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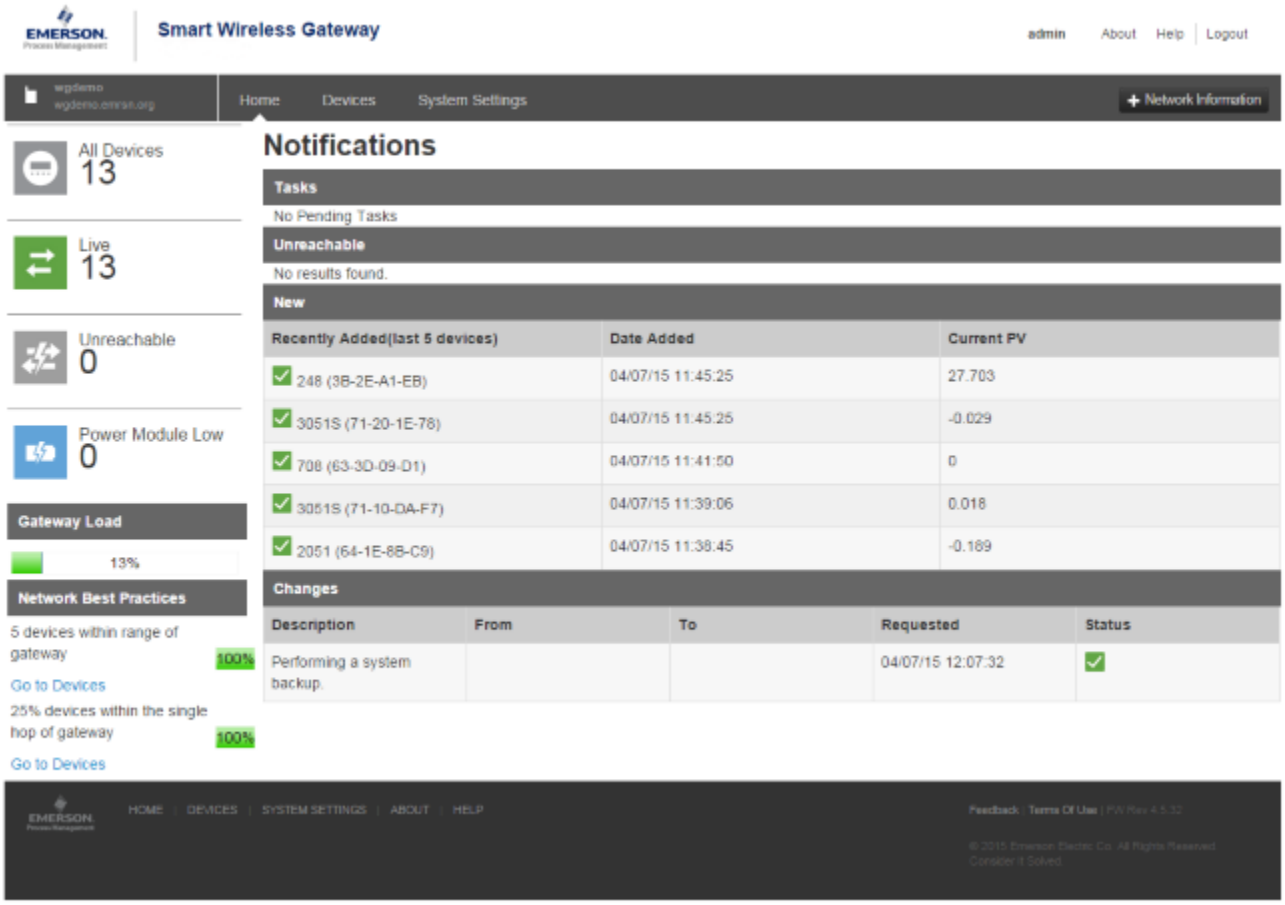
Emerson™ Smart Wireless Gateway User Interface Terminology Guide for Firmware Revision 4.5



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EMERSON™
Process Management

1.1 Introduction

The Gateway 4.5 Firmware is intuitive and easy to use. The updated design and layout provides actionable information at your fingertips with the ability to view high level network overview summaries on the home page and make real-time decisions for fast predictive maintenance.

This document describes the terms, user fields, and parameters used in the Smart Wireless Gateway Web Based User Interface.

To download a version of the new firmware, follow this link:

http://www2.emersonprocess.com/en-US/plantweb/wireless/Smart-Wireless-Downloads/Pages/Smart-Wireless-Downloads.aspx

Note
Bold items listed within the tables below indicate clickable links in the software.

1.2 Home page

Figure 1-1. Home

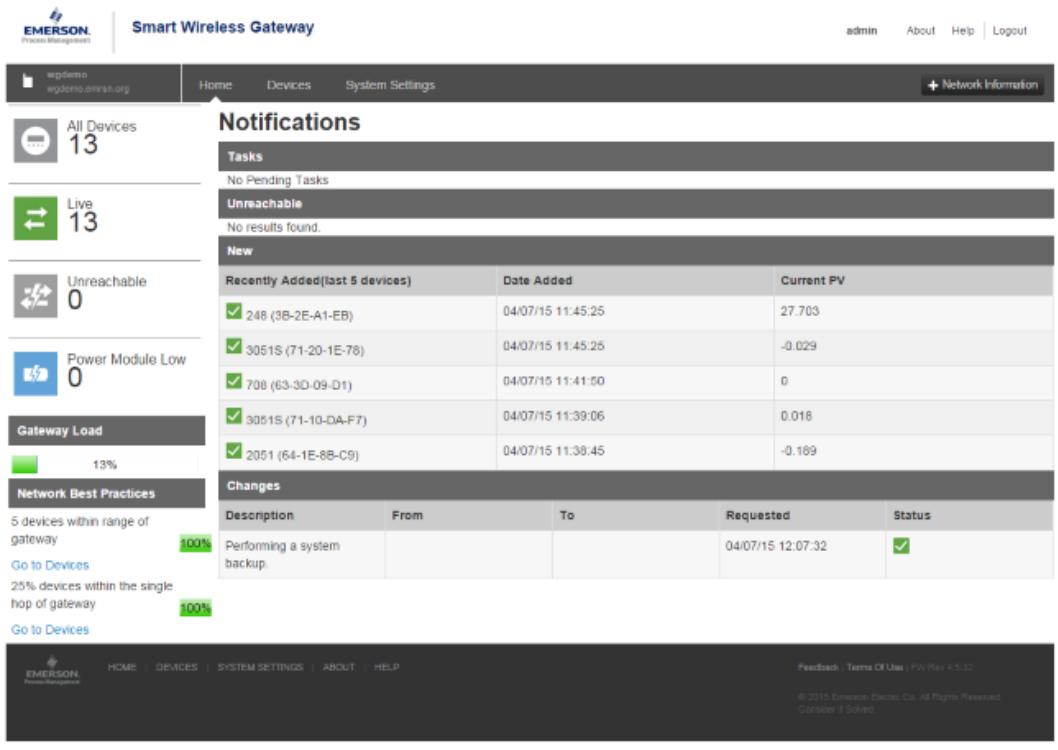

Table 1-1. Home

Item	Description
Devices	Click to view a list of all devices participating in the network.
System Settings	Click to view and edit all the accessible settings in the gateway.
Network Information	Click to view network information and when adding a new device to the network.
About	Click to find detailed gateway information such as serial numbers, version number, system up time, etc.
Help	Click to find additional help documentation.
Logout	Allows user to sign out of the user interface
Gateway Status Icon	Displays gateway name and indicates when gateway is in simplex or redundant mode
All Devices	Click to view all devices participating in the gateway's network.
Live	Click to view all devices currently online (does not include unreachable devices).
Unreachable	Click to view all devices that have dropped offline or are not publishing as configured.
Power Module Low	Click to view all devices signaling that their power module is low (needs to be replaced).
Gateway Load	Indicates percentage of available gateway bandwidth currently in use
Network Best Practices	Provides snap shot of the most critical network best practices (for more information, see the Systems Engineering Guide on www.emerson.com)
5 devices within range of gateway	Indicates percentage based on number of devices directly communicating with the gateway (once five or more devices are within range, percentage will remain at 100%)
25% devices within the singe hop of gateway	Indicates percentage based on number of devices directly connected to the gateway (if at least 25% of network devices have gateway connection, this value will be 100%)
Tasks	Provides information on recommended/required actions
New	Newly added devices (includes last five devices added to the network)
Recently Added (last 5 devices)	Last five devices added to the network
Date Added	Date and time device was added
Current PV	Last received primary process variable (PV) value
Changes	Most recent changes to the gateway and network
Description	Details of any changes made
From	Previous value of any parameters involved in a change
To	Current value of any parameters involved in a change
Requested	Date and time action was performed
Status	Change status (either successful or not)

1.3 About

Figure 1-2. About

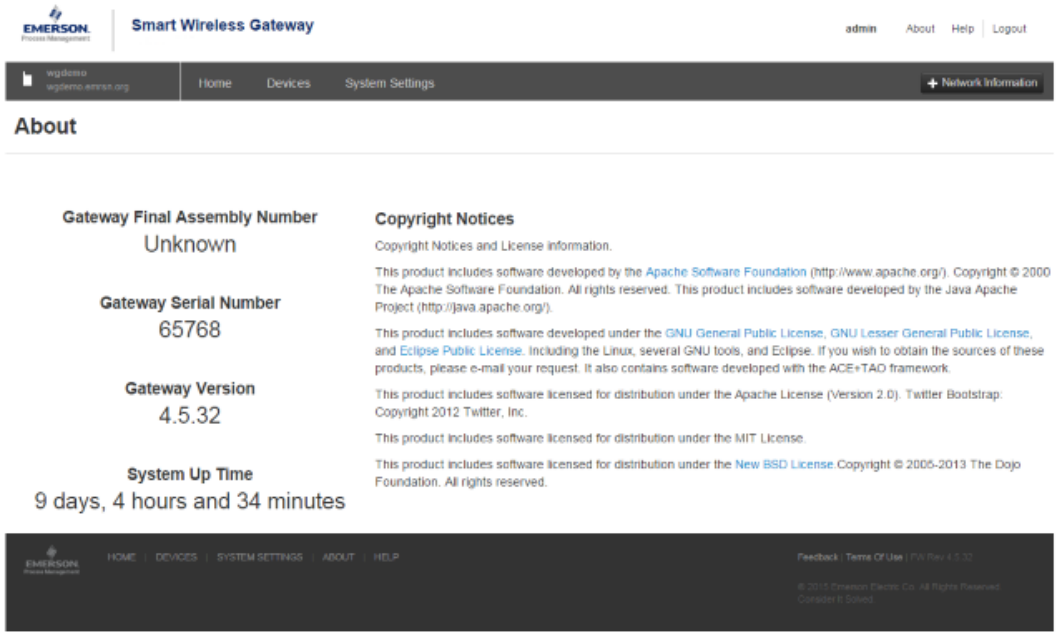

Table 1-2. About

Item	Description
Gateway Final Assembly Number	Serial number supplied during final device assembly
Gateway Serial Number	Unique software serial number used by firmware to identify that particular gateway
Gateway Version	Software version currently installed on the gateway (to check for updated firmware, see www.emerson.com)
System Up Time	Amount of time the system has been up and running

1.4 Network Information

Figure 1-3. Network Information

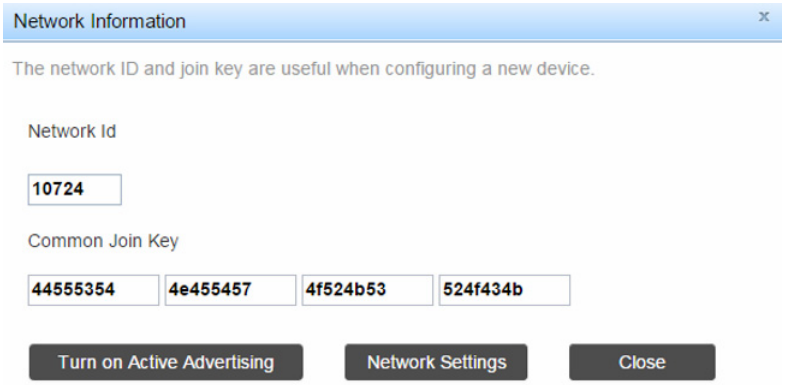

Table 1-3. Network Information

Item	Description
Network ID	Unique ID used for this particular gateway network. Each field device must be configured with this ID to join this gateway's wireless network. The gateway pushes this information to all devices when changed if they are connected to the network.
Common Join Key	Gateway's current common join key (password that allows devices to securely join wireless network). Each device must be configured with this key to join this gateway's wireless network.
Turn on Active Advertising	Toggles the method gateway uses to search for new network devices. Devices will join without this feature however enabling this will make the process faster (automatically enabled if a device drops offline).
Network Settings	Click to view full list of the network settings.

1.5 Devices

Figure 1-4. Devices

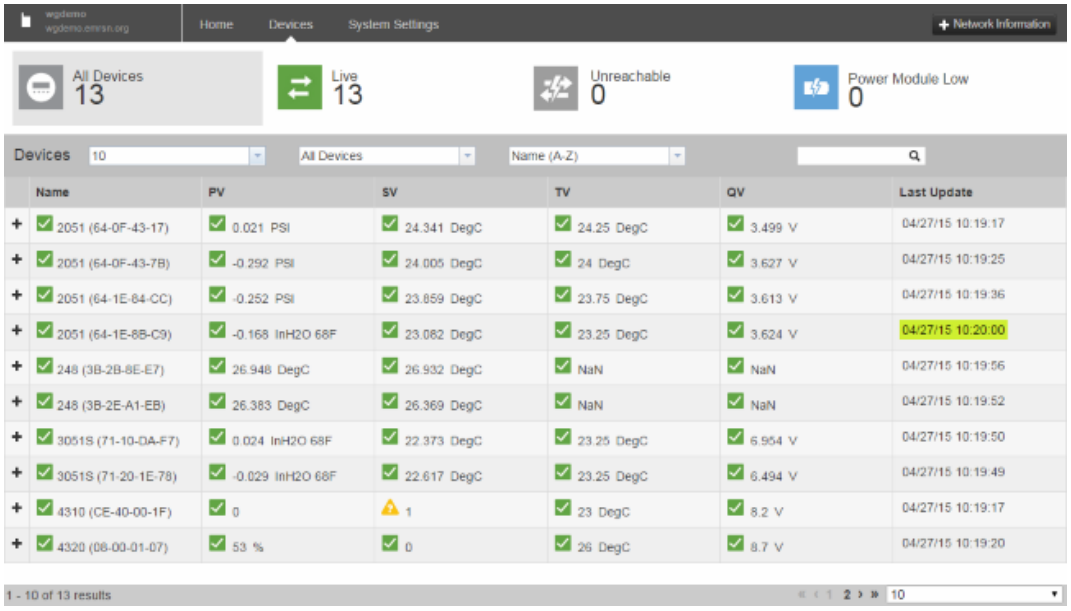

Table 1-4. Devices

Item	Description
Device sorting and filtering tools	
Device Icons	Allows user to filter device by their current state (Live, Unreachable, Power Module, or All Devices)
First dropdown	Allows user to select number of devices shown on the page
Second dropdown	Allows user to filter device by their current state (Live, Unreachable, Power Module Low, or All Devices)
Third dropdown	Allows user to select sort display order based on device name
Fourth field	Allows user to search list for a particular device name (or sub-string contained within the name)
Name	Name of the device
PV	Value of the HART® primary variable (1st variable), typically the primary function of the device (e.g. temperature, pressure, level)
SV	Value of the HART secondary variable (2nd variable), additional function of the device (e.g. temperature, pressure, level)
TV	Value of the HART tertiary variable (3rd variable), additional function of the device (e.g. temperature, pressure, level)
QV	Value of the HART quaternary variable (4th variable), additional function of the device (e.g. temperature, pressure, level)
Last Update	Time stamp of last measurement received from the wireless field device

