access diagnostic information.</p>
BACnet Time Sync	<p>BACnet Time Sync allows you to set the time on the MAP Gateway and its discovered wireless devices. The time and date default to the computer's time and date, but you can change the time and date by clicking either the calendar or clock icon.</p> <p>Because the MAP Gateway does not have a battery backup for the internal clock, you must synchronize the time and date after the MAP Gateway is reset or loses power to ensure that the system logs have the correct time and date information.</p>
Site Import and Export	<p>MAP 4.2 provides a new framework for technicians, installers, and balancers to transfer commissioning site files to and from devices easily to perform basic commissioning and validations steps.</p> <p>For more information on the Site Import and Export Procedure, visit uLearn at https://jcpublish.kzoplatform.com/containers/957891534378768109.</p>
Import Summary Template	<p>The summary definitions for MAP tailored summaries are Attribute Templates that can be created with the CCT Trunk Utility functions and imported into a MAP for use on any project.</p> <p>For more information on the Import Summary Template, visit uLearn at https://jcpublish.kzoplatform.com/containers/957891534378768109.</p>

Commanding Points in MAP Gateway

Commands allow you to change a point's value. Commanding can also be done from Point Tailored Summary, Point Check Out and from Live Trend. To search for training videos on the use of Commanding Points in the MAP Gateway, visit uLearn at <https://jcpublish.kzoplatform.com/containers/957891534378768109>.

Figure 3: Parameters Screen

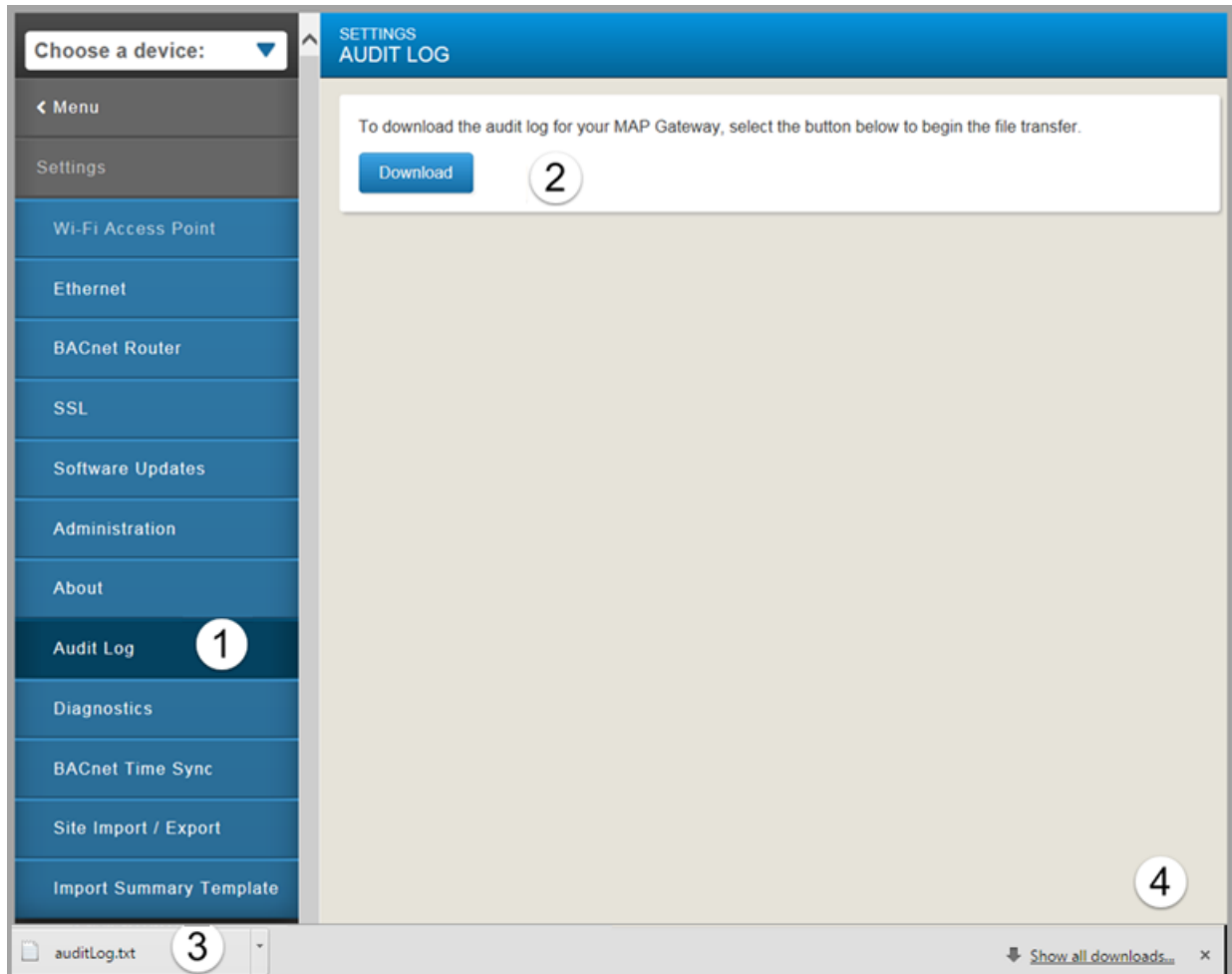
The screenshot displays the 'Parameters Screen' for 'WIN-10-VAV PARAMETERS'. The interface includes a sidebar on the left with navigation options: Home Page, Inputs, Outputs, Parameters (selected), Device List, Settings, and Admin. The main content area shows a list of parameters with their current values:

