Digi Connect IT® 16/48

User Guide

User Guide

Revision history—90002332

Revision	Date	Description
A	July 2019	Initial release.

Trademarks and copyright

Disclaimers

Information in this document is subject to change without notice and does not represent a commitment on the part of Digi International. Digi provides this document "as is," without warranty of any kind, expressed or implied, including, but not limited to, the implied warranties of fitness or merchantability for a particular purpose. Digi may make improvements and/or changes in this manual or in the product(s) and/or the program(s) described in this manual at any time.

Warranty

To view product warranty information, go to the following website:

www.digi.com/howtobuy/terms

Send comments

Documentation feedback: To provide feedback on this document, send your comments to techcomm@digi.com.

Customer support

Digi Technical Support: Digi offers multiple technical support plans and service packages to help our customers get the most out of their Digi product. For information on Technical Support plans and pricing, contact us at +1 952.912.3444 or visit us at www.digi.com/support.

Contents

Configure Connect IT using the web user interface

Troubleshooting

Hardware

Regulatory and safety information

Digi Connect IT® 16/48 User Guide

This guide provides reference and usage information for the Connect IT.

The 16/48 provides out-of-band management for remote network or infrastructure devices. Cellular connectivity, available as standard in some models and as an option in other models, provides fast reliable cellular connections without additional equipment. All connections are encrypted for security.

Connect IT 16 and 48 key features

The Digi Connect IT 16/48 port products provide these key features:

- Dual Gigabit Ethernet and Dual SFP+ option for robust flexible network connectivity.
- Devices with either 16 or 48 serial connections to manage IT assets via console port.
- Option to install Certified Digi Cellular CORE Module to support different cellular speeds with modules certified for specific regions.
- Superior network performance management through Digi Remote Manager® (DRM).
- Global Deployment support.

Get started with Connect IT 16/48

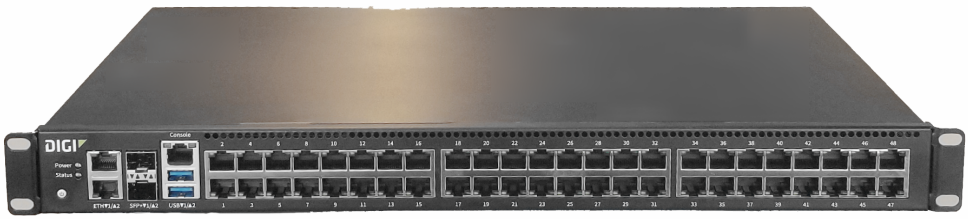
This section explains what comes with each Connect IT model, how to install the necessary software, and how to connect the hardware.

1. Verify product components.
2. Cellular ONLY: Insert the CORE module.
3. Connect the power supplies and fans.
4. Optional: Connect SFP+ modules.
5. Connect the hardware to a network.
6. Access the device from the web UI.
7. Update the firmware on the Connect IT from the web UI.
8. Change the password.
9. Administrators only: Additional configuration to the Connect IT can be done in Remote Manager or in the Connect IT's web user interface.
    - Configure Connect IT using Remote Manager
    - Configure Connect IT using the web user interface
10. Mount the Connect IT to a rack.
11. Connect equipment to the Connect IT serial ports.

Verify product components

Verify that you have the following included equipment.

Included equipment

Equipment	Description
Digi Connect IT 16 Digi Connect IT 48	 **Note** This image is of Connect IT 48. The Connect IT 16 has a blank panel instead of ports 17 - 48. For detailed information about the front and back panels, see Connect IT 16/48 hardware and LEDs.
Serial adapter	DB9 female to RJ45 adapter. Connects D89 serial port on a PC to the Connect IT 16/48 console port.
Ethernet cable	8-wire straight-through shielded Cat5 Ethernet cable. You can also choose to connect to the network with an Ethernet connection rather than connecting to a cellular network. See Connect hardware and connect to site network using an Ethernet LAN.
Label	The label includes the MAC addresses of the device.

Required additional equipment

Equipment	Description
Power supply kit	Each kit includes three items: two power supply items and one fan item. These items are connected to the Connect IT 16/48. See Connect the power supplies and fans. You can choose between the following two kits: ■ ITPS-PSEK: Connect IT 16/48 power supply kit, port-side exhaust. Use this when the serial ports will be in the hot aisle. The thumb screws used to connect the items to the Connect IT are blue. ■ ITPS-PSIK: Connect IT 16/48 power supply kit, port-side intake. Use this when the serial ports will be in the cold aisle. The thumb screws used to connect the items to the Connect IT are red.
Power cord	IEC 60320 power cord

Optional additional equipment

Equipment	Description
CORE module	 **Note** This is required only if you want to connect to a cellular network. A SIM card is also required.
SIM card	An activated SIM card provided by your cellular network operator. You can insert up to two SIM cards in the CORE module. See Connect hardware and connect to a cellular network. The CORE module supports the standard mini-SIM cards (2FF). **Note** This is required only if you are using a CORE module to connect to a cellular network.