1.5.1 Devices > Open Devices bar

Figure 1-5. Open Devices

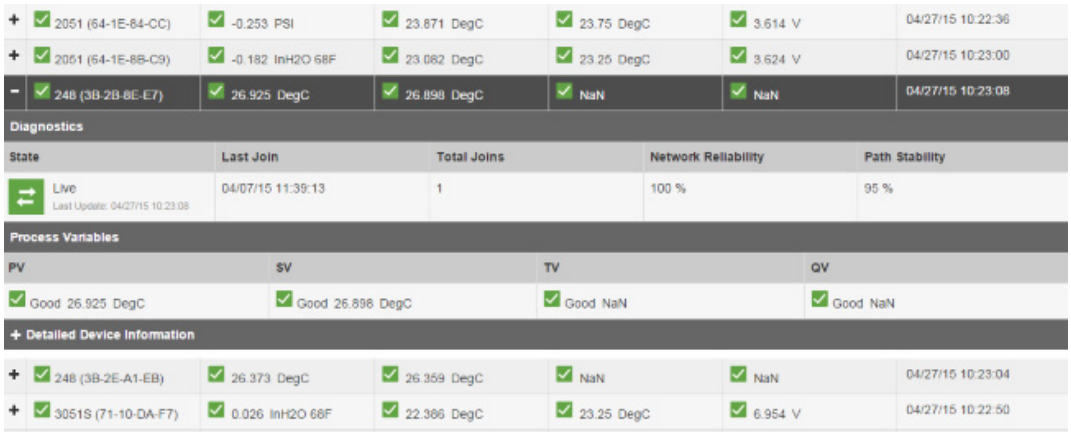

Table 1-5. Open Devices

Item	Description
Diagnostics	Displays useful information for troubleshooting devices
State	Current device status (possibilities values include live, late, stale, joining, low voltage, unreachable, or unknown)
Last Join	Date and time field device made its last successful join
Total Joins	Number of times field device has been successfully added to the network after being unreachable
Network Reliability	Percentage of packets transmitted by a device and received by the gateway (100.0% reliability indicates every expected data packet was received). This value represents reliability of the wireless network to deliver data and is rounded to the nearest tenth. This is a lifetime statistic that is reset via a gateway restart; it is possible to have a small number of late/missed updates over a long time and still have 100.0% reliability.
Path Stability	Percentage of transmitted packets successfully reaching their destination over a given path (two neighboring devices) calculated over the most recent 15-minute period. Network reliability is always higher than path stability due to automatic re-transmission using multiple paths and different RF channels.

1.5.2 Devices > Open Devices bar > Detailed Device Information

Figure 1-6. Detailed Device Information

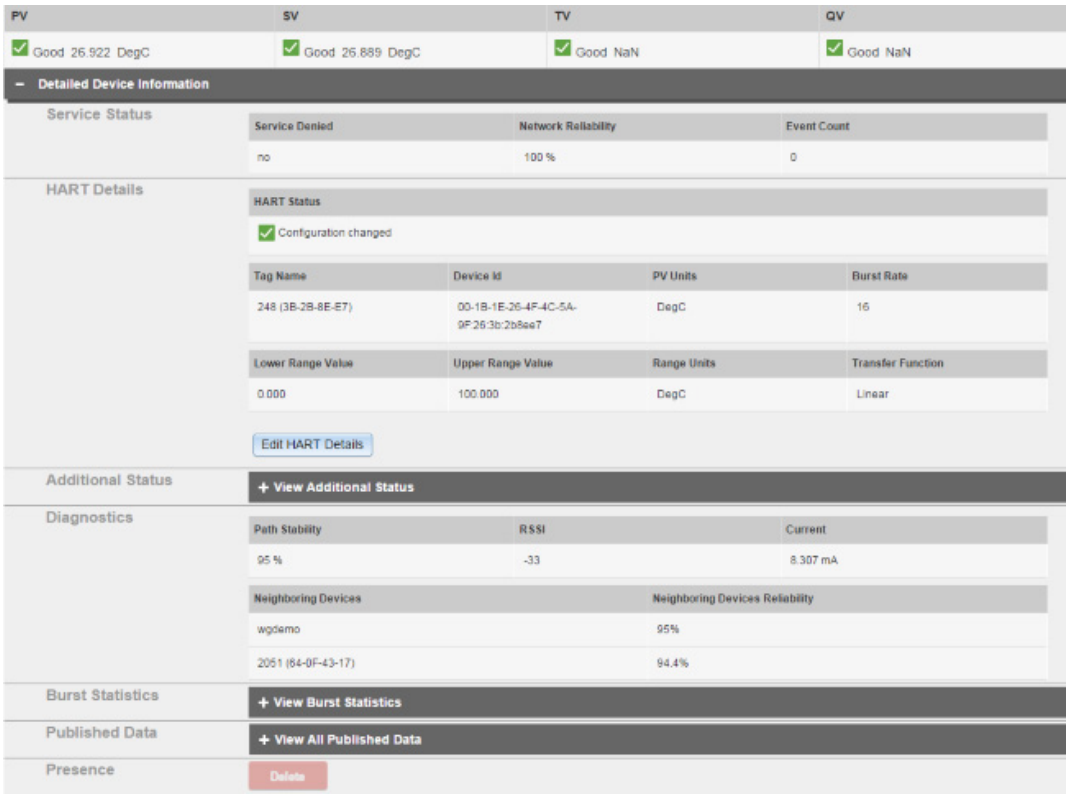

Table 1-6. Detailed Device Information

Item	Description
Service Status	Provides information regarding that device's bandwidth
Service Denied	Indicates whether the field device has been denied bandwidth because a) too many devices are on the *Wireless*HART® network or b) the device has asked for an update rate not currently supported by the wireless network (this can occur if there is a 'pinch-point' in the network that is at its maximum load)
Network Reliability	Percentage of packets transmitted by a device and received by the gateway (100.0% reliability indicates every expected data packet was received). This value represents reliability of the wireless network to deliver data and is rounded to the nearest tenth. This is a lifetime statistic that is reset via a gateway restart; it is possible to have a small number of late/missed updates over a long time and still have 100.0% reliability.
Event Count	Indicates the number of times this action has occurred (number of times any enabled events are triggered displays here)
HART Details	Displays device's HART information
HART Status	Indicates overall field device HART status (if not green, troubleshooting may be required)
Tag Name	32-character HART long tag (for HART 7 devices) or 32-character HART message (for HART 5 devices)

Table 1-6. Detailed Device Information

Item	Description
Device ID	Unique device identification number, all *Wireless*HART devices should begin with 00-1E-1B (next four digits represent device type, the last six digits vary from device to device). This name cannot be changed; it represents the unique device the same way a serial number would. Keep track of this number if using the Access Control list.
PV Units	Units of measure of the primary variable (PV)
Burst Rate	Interval the field device transmits it's measurement data to the gateway (set based on how often the user wants the device to send data to the gateway). Some field devices burst multiple messages and at different rates. Burst rates under one minute are reported in seconds white rates one minute or greater are reported in hh:mm:ss. Also known as update rate.
Lower Range Value	User-configured lower range point used to calculate percent of range value based on current primary variable (when primary variable reaches the Lower Range Value, the percent of range will be 0%)
Upper Range Value	User-configured upper range point used to calculate percent of range value based on current primary variable (when primary variable reaches the Upper Range Value, the percent of range will be 100%)
Range Units	Engineering unit of measure associate with the lower and upper range points
Transfer Function	Describes algorithm used to compute the percent of range for the primary variable
Edit HART Details	Enable this to edit the features in the table (remember to save after editing)
View Additional Status	Expand to view additional field device statuses
Diagnostics	General information provided by the device and its neighbors
Path Stability	Percentage of transmitted packets successfully reaching their destination over a given path (two neighboring devices) calculated over the most recent 15-minute period. Network reliability is always higher than path stability due to automatic re-transmission using multiple paths and different RF channels.
RSSI	Received signal strength indication (RSSI) for the field device and neighbor (average calculated over the most recent 15-minute period). It represents how well that device is hearing other devices or the gateway within a network during a receive. Ideally, this number is greater than -79 dBm (e.g. a -45 dBm device has a greater signal strength than -79 dBm).
Current	Loop current controlled or measured by the field device
Neighboring Devices	Other nearby field devices with connections to this device (also known as neighbors). This indicates the HART tag of other devices within range of that device or gateway and will populate up to three of the strongest devices.
Neighboring Devices Reliability	Path stability of the neighboring devices.
View Burst Statistics	Expand to view all burst statistics for the field device and status of communication between the device and gateway
View All Published Data	Expand to view all published parameters for the field device (each parameter can be mapped in the protocols section)
Delete	Removes the device completely from the network and from all gateway host and user interfaces (device must be offline for this function to work)

1.5.3 Devices > Open Devices bar > Detailed Device Information > View Additional Status

Figure 1-7. View Additional Status

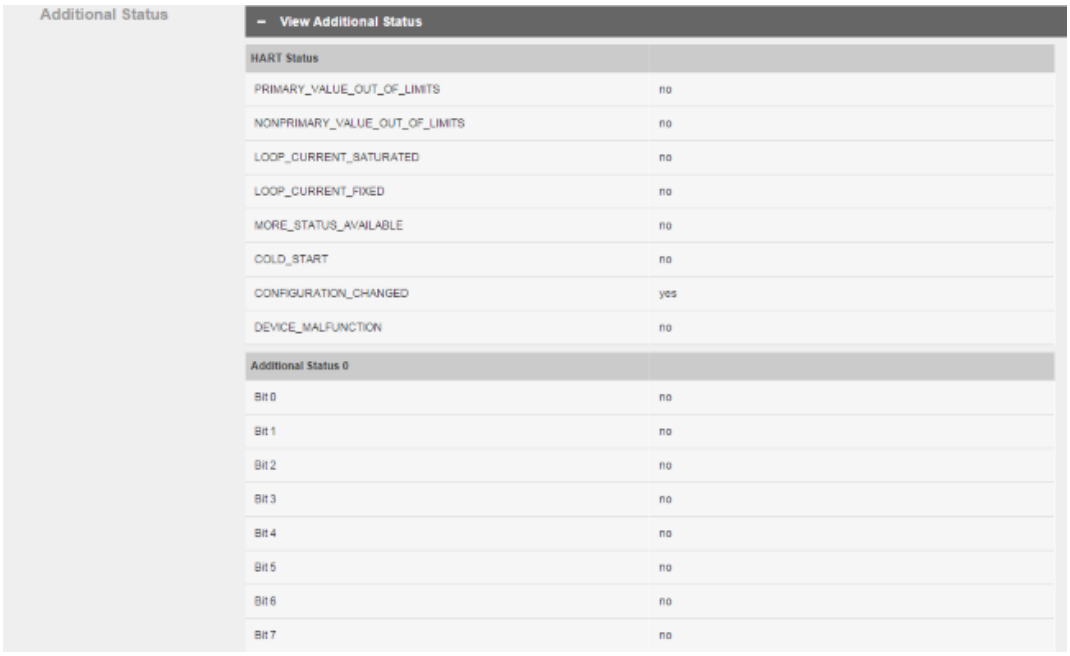

Table 1-7. View Additional Status

Item	Description
Additional Status	Displays detailed status information published by the field device (reference the device manufacturer's documentation for additional information)

1.5.4 Devices > Open Devices bar > Detailed Device Information > View Burst Statistics

Figure 1-8. View Burst Statistics

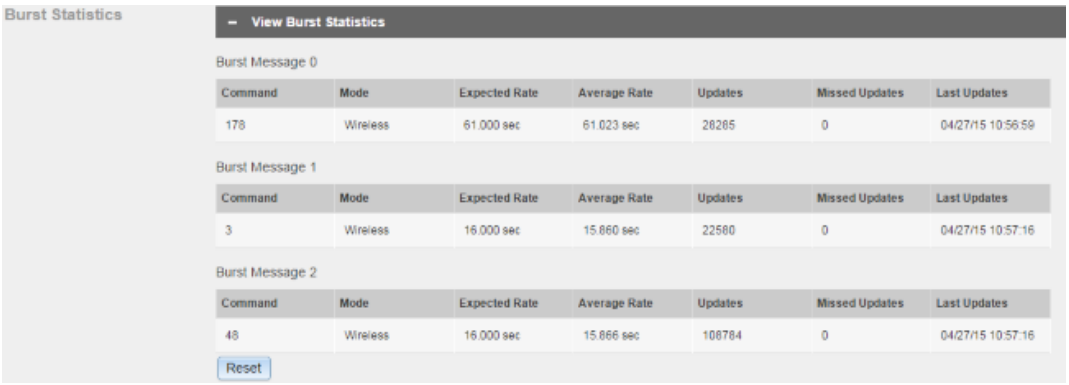

Table 1-8. View Burst Statistics

Item	Description
Burst Statistics	
Command	HART command number published by the device (a field device may publish multiple commands at different burst intervals)
Mode	Device interface used to publish the command
Expected Rate	Expected time interval between successive burst messages.
Average Rate	Average time interval between burst messages calculated for all messages received since the device initially joined the network or since burst statistics were reset by the user
Updates	Number of updates received from the device since initially joining the network or since user reset the burst statistics
Missed Updates	Number of updates device has missed since initially joining the network or since user reset the burst statistics. Missed updates can be caused by the device falling off line (e.g. during power module replacement) or poor network reliability. Packets arriving late or out of sequence are also counted as missed.
Last Updates	Time stamp of the last burst message received
Reset	Clears all previous burst statistics shown, and resets all values in this section

1.5.5 Devices > Open Devices bar > Detailed Device Information > View All Published Data

Figure 1-9. View All Published Data

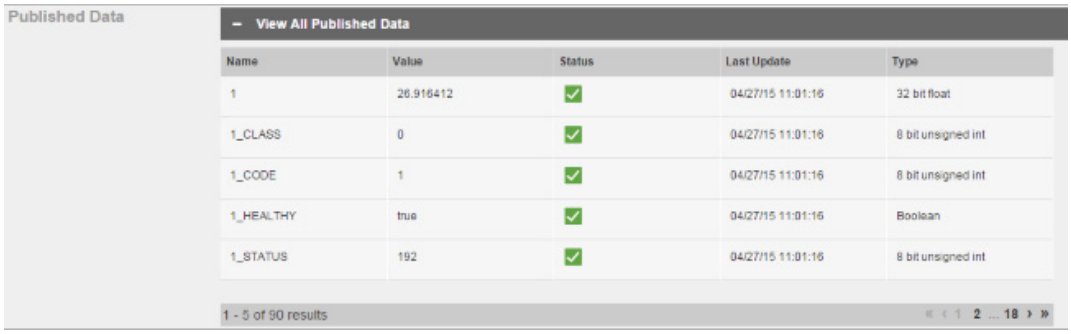

Table 1-9. View All Published Data

Item	Description
Published Data	
Name	Parameter name
Value	Current parameter value
Status	HART status indicator for this parameter
Last Update	Time stamp of last parameter value received from the wireless field device
Type	Data type of parameter