Parameter Name	Value
MINFLOWCO2-SP	700.0 ppm
OCC-LEVEL	0.0
OCC-MODE	Occupied <input type="checkbox"/> OFFLINE <input checked="" type="checkbox"/> COMMUNICATIONS FAILURE
OCC-SCHEDULE	Not Set
OCCMODE-BYPASSTIME	3,600 seconds
PFRES TART-EN	False
PFRES TART-TIME	60.0 seconds

Appendix: Creating an Audit Log

To download and view an audit log, refer to the callout numbers in the following screen:

Figure 5: Audit Log Download Screen

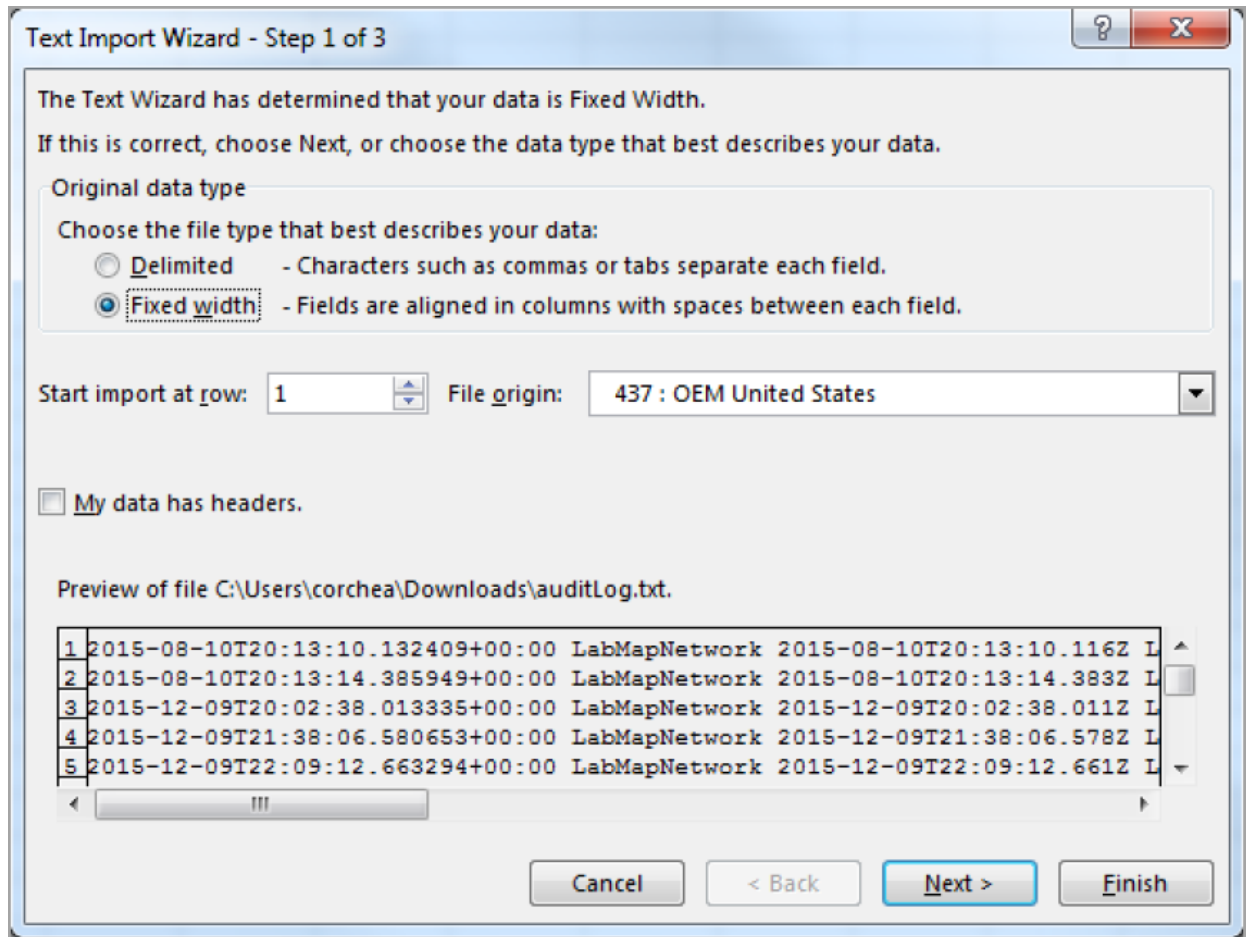


1. On the **Settings** menu, select **Audit Log**.
2. Click **Download**.

Note: The **Audit Log** overwrites anything that was previously downloaded. Move the existing file to another location before you download a new **Audit Log** if you wish to save an archived copy.