Equipment	Description
Antennas (2)	

Optional equipment

Equipment	Description
Power cord	IEC 60320 power cord. An additional power cord used for redundancy.

Cellular ONLY: Insert the CORE module

Note If you are connecting to a network using an Ethernet connection, you can skip this section. See Connect hardware and connect to site network using an Ethernet LAN.

This section explains how to connect the CORE module and cellular antennas to the Connect IT hardware.

Prerequisites

- Activated SIM card from your cellular network provider.
- CORE module. This may be included with your device. If it is not, you must purchase one separately.

To connect the hardware and connect to the cellular network:

1. Insert your activated SIM card into the CORE module. The notched end of SIM card should be inserted first, with the gold metal contacts facing down. You will hear a click once the SIM is completely inserted.

   Note If one SIM card is being used, insert the SIM card into the SIM 1 slot.

2. Insert the CORE module into the device.
   a. Orient the device so the front of the device is facing you.
   b. Remove the CORE module slot cover from the back of the device.
   c. Insert the CORE module into the slot. Make sure the pin holes on the back of the module match the location of the pins in the slot.
   d. Push the module into the slot.
   e. Push the white handle down until you hear it click.

f. Optionally, you can screw one of the CORE module cover screws into the center of the handle.

g. Place the white CORE module cover over the end of the device. Make sure that the antenna labels are oriented correctly.

h. Push the cover in place.

3. Attach both of the included antennas. While gripping the metal connector section with your thumb and forefinger, tighten until secure. Do not tighten the antenna by holding any part of the plastic antenna housing.

> **Note** Attaching both antennas ensures maximum performance. If a single antenna solution is required, it must be attached to the antenna port labeled MAIN.

Connect the power supplies and fans

You must purchase a power supply kit. Each kit includes three units: two fan and power supply units and one fan unit.

You can choose between the following two kits:

- **ITPS-PSEK**: Connect IT 16/48 power supply kit, port-side exhaust. Use this when the serial ports will be in the hot aisle. The thumb screws used to connect the items to the Connect IT are blue.
- **ITPS-PSIK**: Connect IT 16/48 power supply kit, port-side intake. Use this when the serial ports will be in the cold aisle. The thumb screws used to connect the items to the Connect IT are red.

1. Orient the device so the back of the device is facing you.
2. Connect the first power supply and fan unit to the Connect IT.
    a. Orient a power supply and fan unit to match the picture shown above.
    b. Insert the unit into the slot on the left side of the device.
    c. Turn the red or blue screws to securely attach the unit to the device case.

3. Connect the second power supply and fan unit to the Connect IT.
    a. Orient the second power supply and fan unit to match the picture shown above.
    b. Insert the unit into the slot on the right side of the device.
    c. Turn the red or blue screws to securely attach the unit to the device case.
4. Connect the stand-alone fan unit to the Connect IT.
    a. Orient the fan unit to match the picture shown above.
    b. Insert the fan into the slot next to the power supply and fan unit on the right side of the device.
    c. Turn the red or blue screws to securely attach the fan to the device case.

Optional: Connect SFP+ modules

You can choose to connect up to two SFP+ modules to the Connect IT.

Note When you use an SFP+ module, you cannot use the equivalent Ethernet port. For example, if you insert an SFP+ module into the SFP+1 slot, you cannot use the ETH1 slot. If you insert an SFP+ module into the SFP+2 slot, you cannot use the ETH2 slot.

1. Orient the device so the front of the device is facing you.
2. Insert the first SFP+ module into the SFP+1 slot on the Connect IT.
3. Insert the second SFP+ module into the SFP+2 slot on the Connect IT.

Connect the hardware

These sections explain how to connect the hardware and then connect to either a cellular network using the CORE module or to a site network using an Ethernet cable.

- Connect hardware and connect to site network using an Ethernet LAN
- Connect hardware and connect to a cellular network

Connect hardware and connect to site network using an Ethernet LAN

This section explains how to connect the Connect IT hardware and then connect to a site network, using an Ethernet WAN cable.

Prerequisites

- CAT 5/6 Ethernet cable, which must be purchased separately.

To connect the hardware and connect to a site network:

1. Connect the power supply and fan units to the device. See Connect the power supplies and fans.
2. Plug the power supply unit into an AC power outlet and connect the other end to the **Power** plug on the 16/48.
3. Connect one end of an Ethernet cable to your site network.