1.6 System Settings

1.6.1 System Settings > Gateway

Figure 1-10. Gateway

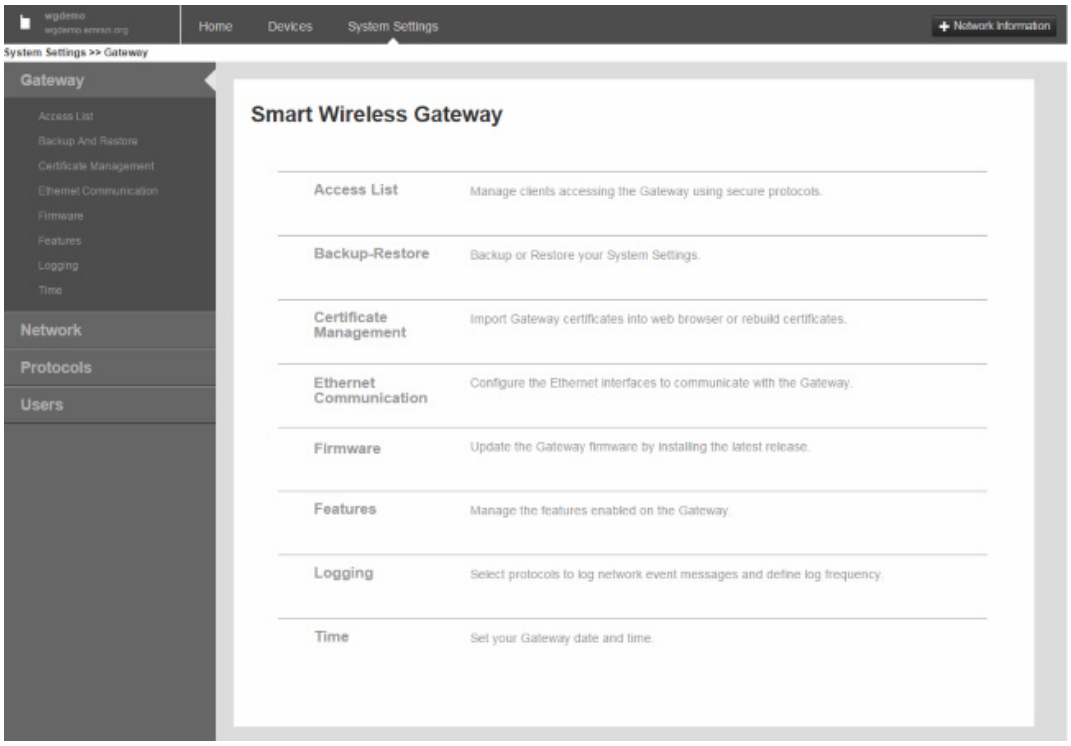

Table 1-10. Gateway

Item	Description
Access List	Click to manage clients accessing the gateway using secure protocols.
Backup and Restore	Click to backup or restore system settings.
Certificate Management	Click to import gateway certificates into web browser or rebuild certificates.
Ethernet Communication	Click to configure Ethernet interfaces to communicate with the gateway.
Firmware	Click to update the gateway firmware by installing the latest release.
Features	Click to manage features enabled on the gateway.
Logging	Click to select protocols for logging network event messages and define log frequency.
Time	Click to set gateway date and time.

1.6.2 System Settings > Network

Figure 1-11. Network

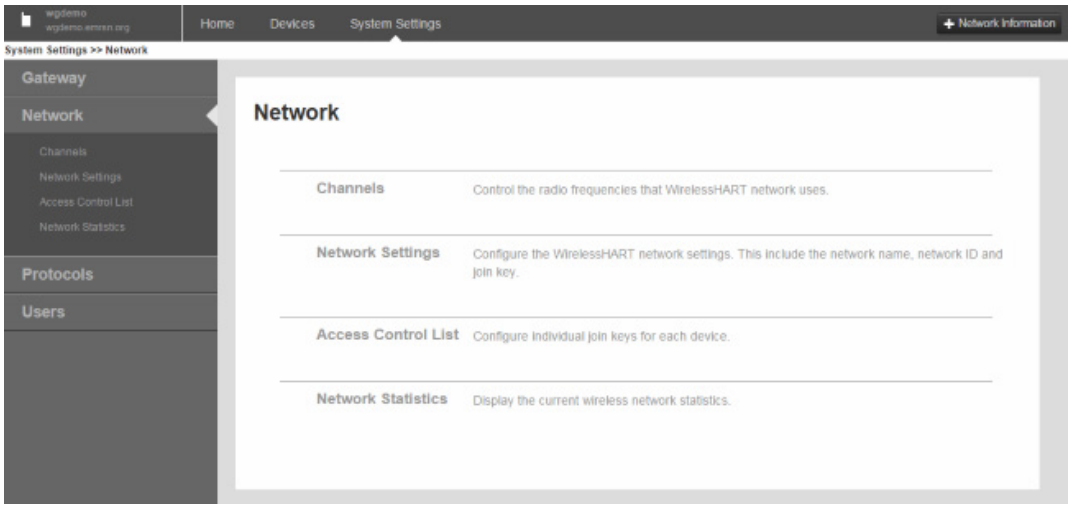

Table 1-11. Network

Item	Description
Channels	Click to control radio frequencies used by the *Wireless*HART network.
Network Settings	Click to configure *Wireless*HART network settings (includes network name, network ID, and join key).
Access Control List	Click to configure individual join keys for each device.
Network Statistics	Click to display current wireless network statistics.

1.6.3 System Settings > Protocols

Figure 1-12. Protocols

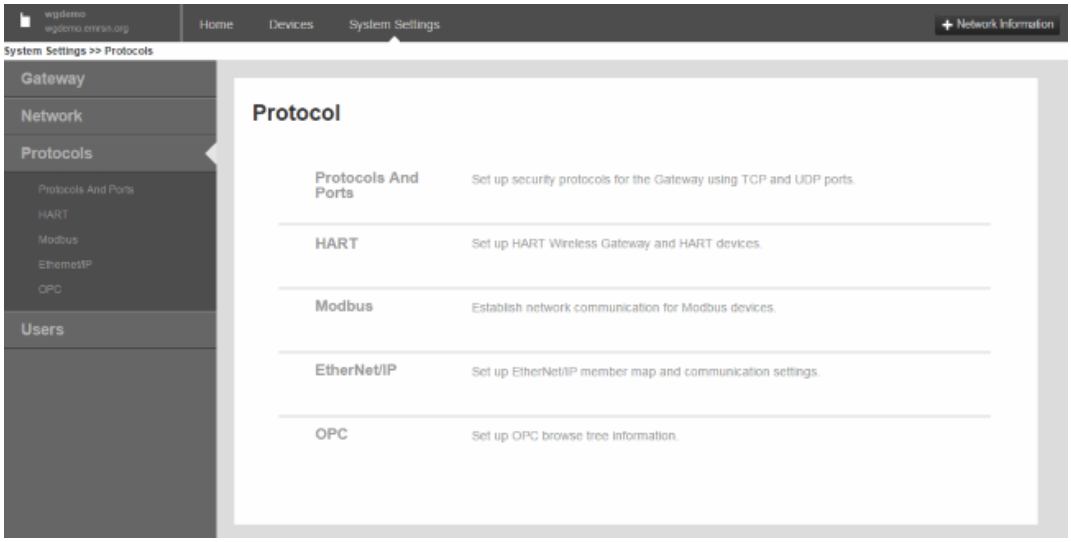

Table 1-12. Protocols

Item	Description
Protocols and Ports	Click to set up security protocols for the gateway using TCP and UDP ports.
HART	Click to set up HART Wireless Gateway and HART devices.
Modbus®	Click to establish network communication for Modbus devices.
EtherNet/IP™	Click to set up EtherNet/IP member map and communication settings.
OPC	Click to set up OPC browse tree information.

1.6.4 System Settings > Users

Figure 1-13. Users

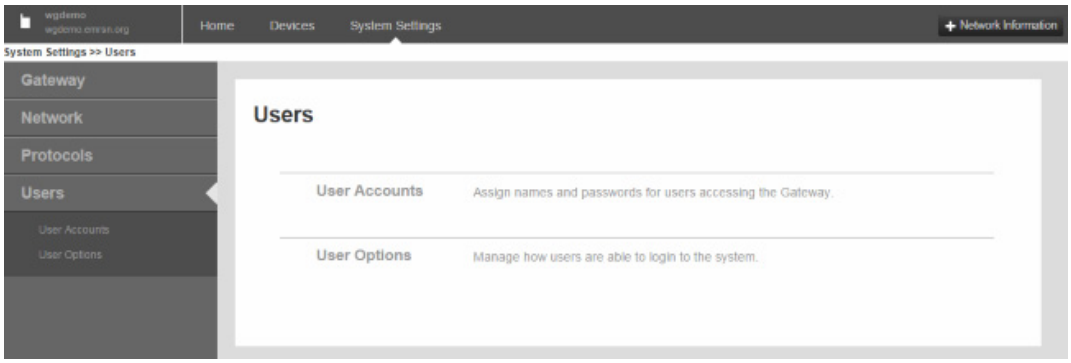

Table 1-13. Users

Item	Description
User Accounts	Click to assign names and passwords for users accessing the gateway.
User Options	Click to manage how users are able to log into the system.

1.7 System Settings > Gateway pages

1.7.1 System Settings > Gateway > Access List

Figure 1-14. Access List

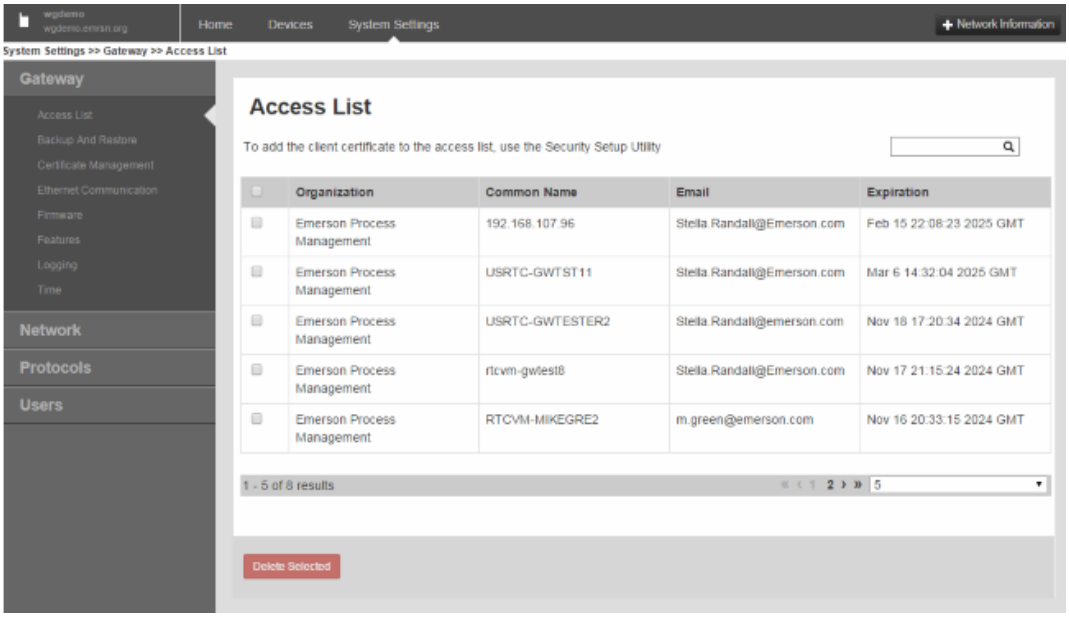

Table 1-14. Access List

Item	Description
Organization	Client's organization name
Common Name	Client's name (PC name)
Email	Client's email address
Expiration	Date the client's certificate is no longer valid

1.7.2 System Settings > Gateway > Backup and Restore

Figure 1-15. Backup & Restore

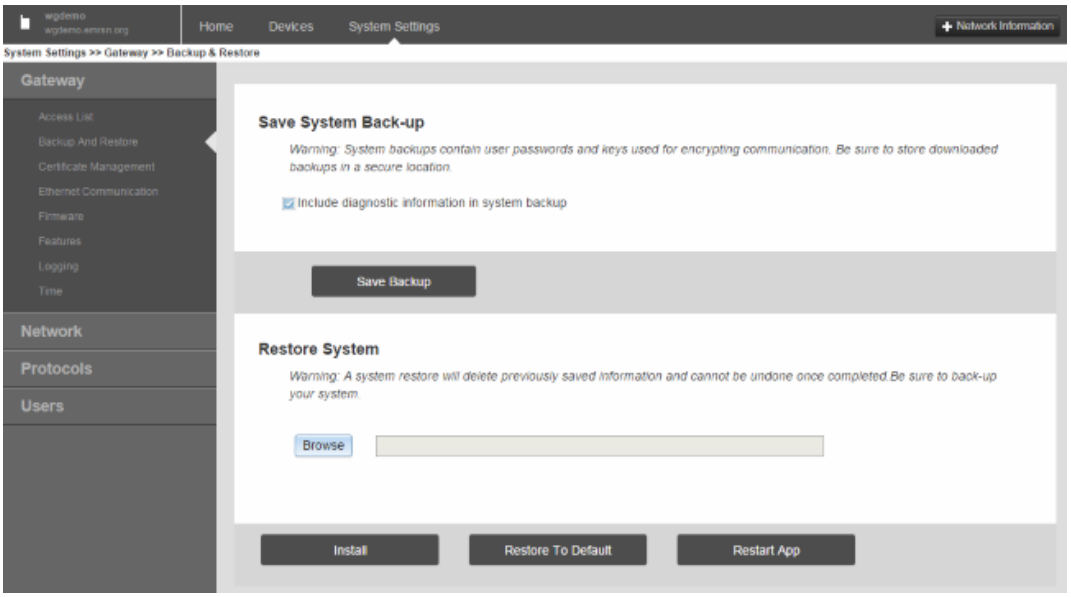

Table 1-15. Backup & Restore

Item	Description
Include diagnostic information in system backup	When checked, saves gateway diagnostics log information with the system backup file
Save Backup	Collects gateway configuration data and creates a system backup file saved on the PC client as a zip file (*.zip). System backups contain user passwords and keys used for encrypting communication; store downloaded system backups in a secure location.
Browse	Opens a navigation window to locate a system backup zip file (*.zip) on the PC client and then restores selected backup file to the gateway
Restore to Default	Returns gateway to default factory configuration
Restart App	Used to complete the backup process