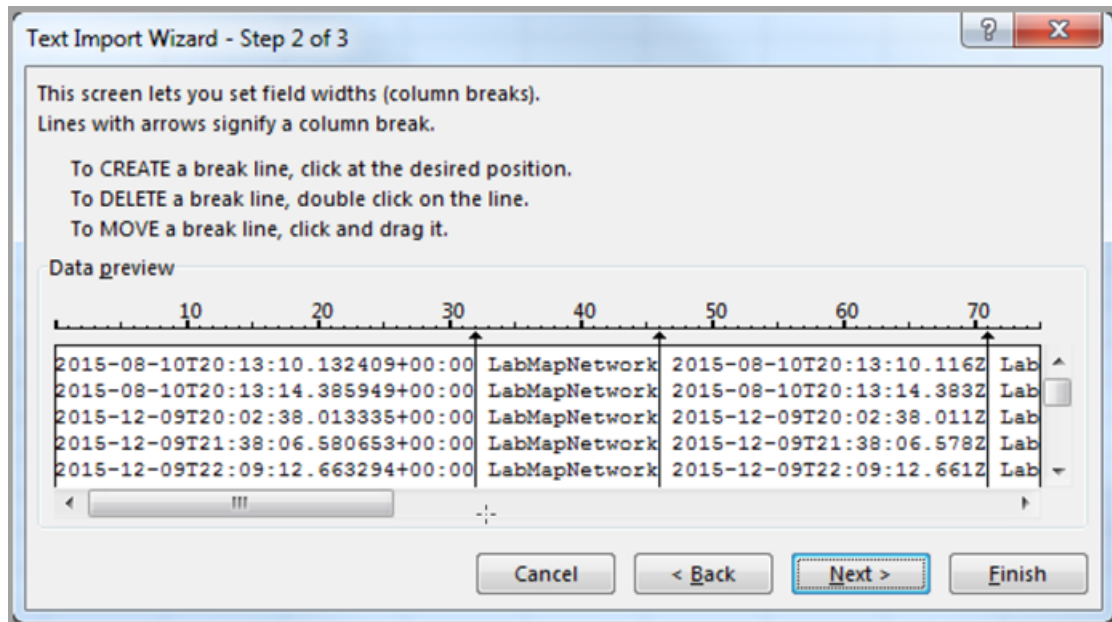
3. The auditLog.txt file appears in the lower left corner of the screen. Clicking the down arrow allows you to open it as a text file or show the file in the downloads folder on your computer.
4. The bottom right **Show all downloads**- option allows you to show all the files that have been downloaded.
5. From Microsoft® Excel®, navigate to the downloads folder.
6. Select **Text Files** (*.prn,*.txt,*.csv) as the file type to open and choose **auditLog.txt**.
7. Click **Open**. The Text Import Wizard appears at Step 1 of 3.