1.7.3 System Settings > Gateway > Certificate Management

Figure 1-16. Certificate Management

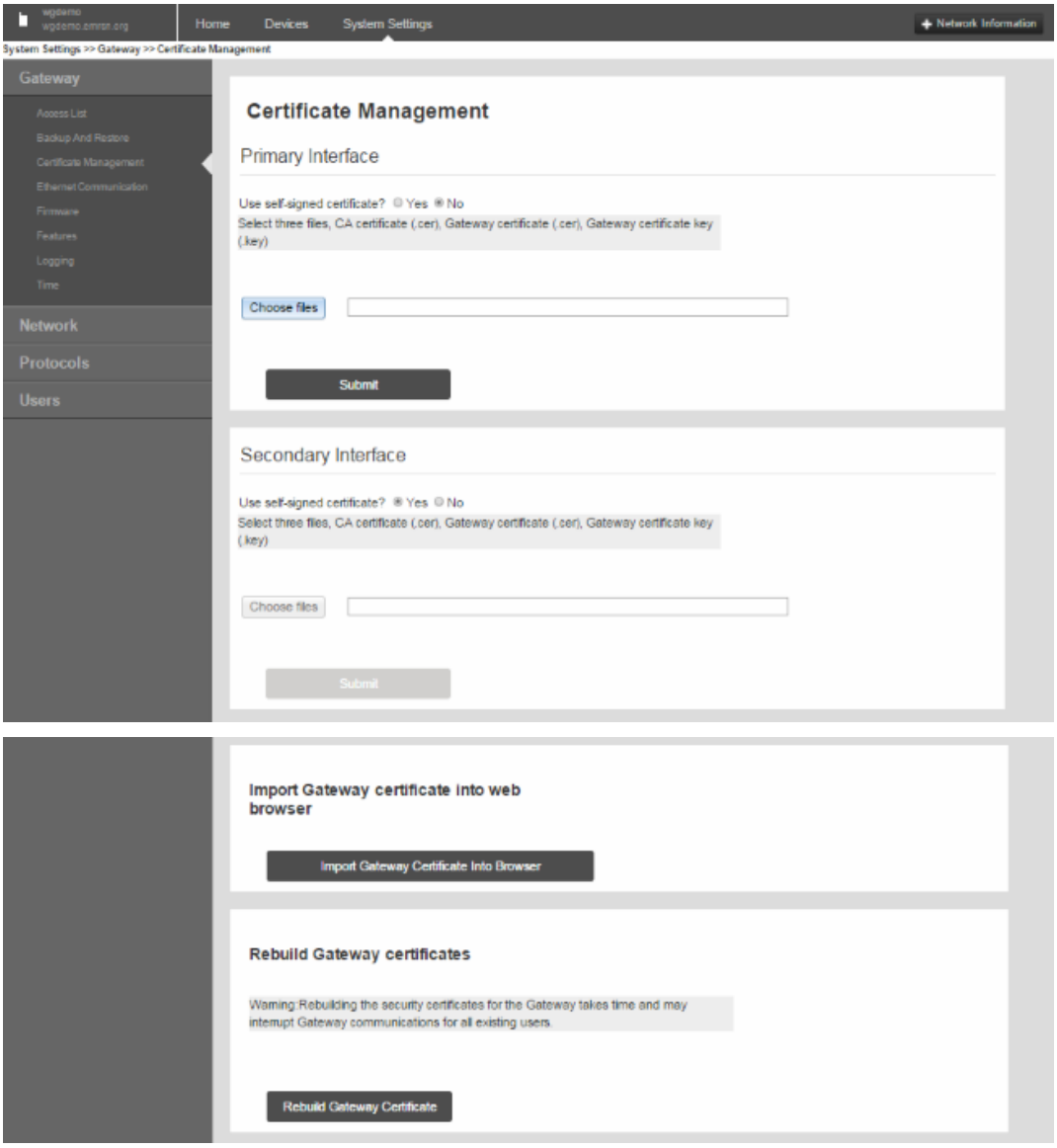

Table 1-16. Certificate Management

Item	Description
Use self-signed certificate?	Select **Yes** to have digital certificate signed by same entity (wireless gateway) whose identity it certifies (i.e. the gateway signs its own certificate).
Import Gateway certificate into web browser	Sends gateway security certificates to current web browser
Rebuild Gateway certificates	Rebuilds security certificates for the gateway (may temporarily interrupt gateway communications)

1.7.4 System Settings > Gateway > Ethernet Communication

Figure 1-17. Ethernet Communication

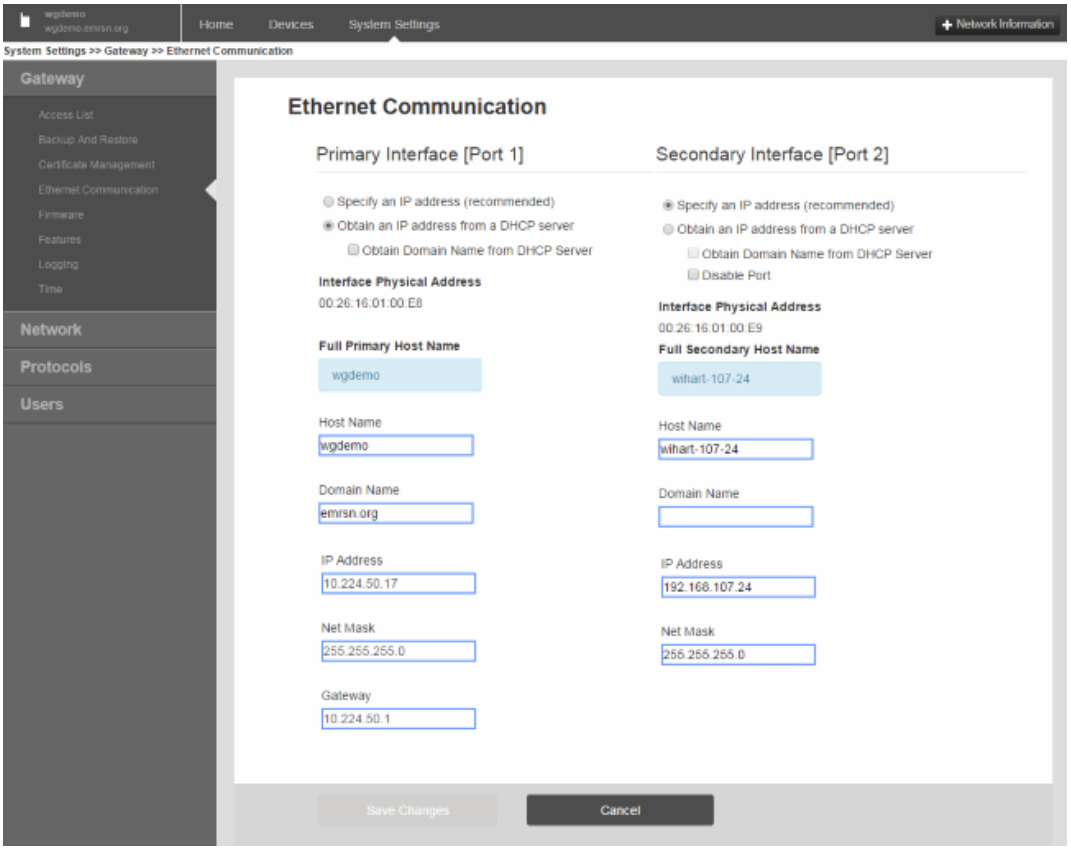

Table 1-17. Ethernet Communication

Item	Description
Primary Interface [Port 1]	Refers to Ethernet port 1
Specify an IP address (recommended)	Select this to insert a unique IP address matching local communication best practices (consult IT personnel if needed when adding gateway to a specific LAN or router)
Obtain an IP address from a DHCP server	Select this to make associated interface obtain IP address from a DHCP server.
Obtain Domain Name from DHCP server	When checked, makes associated interface obtain a Domain Name from a DHCP server
Interface Physical Address	Binary number in the form of logical high and low states on an address bus corresponding to a particular cell of primary storage (i.e. main memory), or to a particular register in a memory-mapped I/O (input/output) device
Full Primary Host Name	Unique name by which a computer is known on a network (used to identify in electronic mall, Usenet news, or other forms of electronic information interchange)
Host Name	Host name for the *Wireless*HART Gateway
Domain Name	Name of the domain the *Wireless*HART Gateway will join
IP Address	User-specified IP address for associated interface

Table 1-17. Ethernet Communication

Item	Description
NetMask	User-configurable string of 0's and 1's that mask or screen out the network part of an IP address so only the host part of the address remains
Gateway	User-configurable network node that serves as an access point to another network
Secondary Interface [Port 2]	Refers to Ethernet port 2
Enable/Disable Port	When checked, turns port off to prevent tampering

1.7.5 System Settings > Gateway > Firmware

Figure 1-18. Firmware

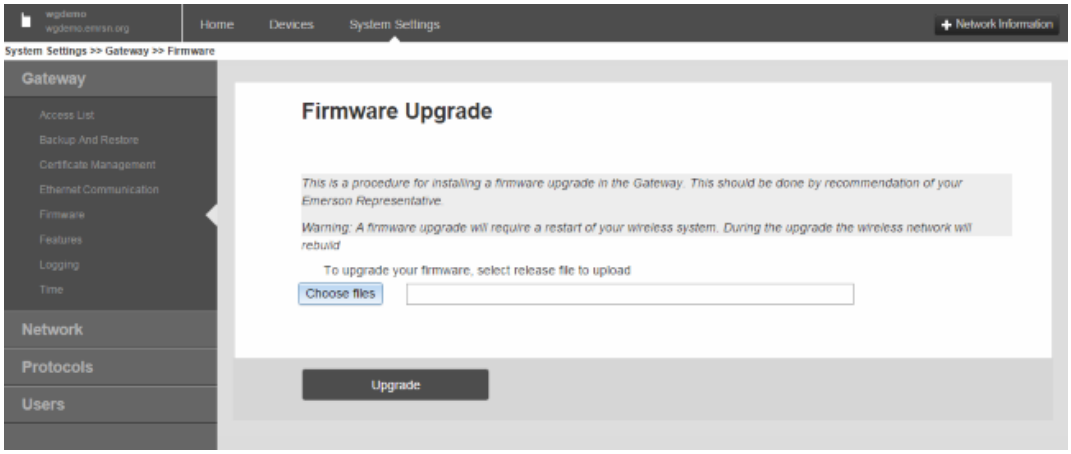

Table 1-18. Firmware

Item	Description
Firmware Upgrade	Procedure for installing new/improved firmware in the gateway. Firmware upgrade requires a restart (shut down of wireless system); carefully follow recommended upgrade procedure supplied with the firmware upgrade.

1.7.6 System Settings > Gateway > Features

Figure 1-19. Features

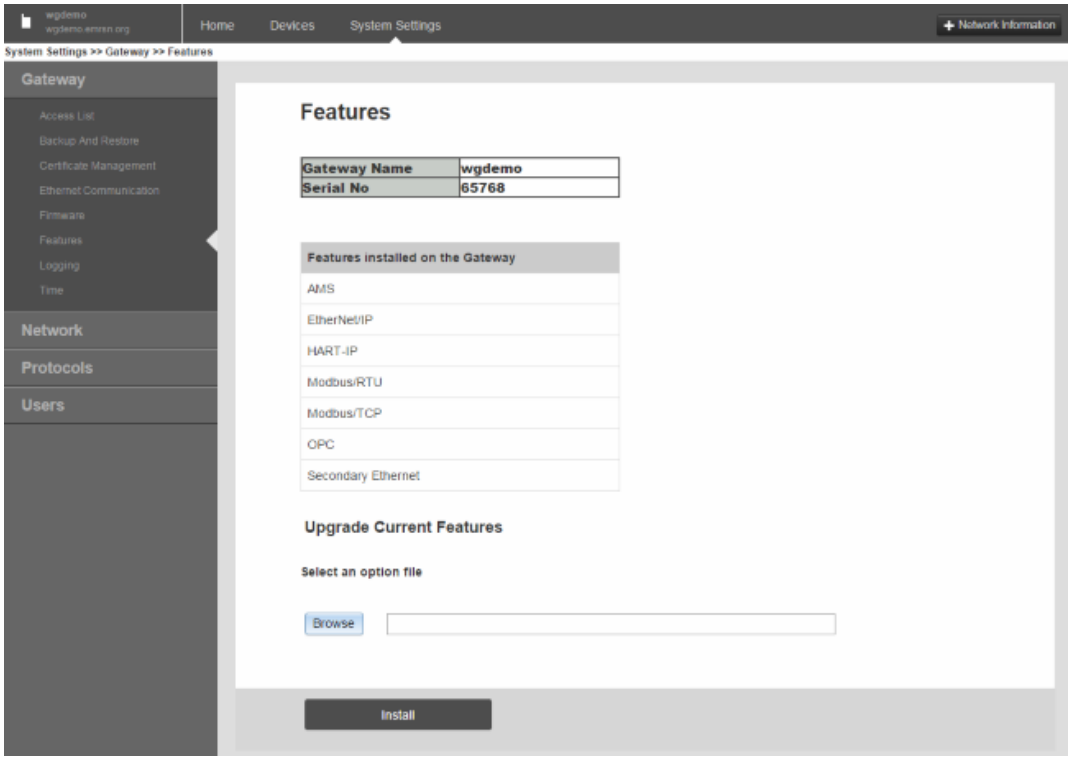

Table 1-19. Features

Item	Description
Gateway Name	Host name for the *Wireless*HART Gateway
Serial No	Unique software serial number used by the firmware to identify that particular installation (only used if factory needs more information or firmware upgrades)
Features installed on the Gateway	Protocols currently installed on the gateway

1.7.7 System Settings > Gateway > Logging

Figure 1-20. Logging

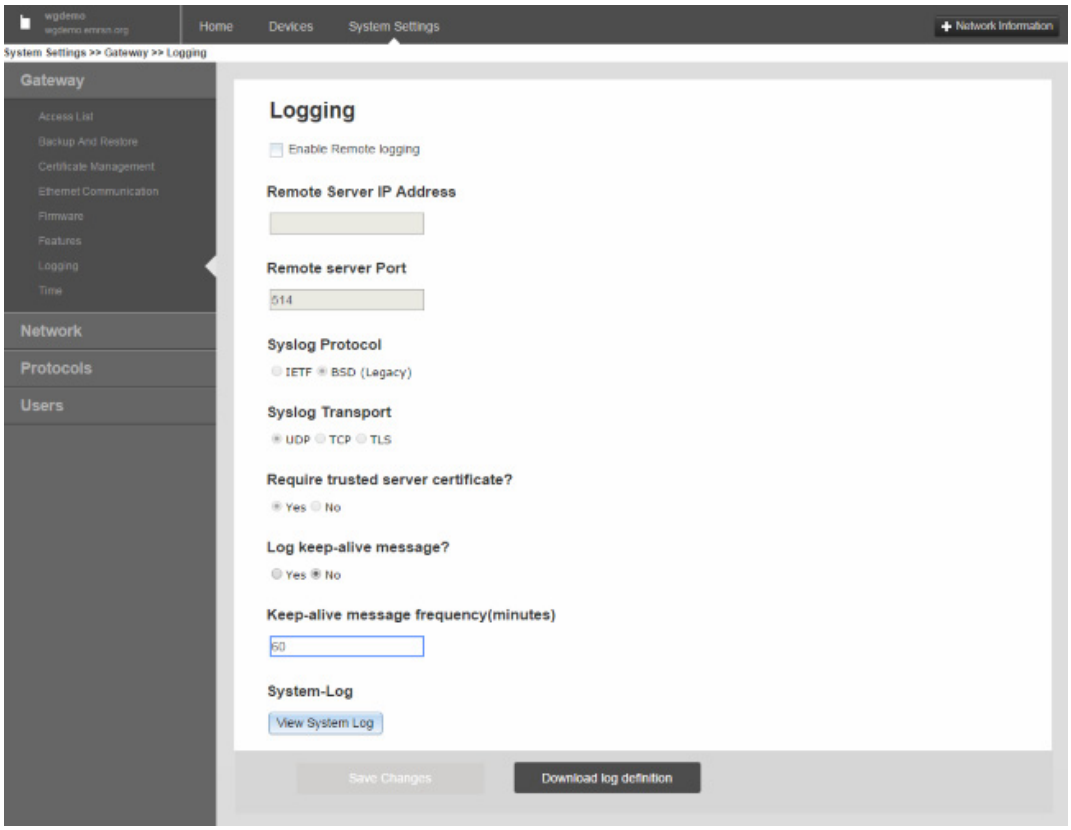

Table 1-20. Logging

Item	Description
Enable Remote logging	When checked, enables remote system logging feature
Remote Server IP Address	IP address of the machine running the remote Syslog server
Remote server Port	Protocol port for the remote Syslog server
Syslog Protocol	Selects format used for logged messages (newer format is IETF-Syslog and defined in RFC 5424, legacy format is BSD and defined in RFC 3164)
Syslog Transport	Selects transport used for communication with remote Syslog server (choices are UDP, TCP, or TLS [encrypted])
Require trusted server certificate?	When using TLS encrypted communication, the remote Syslog server can use a trusted certificate or a certificate unknown to the gateway. Select **Yes** for an added level of security and exchange keys with the gateway using the security setup on remote Syslog server.
Log keep-alive message?	Select **Yes** to make the gateway send a 'keep-alive' message when no other log activity has occurred. This provides another method for remote Syslog server to verify communication with the gateway.
Keep-alive message frequency (minutes)	Frequency the 'keep-alive' message is sent
View System Log	Opens a window where you can view the most recent system log information and definitions

1.7.8 System Settings > Gateway > Time

Figure 1-21. Time

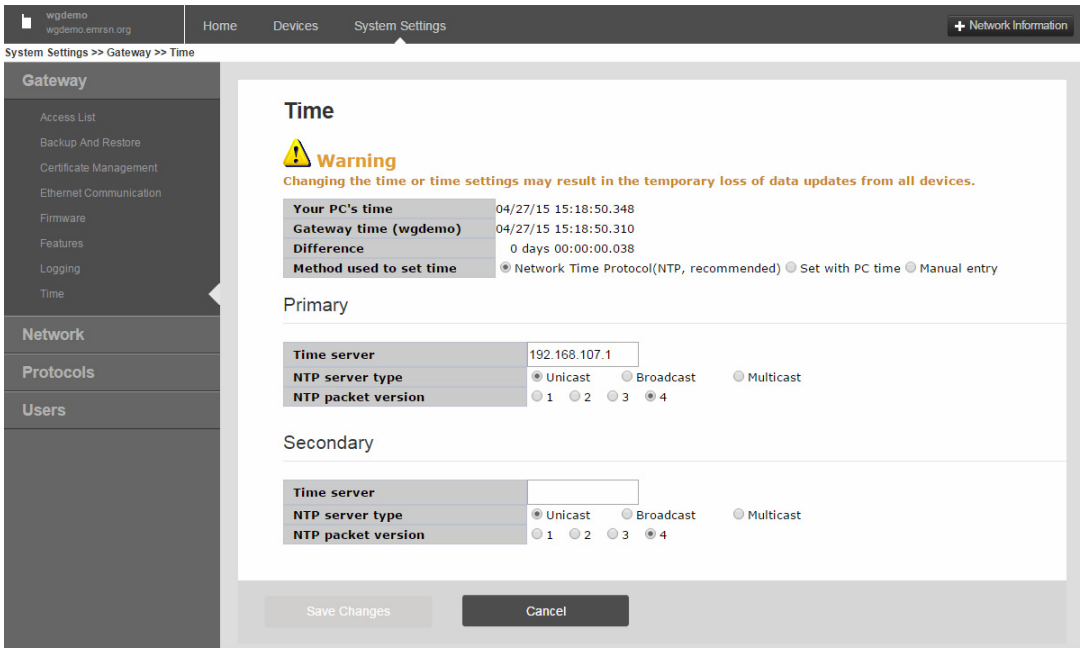

Table 1-21. Time

Item	Description
Your PC's time	Time used by the PC client
Gateway time	Time currently used by the gateway
Difference	Difference between current operating system time clock and gateway time clock
Method used to set time	Selects the way gateway synchronizes the time to a specific third party device including separate NTP (network time protocol) or your PC time (NTP is the recommended method)
Time server	IP address of a known time server to which the gateway clock is synchronized
NTP server type	Selects type of time server
NTP packet version	Selects packet version of time server

1.8 System Settings > Network pages

1.8.1 System Settings > Network > Channels

Figure 1-22. Channels

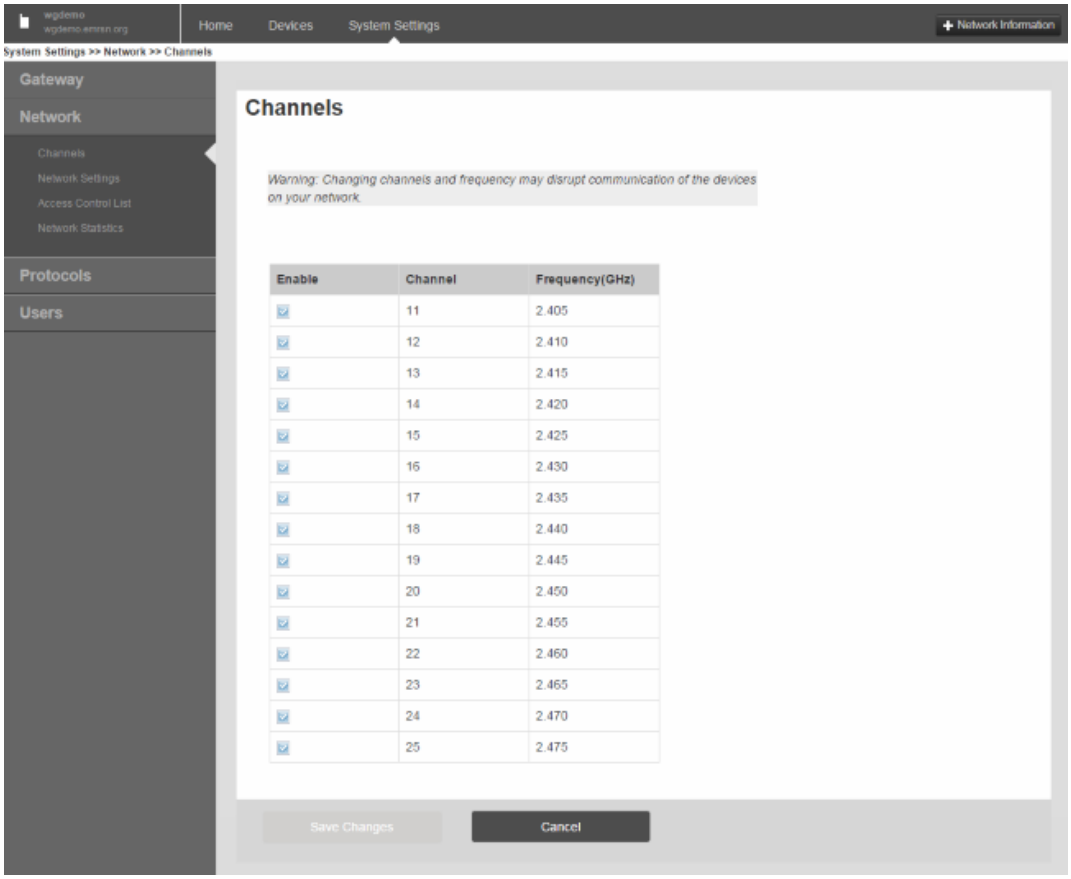

Table 1-22. Channels

Item	Description
Enable	When checked, enables associated channel (used to determine which channels are used within the gateway's broadcast). This is not required for normal operation; only use if required in very heavy RF situations.
Channel	IEEE 802.15.4 channel number
Frequency (GHz)	Frequency of the channel being used

1.8.2 System Settings > Network > Network Settings

Figure 1-23. Network Settings

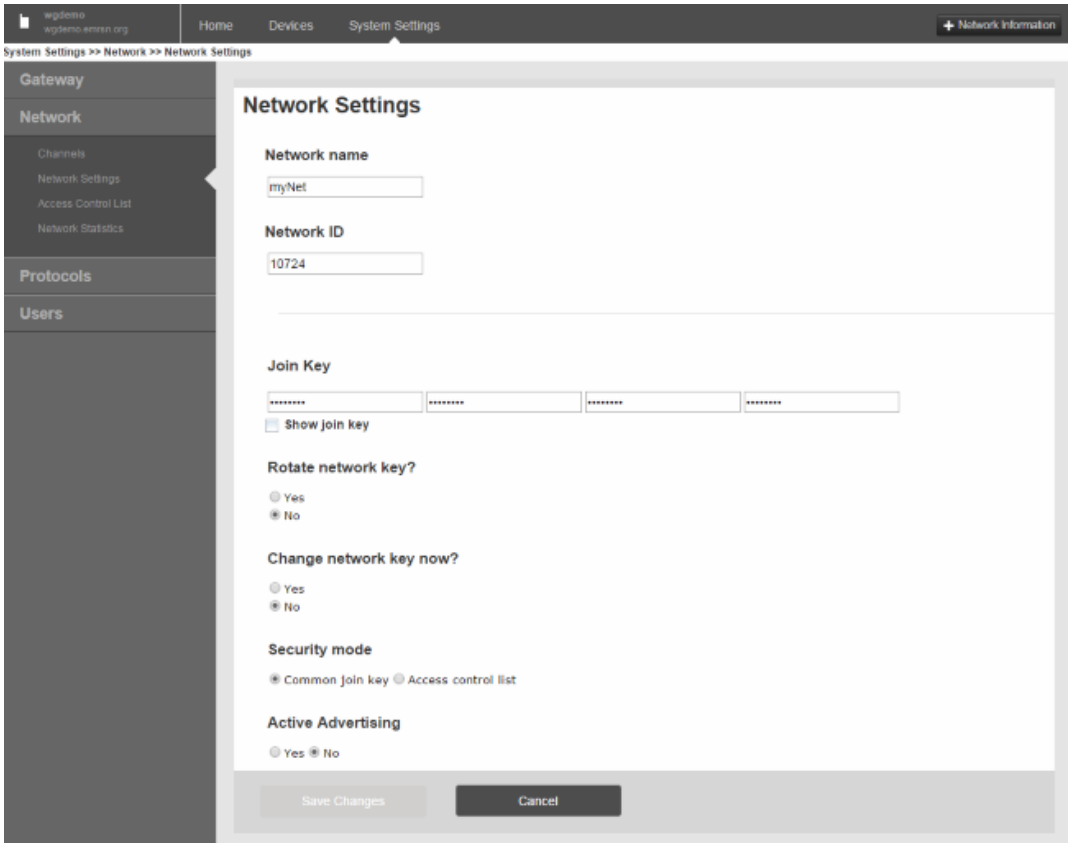

Table 1-23. Network Settings

Item	Description
Network name	User-defined network name
Network ID	Unique ID used for this particular gateway's network (can be set so each device initially joins the network along with the common join key). The gateway pushes this information to all devices when changed if they are connected to the network.
Join Key	Represents network being connected to, and the password required to access it (typically defaulted in each gateway and will not be used when enabling the access control list)
Rotate network key?	Select **Yes** to make gateway generate a new random network key (encryption) on a periodic basis (a period of time between rotations must be determined from 10-100 days; default is 90 days)
Change network key now?	Select **Yes** to automatically generate a random key and push to existing network devices (occurs when **Save Changes** is selected)
Security mode	Selects whether the gateway uses a common join key or access control list to determine which devices can join the *Wireless*HART network
Active Advertising	Select **Yes** to make gateway actively search for new network devices. Devices will join without this feature however enabling this makes process faster (automatically enabled if a device drops offline).

1.8.3 System Settings > Network > Access Control List

Figure 1-24. Access Control List

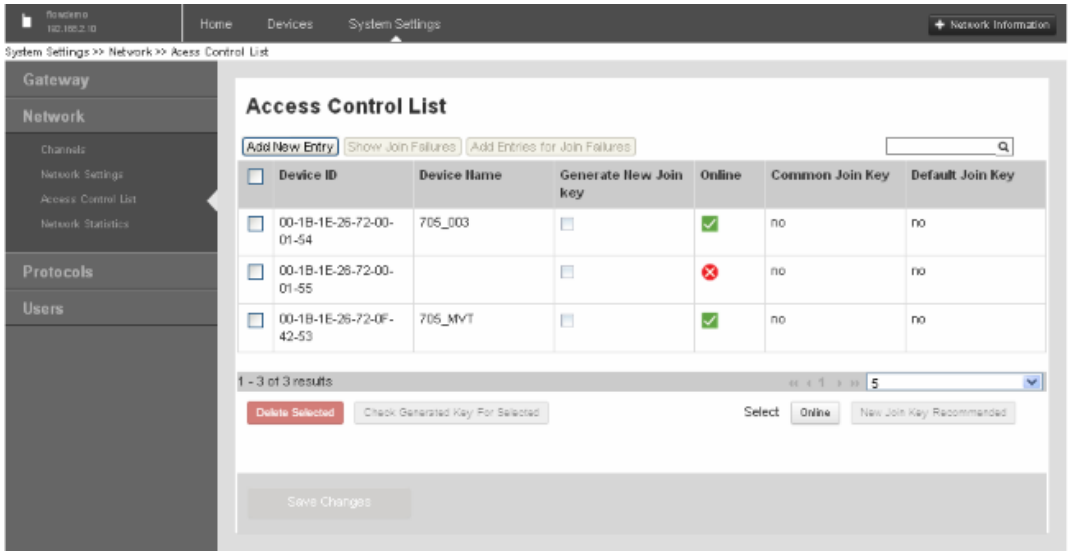

Table 1-24. Access Control List

Item	Description
Device ID	Unique device identification number, all *Wireless*HART devices should begin with 00-1B-1E (next four digits represent device type, the last six digits vary from device to device). This name cannot be changed; it represents the unique device the same way a serial number would.
Device Name	Device's HART Tag
Generate New Join key	When checked, generates new unique join key for the device
Online	Indicates device is communicating on the *Wireless*HART network
Common Join Key	Indicates whether device is using common join key
Default Join Key	Indicates whether device is using the default join key
Check Generated Key for Selected	Checks the Generate New Join Key box for all selected entries
New Join Key Recommended	Selects all devices with a common join key or a default join key