Figure 6: Text Import Wizard - Step 1



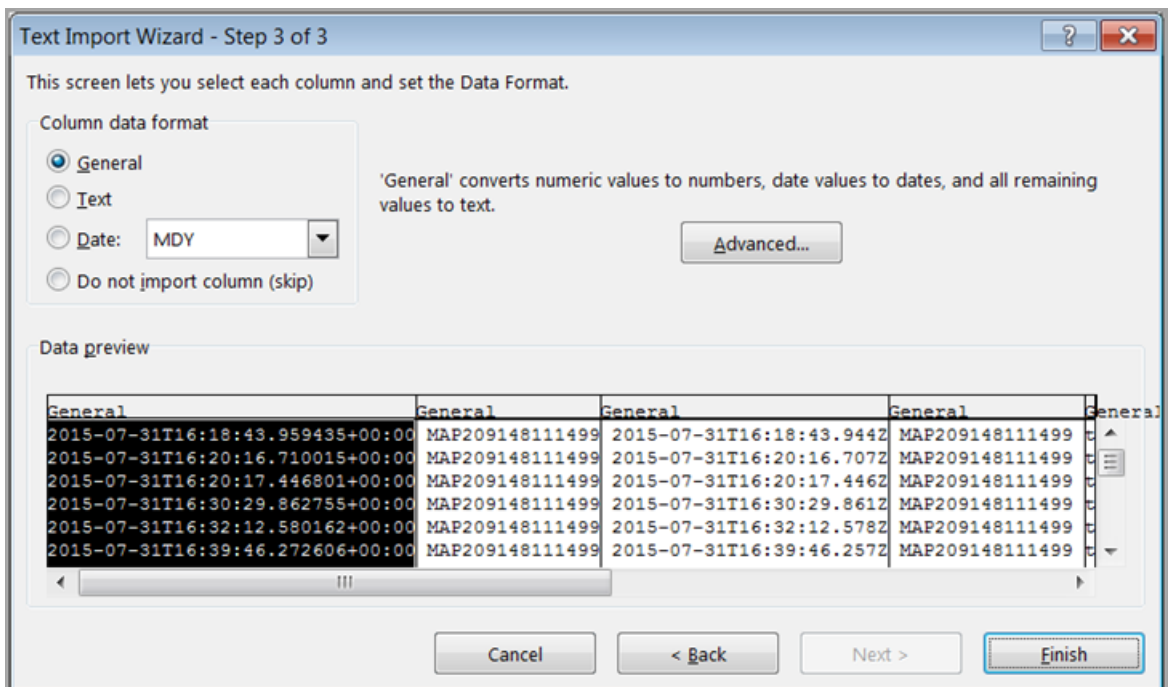
8. Select **Fixed width** and **Start import** at row 1.
9. Click **Next**. The second step of the Text Import Wizard appears.

Figure 7: Text Import Wizard - Step 2



10. Scroll to the right and make sure the data is divided as you wish to view it; then make any adjustments as necessary by creating, deleting, or moving break lines as instructed.