1.8.4 System Settings > Network > Network Statistics

Figure 1-25. Network Statistics

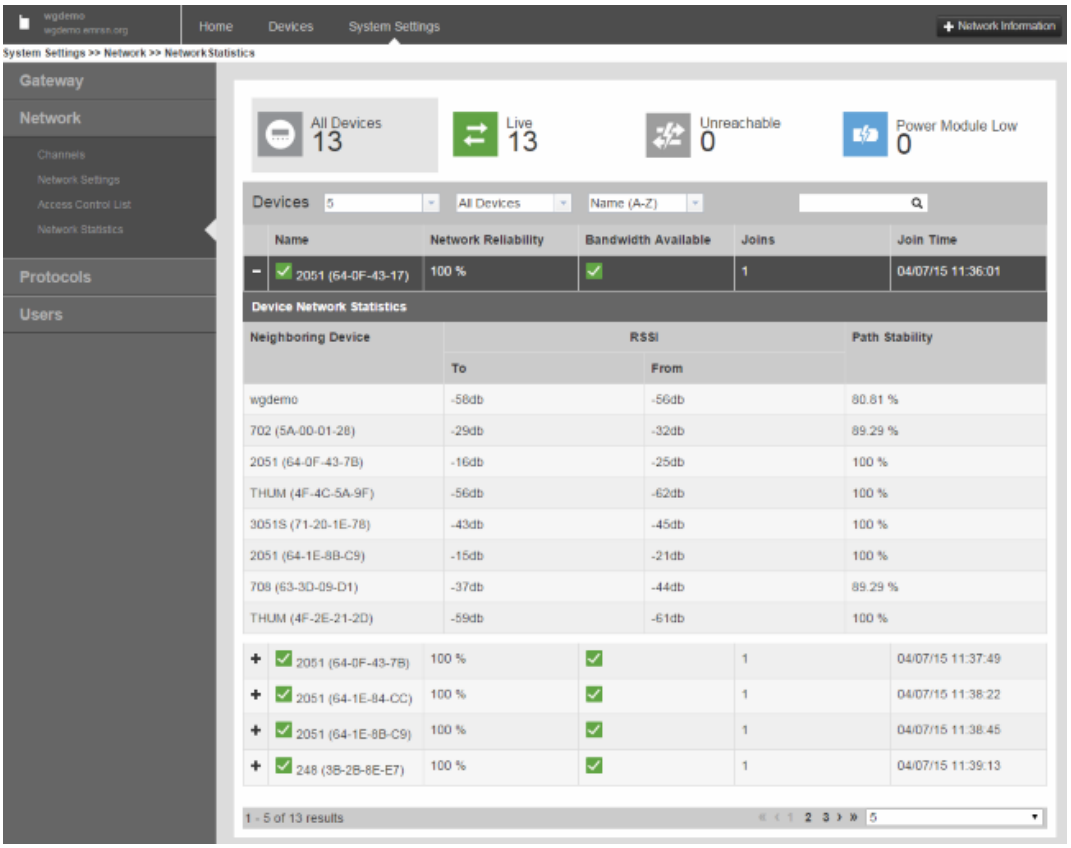

Table 1-25. Network Statistics

Item	Description
Name	Name of the device HART tag
Network Reliability	Percentage of packets transmitted by a device and received by the gateway (100.0% reliability indicates every expected data packet was received). This value represents reliability of the wireless network to deliver data and is rounded to the nearest tenth. This is a lifetime statistic that is reset via a gateway restart; it is possible to have a small number of late/missed updates over a long time and still have 100.0% reliability.
Bandwidth Available	Indicates whether field device has been denied bandwidth because the device has requested an update rate exceeding available network capacity or has poor network topology. If experiencing issues, too many devices at too fast of update rates may exist to be supported within the network. Review network topology with respect to pinch points, update rates, and number of devices. Ensure the network meets best practices. Tools such as AMS® Wireless SNAPON™ or the Gateway Capacity Estimator can provide deeper insight into network topology issues and gateway loading.
Joins	Number of times field device has joined the network since the last system reset (high value may indicate some connectivity issue with that device). The number of joins increases at every power module replacement or when the device is removed from the network and rejoins.
Join Time	Time the device joined the network (may be helpful to diagnose connectivity issues when combined with the number of joins)

Table 1-25. Network Statistics

Item	Description
Neighboring Device	Other nearby field devices with connections to this device (provides the HART tag of other devices within range of that device or gateway with active communication to that device)
RSSI	Received signal strength indication (RSSI) for the field device and neighbor (average calculated over the most recent 15-minute period). It represents how well that device is hearing other devices or the gateway within a network during a receive. Ideally, this number is greater than -79 dBm (e.g. a -45 dBm device has a greater signal strength than -79 dBm).
To	RSSI to the neighbor device, defines the connection to the neighbor device (significant mismatch between the “from” and “to” RSSI may require additional investigation)
From	RSSI from the neighbor device, defines the connection from the neighbor device (significant mismatch between the “from” and “to” RSSI may require additional investigation)
Path Stability	Percentage of transmitted packets successfully reaching their destination over a given path (two neighboring devices) calculated over the most recent 15-minute period. Network reliability is always higher than path stability due to automatic re-transmission using multiple paths and different RF channels.

1.9 System Settings > Protocols pages

1.9.1 System Settings > Protocols > Protocols and Ports

Figure 1-26. Protocols and Ports

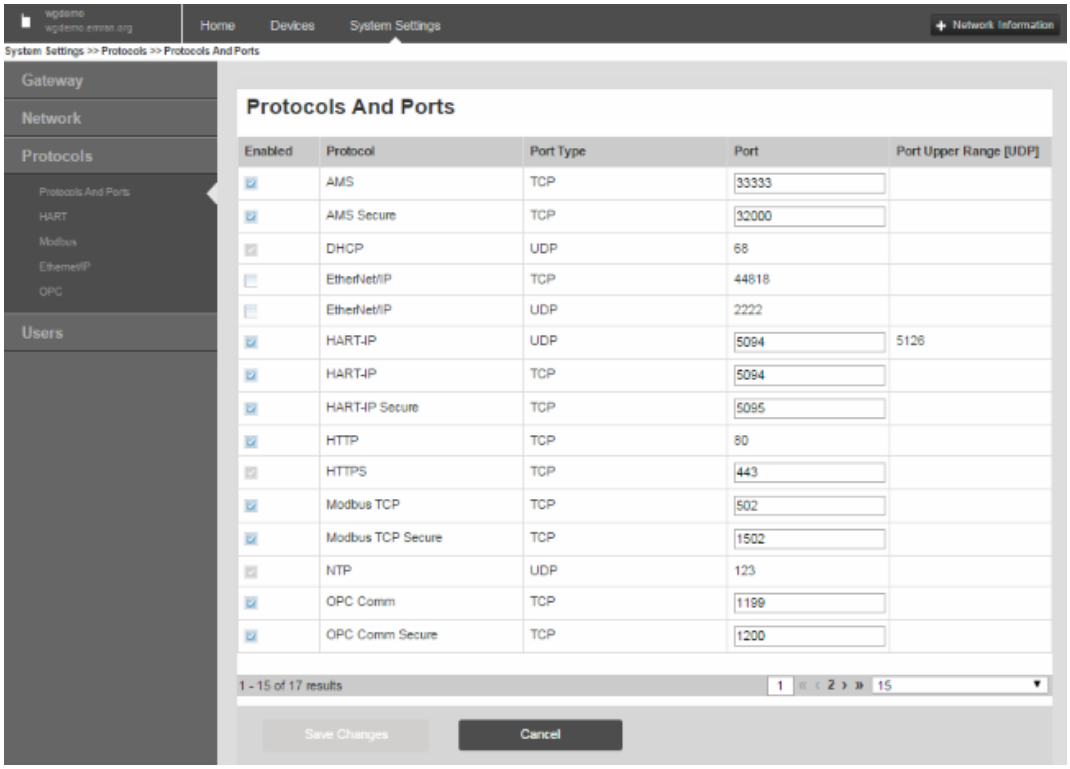

Table 1-26. Protocols and Ports

Item	Description
Enabled	When checked, enables associated communication protocol and opens specified TCP/UDP port
Protocol	Type of Ethernet communication protocol
Port Type	Either TCP or UDP port used by the associated communication protocol
Port	Port number for the associated communication protocol and port type
Port Upper Range (UDP)	Range of ports used for this protocol (usually a fixed number of difference between UDP and regular)
AMS Secure	SSL-enabled Ethernet communication protocol used to talk to asset management hosts (also requires HTTPS)
DHCP	Network protocol that enables a server to automatically assign an IP address to a computer from a defined range of numbers (i.e., a scope) configured for a given network
EtherNet/IP	Member of a family of networks that implements the Common Industrial Protocol (CIP™) at its upper layers. CIP encompasses a comprehensive suite of messages and services for a variety of manufacturing automation applications, including control, safety, synchronization, motion, configuration, and information.

Table 1-26. Protocols and Ports

Item	Description
HART-IP	Additional connection option that facilitates host level systems and assets and integrates measurement and device diagnostics information from HART-enabled field devices using the existing plant networking infrastructure
HART-IP Secure	SSL-enabled Ethernet communication protocol used to talk to HART enabled hosts (requires HTTPS)
HTTP	Ethernet communication protocol used for the gateway's web based user interface
HTTPS	SSL-enabled Ethernet communication protocol used for the gateway's web-based user interface
Modbus TCP	Ethernet communication protocol used to talk to Modbus TCP-enabled hosts
Modbus TCP Secure	SSL-enabled Ethernet communication protocol used to talk to Modbus TCP-enabled hosts (requires HTTPS)
NTP	Communication port used to talk to a Network Time Protocol (NTP) server
OPC Comm	Interoperability standard for secure and reliable exchange of data in the industrial automation space and in other industries
OPC Comm Secure	SSL-enabled Ethernet communication protocol used to communicate to OPC enabled hosts

1.9.2 System Settings > Protocols > HART

Figure 1-27. HART

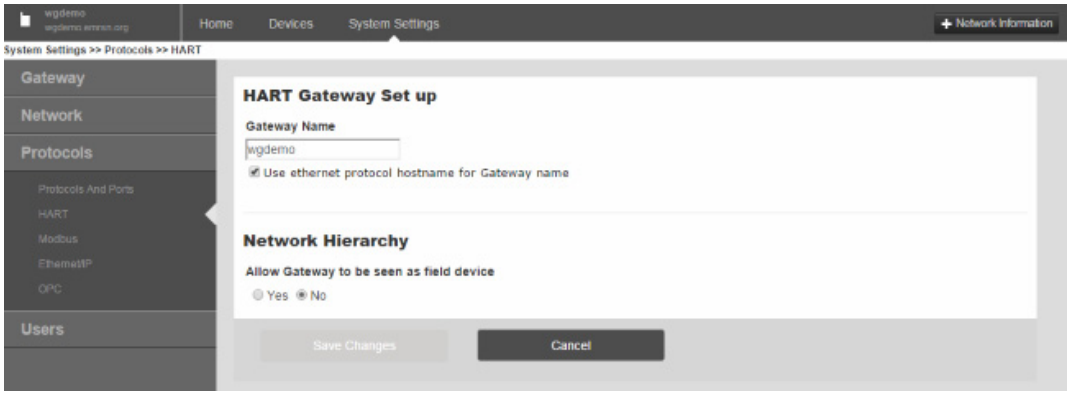

Table 1-27. HART

Item	Description
Gateway Name	Host name for the *Wireless*HART Gateway
Use ethernet protocol host name for Gateway name	When checked, uses the host name field under the Ethernet page to replace the gateway name (one-time action). Further host name changes will not be reflected on this page unless the box is rechecked.
Allow Gateway to be seen as field device	Select **Yes** to allow the gateway to be seen as a field device on device specific pages

Figure 1-28. HART Statistics

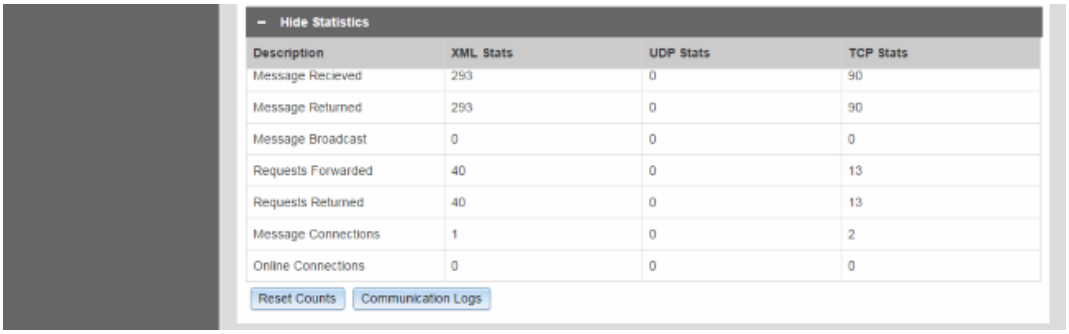

Table 1-28. HART Statistics

Item	Description
Description	Explains mapped parameter
XML Stats	HART communications over XML protocol (associated with AMS Wireless Configurator and AMS communication protocols)
UDP Stats	HART communications over UDP protocol (associated with the HART UDP Port communication protocol)
TCP Stats	HART communications over TCP protocol (associated with the HART TCP Port and HART TCP Secure communication protocol)
Message Received	Number of messages gateway received from a client application (can be any HART-enabled host)
Message Returned	Number of messages gateway returned to a client application (can be any HART-enabled host)
Message Broadcast	Number of periodic (scheduled) messages gateway received from a client application
Requests Forwarded	Number of messages gateway has forwarded to field devices (not all messages received are forward because some information is cached in the gateway)
Requests Returned	Number of messages gateway received from field devices in response to forwarded requests
Message Connections	Number of connections included on the HART IP
Online Connections	Number of connections active
Reset Counts	Resets all HART statistics

1.9.3 System Settings > Protocols > Modbus page

1.9.3.1 System Settings > Protocols > Modbus > Mappings

Figure 1-29. Mappings

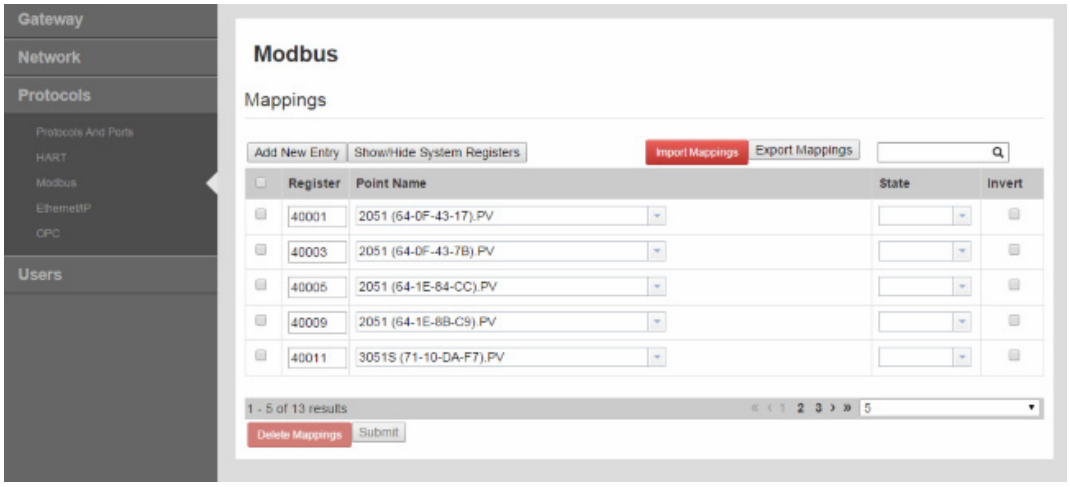

Table 1-29. Mappings

Item	Description
Add New Entry	Creates a new entry in the table
Show/Hide System Registers	Shows/hides predefined system registers 49001 = current year, 49002 = current month, 49003 = current day, 49004 = current hour, 49005 = current minute, 49006 = current second, 49007 = messages received...
Import Mappings	Opens a window to browse and locate a Modbus mapping backup file (CSV file) on the PC client
Export Mappings	Collects gateway Modbus mapping data and creates a backup file (saved on PC client as a CSV file [*.csv])
Register	Memory location used to reference point data via Modbus protocol (Modbus holding register)
Point Name	Assigned data point in the format HARTtag.parameter
State	For Booleans, indicates which value will be reported as a 1. For integers, identifies a particular bit to be reported as 1 (reserved for registers less than 20000)
Invert	When checked, switches the 0 or 1 response for discrete state values for associated point name

1.9.3.2 System Settings > Protocols > Modbus > Communication Settings

Figure 1-30. Communication Settings

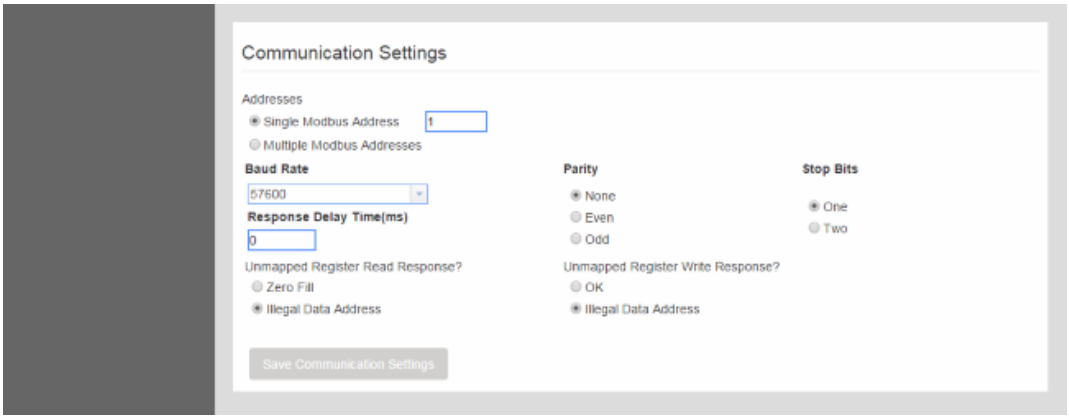

Table 1-30. Communication Settings

Item	Description
Single Modbus Address	Select to use a single Modbus RTU slave address
Multiple Modbus Addresses	Select to use multiple Modbus RTU slave addresses (configured per point in the Modbus mapping page)
Baud Rate	Communication speed for Modbus RTU
Response Delay Time (ms)	After receiving a request, gateway will wait this long before it sends a response
Unmapped Register Read Response?	Selects the response gateway sends if no data is mapped to the register during a read request (gateway can either return zero for the requested register or illegal data address exception)
Unmapped Register Write Response?	Selects the response gateway sends if no data is mapped to the register during a write request (gateway can either return zero for the requested register or illegal data address exception)
Parity	Selects whether parity is used for Modbus RTU messages and whether it is even or odd
Stop Bits	Selects number of stop bits for Modbus RTU messages

1.9.3.3 System Settings > Protocols > Modbus > Format Settings

Figure 1-31. Communication Settings

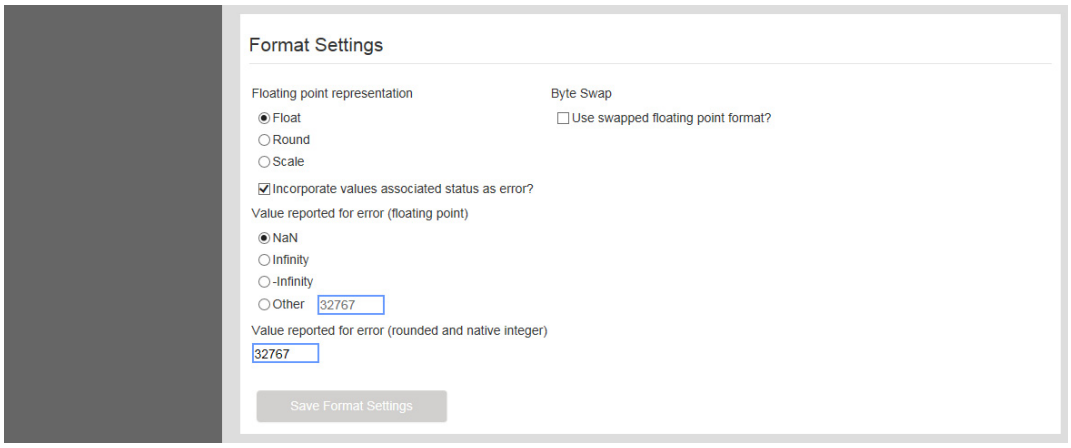

Table 1-31. Communication Settings

Item	Description
Floating point representation	Selects format in which Modbus data is given
Value reported for error (floating point)	Selects value reported if the value's associated status indicates a critical failure (only used if gateway is using float representation)
NaN	Reported if value's associated status indicates a critical failure
Infinity	Reported if value's associated status indicates a critical failure
-Infinity	Reported if value's associated status indicates a critical failure
Other	User-defined value reported if value's associated status indicates a critical failure
Value reported for error (rounded and native integer)	Only used when round or scale is selected under floating point representation
Byte Swap	When checked, reverses significant register used in a floating point representation

1.9.3.4 System Settings > Protocols > Modbus > Modbus Statistics

Figure 1-32. Modbus Statistics

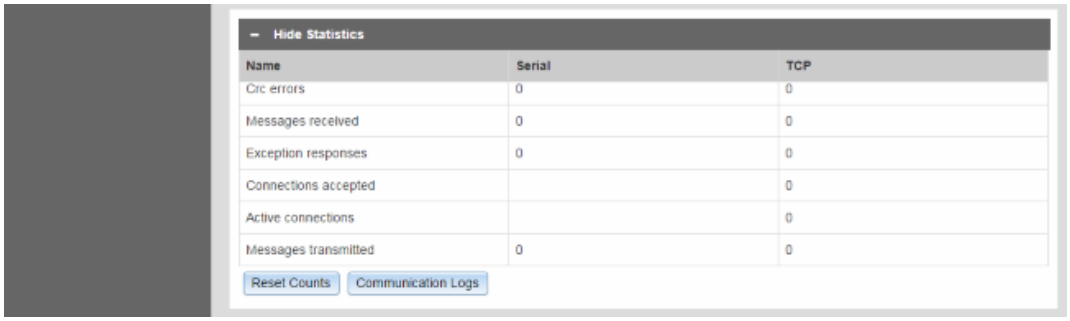

Table 1-32. Modbus Statistics

item	Description
Name	Statistic name being used
Serial	These statistics are only available over serial communications or Modbus 485.
TCP	These statistics are only available over Ethernet TCP Modbus connections.
CRC errors	Number of cyclic redundancy check errors (generally indicate noise in transmission or problems with data integrity)
Messages received	Number of messages received from Modbus master device
Exception responses	This number increments if any exception is returned.
Connections accepted	Number of total connections from Modbus TCP masters accepted over time (not the current number of connections)
Active connections	Number of Modbus connections currently active on the gateway
Messages transmitted	Number of response messages transmitted from the gateway
Reset Counts	Resets all table values

1.9.4 System Settings > Protocols > EtherNet/IP page

1.9.4.1 System Settings > Protocols > EtherNet/IP > Member Map

Figure 1-33. EtherNet/IP Member Map

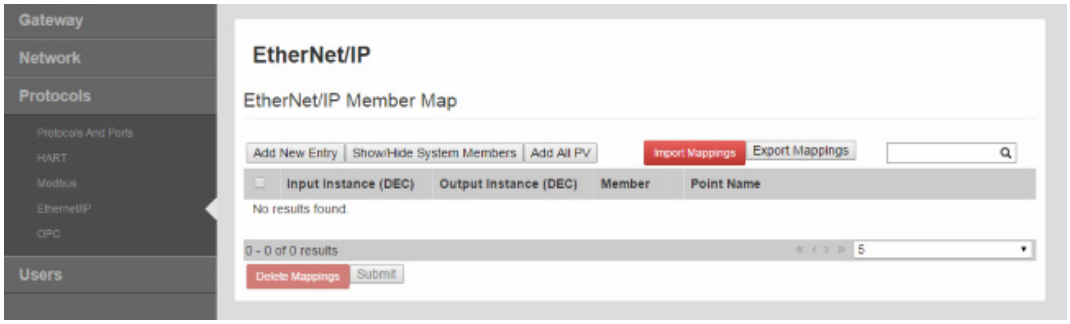

Table 1-33. EtherNet/IP Member Map

Item	Description
Show/Hide System Members	Toggles visibility of system members or data available (use to see what information is available within the gateway by default)
Add All PV	Inserts new table entry for the primary value of every wireless field device
Import Mappings	Imports existing mapping from a csv file created through Excel® or obtained from another gateway's parameters
Export Mappings	Exports current device parameters mapped for EtherNet/IP to be used offline or for another gateway
Input Instance (DEC)	EtherNet/IP Input Static Assembly Instance – 496 bytes
Output Instance (DEC)	EtherNet/IP Output Static Assembly Instance – 496 bytes
Member	EtherNet/IP Instance Member in which data will get produced or consumed
Point Name	Assigned data point in the format HARTtag.paramter

1.9.4.2 System Settings > Protocols > EtherNet/IP > Communication

Figure 1-34. EtherNet/IP Communication

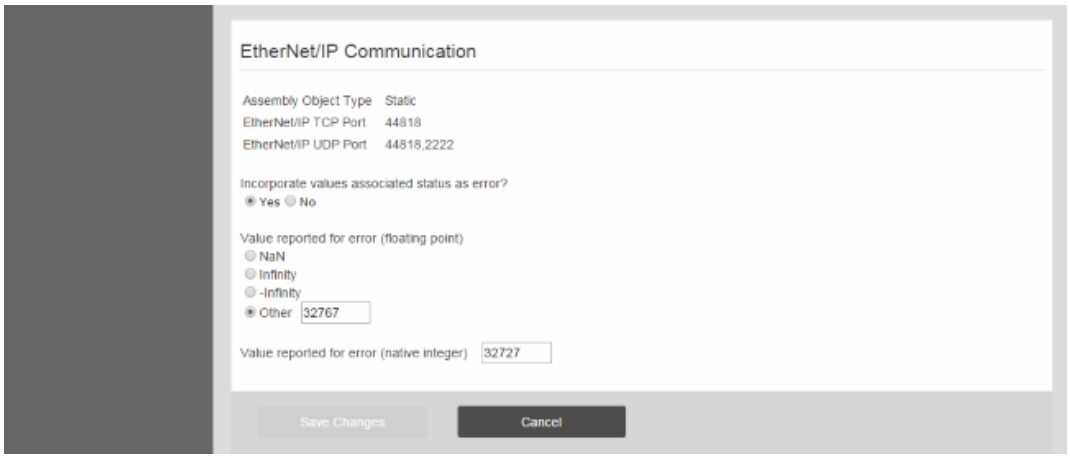

Table 1-34. EtherNet/IP Communication

Item	Description
Assembly Object Type	Static assembly object type is the only type available with an EtherNet/IP application
Ethernet/IP TCP Port	TCP Port used to access EtherNet/IP TCP data directly from gateway
Ethernet/IP UDP Port	UDP Port used to access EtherNet/IP UDP data directly from gateway
Incorporate values associated status as error?	Select **Yes** to report a critical failure or communication loss through the EtherNet/IP member if HART variable status indicates a critical failure
Value reported for error (floating point)	Selects value reported if value's associated status indicates critical failure (only used if gateway is using float representation)
NaN	Reported if value's associated status indicates a critical failure
Infinity	Reported if value's associated status indicates a critical failure
-Infinity	Reported if value's associated status indicates a critical failure
Other	User-defined value reported if the value's associated status indicates a critical failure
Value reported for error (native integer)	User-defined value reported if the value's associated status indicates a critical failure (only used if the gateway is using integer representation)

1.9.4.3 System Settings > Protocols > EtherNet/IP > Statistics

Figure 1-35. EtherNet/IP Statistics

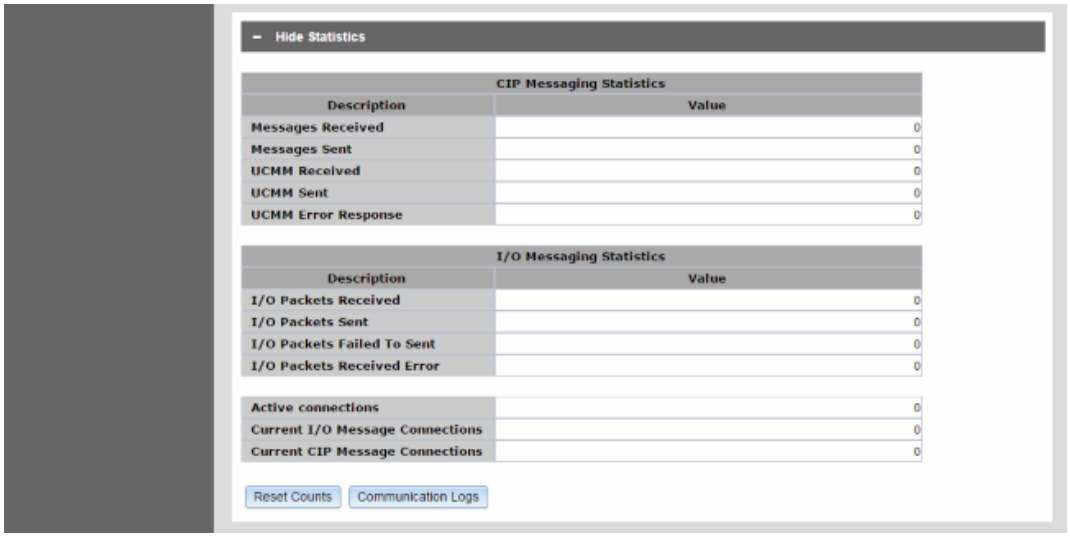

Table 1-35. EtherNet/IP Statistics

Item	Description
CIP Messaging Statistics	Used for troubleshooting networks
Description	Description of the parameter being mapped to the host system
Value	Value of the mapped parameter
Messages Received	Statistics related to number of messages received
Messages Sent	Statistics related to number of messages sent
UCMM Received	Unconnected Message Manager (UCMM) statistics related to number of messages received
UCMM Sent	UCMM statistics related to number of messages sent
UCMM Error Response	UCMM statistics related to number of error responses
I/O Messaging Statistics	Used for troubleshooting networks
I/O Packets Received	Input/output packets received
I/O Packets Sent	Input/output packets sent
I/O Packets Failed To Send	Input/output packets that are going to send
I/O Packets Received Error	Input/output packets received error
Active connections	Number of EtherNet/IP connections available (used to monitor number of active connections to the EtherNet/IP module)
Current I/O Message Connections	Number of input/output packets that received connections
Current CIP Message Connections	Number of CIP Message Connections currently connected to the device
Reset Counts	Resets all table values