Figure 8: Text Import Wizard - Step 3



11. Click **Finish**. The audit log data appears divided by columns.

Appendix: Reset Button Operation and Description

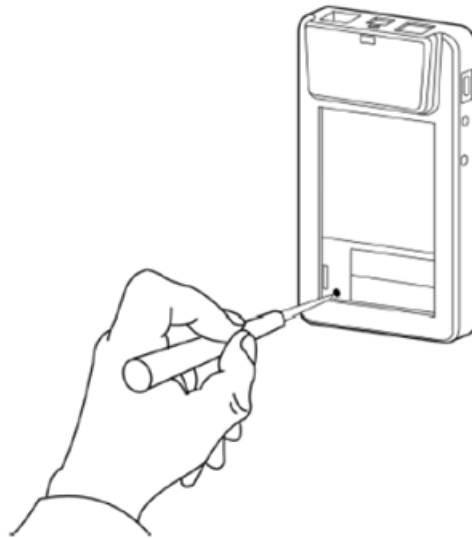
If you lose your password or if you want to restore the unit to factory defaults, the MAP Gateway offers two reset functions: a Network Reset function that only resets Wi-Fi and Ethernet settings, and a Reset to Factory Defaults function that resets all unit settings (including user profiles). Reset to Factory Defaults also resets your SSL certificate to the Johnson Controls® self-signed certificate that is in the device when it comes from the factory.

The Network Reset function is intended for users who forget their Wi-Fi connection information, and the Reset to Factory Defaults function is for use by administrators who may want to clear all configured settings including all user profiles from a device. For information on resetting the unit, see [Table 3](#).

Note: To use a unit that is reset to factory defaults, you must have the default login information supplied in the Quick Start Guide that shipped with the unit. This includes the factory SSID and passphrase. The Reset to Factory Defaults function does not change the version of the application. If you did a software upgrade, the MAP Gateway remains at the upgraded version rather than resetting to the version that it was running when it left the factory.

The reset button is on the back of the device, and it is embedded into the MAP Gateway housing so that it cannot be activated by accident. To press the reset button, use a small screwdriver or similar tool.

Figure 9: Reset Button



Before attempting either of the following reset functions, apply power to the MAP Gateway and wait until the Fault LED stops flashing.

Notes:

- If you are connected to the network when you press the reset button, you are disconnected.
- If you press the reset button for more than 9 seconds, or do not confirm the reset, the reset operation is cancelled.
- If a fault condition already exists, the reset button is disabled.

Table 3: Reset Button Operation and Description

Reset Function	Reset Operation
Reset Only Wi-Fi and Ethernet Settings (Network Reset) to Factory Defaults	<ol style="list-style-type: none"><li data-bbox="475 241 1482 275">1. Press and hold the reset button. After 2 seconds, the Fault LED displays a slow flicker.<li data-bbox="475 279 1482 312">2. Release the reset button within 3 seconds. The Fault LED continues slow flicker.<li data-bbox="475 317 1482 401">3. Within 5 seconds, press and release the reset button to confirm that you wish to reset the Wi-Fi and Ethernet settings. (If you do not confirm within 5 seconds, the reset operation is canceled.) <p data-bbox="475 415 1482 535">DO NOT cycle power. The LEDs may continue to flash until the MAP Gateway resets and returns to normal operation. The Wi-Fi and Ethernet settings are reset to factory defaults. Use the Default SSID and passphrase to connect to the MAP Gateway and then login to reconfigure all the required settings.</p>
Reset to Factory Defaults	<ol style="list-style-type: none"><li data-bbox="475 543 1482 606">1. Press and hold the reset button. After 2 seconds, the Fault LED displays a slow flicker. Continue holding the reset button until the Fault LED changes to a fast flicker.<li data-bbox="475 611 1482 669">2. Release the reset button within 3 seconds of the change to fast flicker. The Fault LED continues fast flicker.<li data-bbox="475 674 1482 758">3. Within 5 seconds, press and immediately release the reset button to confirm that you wish to reset to factory defaults. The Fault LED will go out. (If you do not confirm within 5 seconds, the reset operation is canceled.) <p data-bbox="475 793 1482 903">DO NOT cycle power. The LEDs may continue to flash normally until the MAP Gateway resets and then returns to normal operation. All unit settings are reset to factory defaults. Use the Default SSID and passphrase to connect to the MAP Gateway and then login using the default User and Password to reconfigure all the required settings.</p>

Troubleshooting

Table 4: Troubleshooting

Error message or condition	Cause	Remedy
Error message Error Occurred Loading Device Navigation in the left menu and on the top of the home page.	This occurs if you are selecting options on the device or control screens on the MAP Gateway while the SSE is still finishing its restart cycle after provisioning.	Wait a few moments and try again; and the navigation should load correctly. This does not seem to be an issue if the view definition is removed from the MAP Gateway (either just the uncompressed or both the uncompressed and compressed) and the ORE restarted.
Alarms on point is not being displayed in the MAP Gateway	If a Disable Alarms command is issued for a point in the <i>Metasys</i> system, the MAP Gateway will not report alarms for that point. There is no indication in the MAP Gateway that the command was issued and there is no way to enable alarms in a MAP Gateway for the point.	At this time, there is no workaround for this issue.
Some points displayed in the Inputs list in the CCT may show up in the Parameter Category in the MAP Gateway.	CCT has default categories of Input, Output, and Miscellaneous.	At this time, there is no workaround for this issue.
Error message Error Saving SSL Settings appears.	When an SSL key or certificate is very corrupted, the SSL page detects it and alerts you to the corrupted key or certificate. However, if the corruption is minor, for example, an extra space was copied while installing the certificate or a character was missed, the UI does not detect the problem and allows the corrupted key or certificate to be saved. The server detects the error and returns the Error Saving SSL Settings message. While this properly prevents the bad key or certificate from being used, it does not inform you as to the source of the problem.	Reinstall the SSL Key or Certificate as described in the <i>Mobile Access Portal Gateway Network and IT Guidance Technical Bulletin (LIT-12012015)</i> .

Related Documentation and Videos

To search for training videos on the use of the following topics, visit uLearn at <https://jcpublish.kzoplatform.com/containers/957891534378768109>.

Table 5: Related Documentation

For Information On:	See Document:
Getting Up and Running Quickly with the MAP Gateway	<i>Mobile Access Portal Gateway Quick Start Guide (Part No. 24-10737-16)</i>
Installing and Wiring a MAP Gateway	<i>Mobile Access Portal Gateway Installation Instructions (Part No. 24-10737-8)</i>
MAP Gateway Features, Benefits, and FAQs	<i>Mobile Access Portal Gateway Product Bulletin (LIT-12011884)</i>
MAP Gateway Ordering Information	<i>Mobile Access Portal Gateway Catalog Page (LIT-1900869)</i>
Working with Security Certificates	<i>Mobile Access Portal Gateway Network and IT Guidance Technical Bulletin (LIT-12012015)</i>
How to use Controller Tool (CCT or PCT) software	<i>Controller Tool Help (LIT-12011147)</i>
TEC3000 Series Thermostat Controllers	<i>TEC3000 Series Stand-Alone and Field-Selectable BACnet®/MS/TP or N2 Networked Thermostat Controllers Product Bulletin (LIT-12011954)</i>
General Information About Metasys Field Controllers, including FECs, FACs, VMAs, and IOMs	<i>Metasys® System Field Equipment Controllers and Related Products Product Bulletin (LIT-12011042)</i>
General Information About Facility Explorer Programmable Controllers, including FX-PCAs, FX-PCGs, FX-PCXs, and FX-PCVs	<i>FX-PC Series Programmable Controllers and Related Products Product Bulletin (LIT-12011657)</i>
General Information About CH-PC Programmable Controllers, including CH-PCAs, CH-PCGs, CH-PCXs, and CH-PCVs	<i>CH-PC Series Programmable Controllers and Related Products for the BCPro System Product Bulletin (LIT-12011914)</i>
Getting Up and Running Quickly with Smart Equipment Controls (SEC) - Includes RTUs and SSEs	<i>Smart Equipment Controls (SEC) Quick Start Guide (LIT-12011938)</i>



Building Technologies & Solutions
507 E. Michigan Street, Milwaukee, WI 53202

Metasys® and Johnson Controls® are registered trademarks of Johnson Controls. All other marks herein are the marks of their respective owners. © 2018 Johnson Controls