1.9.5 System Settings > Protocols > OPC

Figure 1-36. OPC Mappings

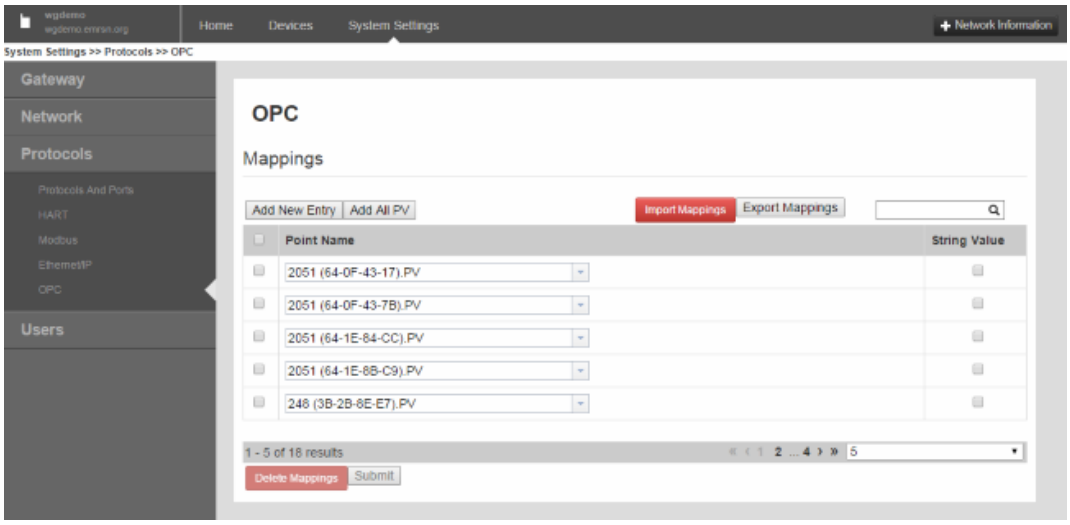

Table 1-36. OPC Mappings

Item	Description
Add New Entry	Creates new entry in the table
Add All PV	Creates new entry for the primary value of every wireless field device
Import Mappings	Opens a window to browse and locate a Modbus mapping backup file (CSV file) on the PC client
Export Mappings	Collects gateway Modbus mapping data and creates a backup file (saved on the PC client as a CSV file [*.csv])
Point Name	Assigned data point in the format HARTtag.parameter
String Value	When checked, point data is represented in a string of characters rather than the default 32-bit floating point

1.10 System Settings > Users pages

1.10.1 System Settings > Users > User Accounts

Figure 1-37. User Accounts

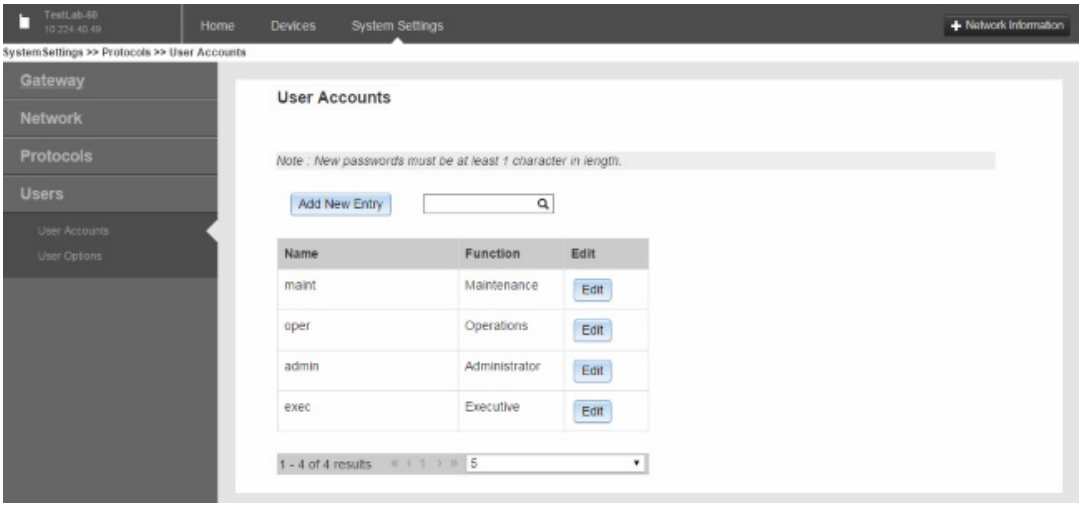

Table 1-37. User Accounts

Item	Description
Name	Name of the user account
Function	Access privileges for the user, administrator, maintenance, operations, or executive
Edit	Edits corresponding field
maint	These are the privileges that a maint user type has: • Configure HART device settings • Configure Modbus communications • Configure Modbus register mapping • Configure OPC browse tree • Configure Active Advertising
oper	Read-only access with the ability to delete inactive devices
admin	Includes all maintenance privileges for administrators
exec	Read-only access

1.10.2 System Settings > Users > Users Options

Figure 1-38. Users Options

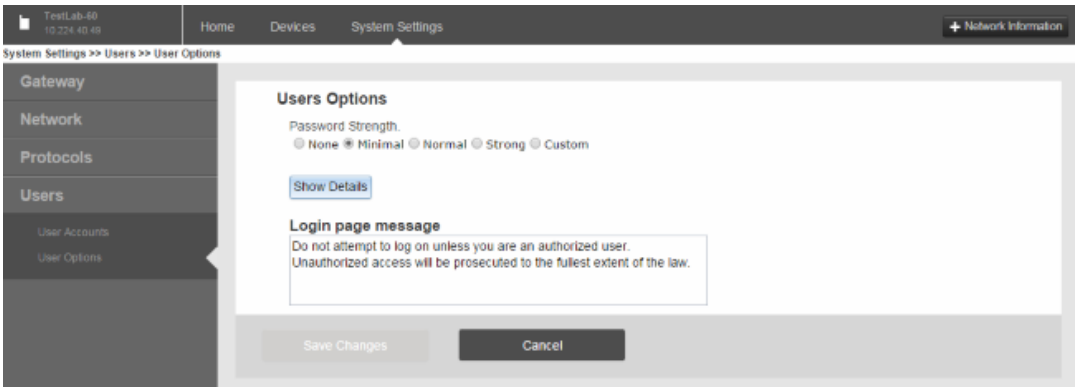

Table 1-38. Users Options

Item	Description
Password Strength	Selects level or rules used for user password strength (i.e. none, minimal, normal, strong, or custom) to enhance password strength requirements (recommended)
None	Select to use no requirements
Minimal	Select to set minimum requirements based on scaling of options possible
Normal	Select to set normal password protection enabled based on scaling of options possible
Strong	Select to set strong password protection based on the current options available
Custom	Select to set input custom length requirements
Show Details	Shows information to edit
Login page message	Message displayed at user login page

1.11 Redundancy option

1.11.1 System Settings > Gateway

Figure 1-39. Gateway

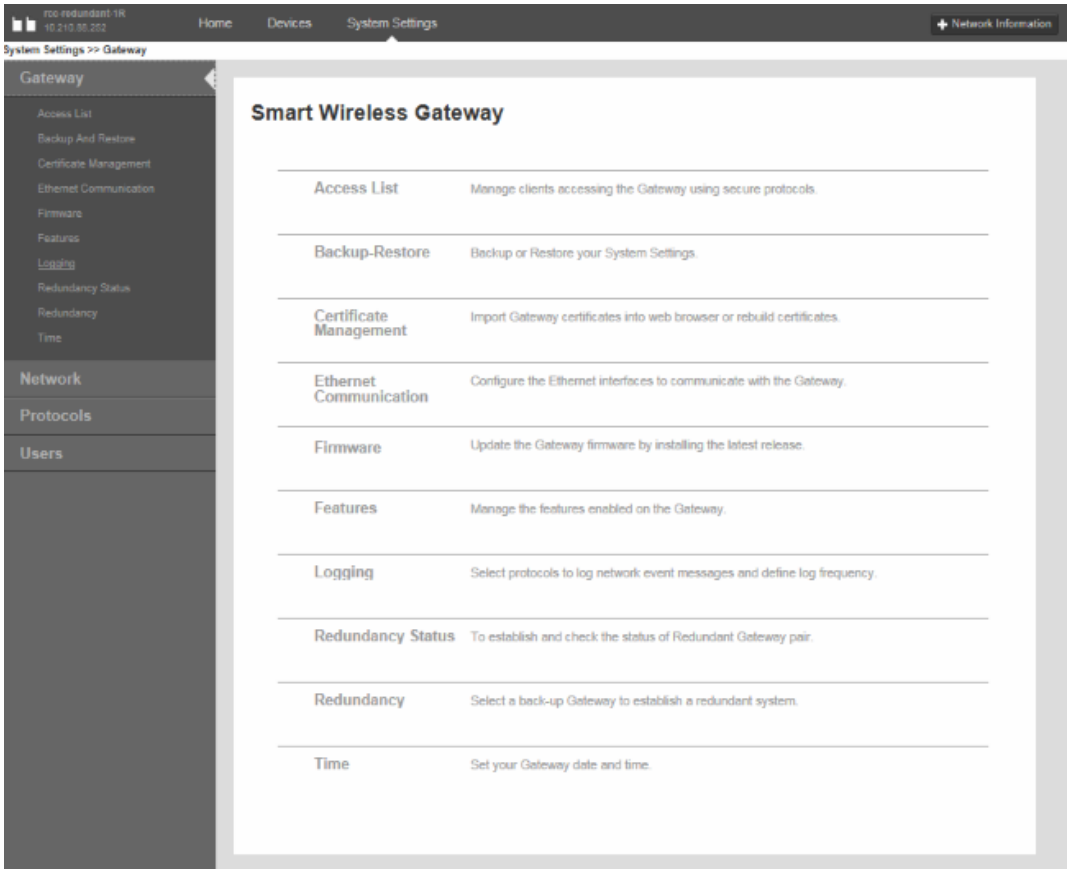

Table 1-39. Gateway

Item	Description
Redundancy Status	Establishes and checks status of redundant gateway pair
Redundancy	Selects a backup gateway to establish a redundant system

1.11.1.1 System Settings > Gateway > Redundancy Status

Figure 1-40. Redundancy Status

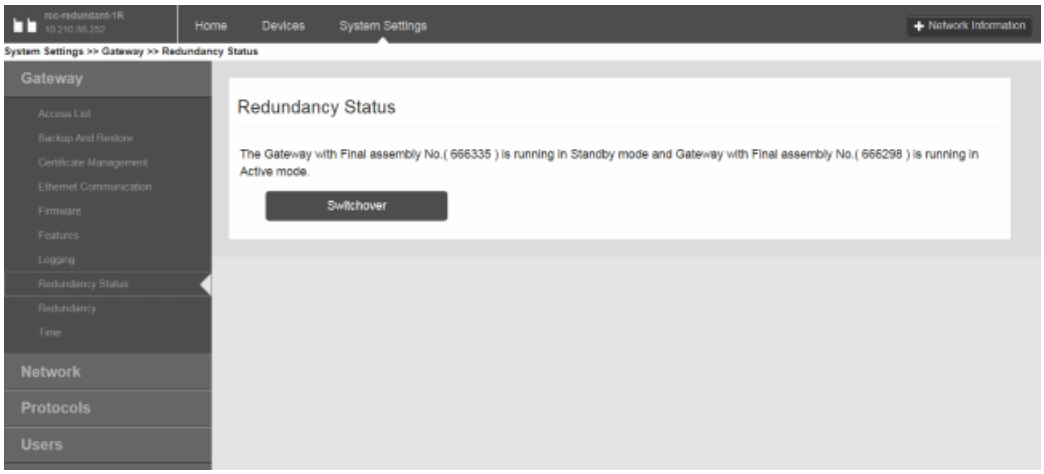

Table 1-40. Redundancy Status

Item	Description
Switchover	Toggles between primary and secondary gateway (commonly used to switch out gateways without loss of network)

1.11.1.2 System Settings > Gateway > Redundancy

Figure 1-41. Redundancy System Settings

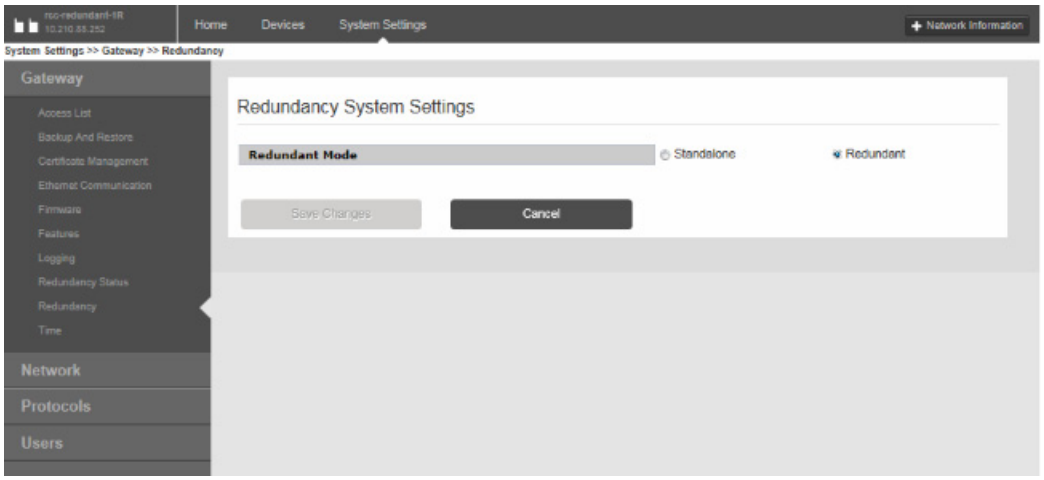

Table 1-41. Redundancy System Settings

Item	Description
Redundant Mode	Places gateway in redundant mode
Standalone	Select to take gateway out of redundant mode (operates on its own)
Redundant	Select to place gateway in redundant mode

Global Headquarters

Emerson Process Management
6021 Innovation Blvd.
Shakopee, MN 55379, USA
+1 800 999 9307 or +1 952 906 8888
+1 952 949 7001
RFQ.RMD-RCC@EmersonProcess.com

North America Regional Office

Emerson Process Management
8200 Market Blvd.
Chanhassen, MN 55317, USA
+1 800 999 9307 or +1 952 906 8888
+1 952 949 7001
RMT-NA.RCCRFQ@Emerson.com

Latin America Regional Office

Emerson Process Management
1300 Concord Terrace, Suite 400
Sunrise, Florida, 33323, USA
+1 954 846 5030
+1 954 846 5121
RFQ.RMD-RCC@EmersonProcess.com

Europe Regional Office

Emerson Process Management Europe GmbH
Neuhofstrasse 19a P.O. Box 1046
CH 6340 Baar
Switzerland
+41 (0) 41 768 6111
+41 (0) 41 768 6300
RFQ.RMD-RCC@EmersonProcess.com

Asia Pacific Regional Office

Emerson Process Management Asia Pacific Pte Ltd
1 Pandan Crescent
Singapore 128461
+65 6777 8211
+65 6777 0947
Enquiries@AP.EmersonProcess.com

Middle East and Africa Regional Office

Emerson Process Management
Emerson FZE P.O. Box 17033,
Jebel Ali Free Zone - South 2
Dubai, United Arab Emirates
+971 4 8118100
+971 4 8865465
RFQ.RMTMEA@Emerson.com

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