4. Connect the other end of the Ethernet cable to the Ethernet ETH2 port on the 16/48. By default a DHCP request will be sent to the local Ethernet network.

Connect hardware and connect to a cellular network

This section explains how to connect the Connect IT hardware and then connect to a cellular network, using a CORE module. You must have purchased a CORE module to be able to connect to the cellular network.

Note As an alternative, you can also use an Ethernet LAN connection. See Connect hardware and connect to site network using an Ethernet LAN.

To connect the hardware and connect to the cellular network:

1. Insert a CORE module with an activated SIM card. See Cellular ONLY: Insert the CORE module.
2. Plug the power supply cord into at least one of the power supplies on the back of the device. The second power cord can also be plugged in, but it is not required. It is available for power redundancy.
3. Plug the power supply unit into an AC power outlet to power up the Connect IT 16/48.

Connect equipment to the Connect IT serial ports

After your device is connected and powered up, you can connect equipment to the device using the serial ports.

The serial ports on the 16/48 provide console access to connected critical equipment through the cellular network or a connected Ethernet LAN. Depending on your model, you can connect up to 16 or 48 of your network devices to the 16/48 serial ports. For pinout information, see Serial connector pinout.

You must use a cable with an RJ45 connector to connect to the 16/48 with a RJ45, DB9F or DB9M connector, as determined by your device type, to terminate to your device. Consult the user guide for the device you are connecting to the 16/48 to determine the connector type, cable type, and pinout positions for your specific device.

The serial ports are enabled by default. The network devices connected to the serial ports may be accessed using Remote Manager, the local web UI, TCP, telnet, or SSH connections. TCP, telnet and SSH connections to serial ports are disabled by default and must be enabled by a device-specific configuration.

Serial connector pinout

The Connect IT console port is DTE. The Connect IT serial ports 1-48 (1-16 for IT 16) are DTE ports by default but may be software configured for DCE.

Signal name	Console port and DTE mode	DCE mode
CTS	1	N/A Signals are not used in DCE mode.
DSR	2	N/A Signals are not used in DCE mode.
RXD	3	6
GND	4	5
GND/DCD	5	4
TXD	6	3
DTR	7	N/A Signals are not used in DCE mode.
RTS	8	N/A Signals are not used in DCE mode.

Configure Connect IT using Remote Manager

The following actions are typically only performed by your network administrator.

Before you begin

Connect to Remote Manager

You must configure your computer to connect to the Connect IT, and then enable the Connect IT to connect to Remote Manager. You have the following options:

- **Connect the Connect IT 4 to your network** When the Connect IT 4 has an internet connection, the Connect IT 4 will download its configuration settings from the legacy Digi aView portal by default. This configuration then automatically re-configure the Connect IT 4 to sync with Digi Remote Manager. For instructions, see Connect the hardware to a network.
- If you do not connect the Connect IT 4 to your network, you can configure your computer to connect to the Connect IT 4, and then manually enable the Connect IT 4 to connect to the Digi Remote Manager. For instructions, see Enable local management for Connect IT.

Create a Remote Manager account

You must create a Remote Manager account and add your Connect IT devices to your Remote Manager inventory.

Note For more detailed information about using Remote Manager, see the *Digi Remote Manager User Guide*.

Create a Remote Manager account and add devices

To be able to use Remote Manager, you must create a Remote Manager account and add your Connect IT devices to the device list. You should also verify that the device is enabled to connect to Remote Manager.

Create a Remote Manager account

Before you can use Remote Manager, you must create a free trial account.

Account owner

Part of creating the Remote Manager account is creating the first user account in Remote Manager. The first user becomes the account owner, who may not be a particular person, but a role within your organization. You may want to choose a user name that reflects a role rather than an actual person. See Determine the Account owner.

1. Go to www.digi.com/remotemanager.
2. Click **30-Day Free Trial**.
3. Complete the registration form, making note of the your user name and password for future reference.

   Note This first account is the account owner for Remote Manager.

4. Review and accept the **Terms of Service**.
5. Enter the image code in the text field.
6. Click **Start Free Trial**. An account confirmation screen appears.
7. Check your email inbox for your account activation link.
8. Click the account activation link in your email.
9. You can now log in to your Remote Manager account and begin adding devices to your device inventory.

Log in to Remote Manager

After you have created your Remote Manager account, you can log in.

Note See Create a Remote Manager account for instructions on how to create an account.

1. In a web browser, type https://remotemanager.digi.com.
2. Type your login credentials in the **Username** and **Password** fields.

   Note If you have forgotten your credentials, click **Forgot Username or Password** and follow the online instructions. See Forgot user name or password.

3. Click **Log in**.

Add a Connect IT to your inventory

This topic explains how to add a Connect IT to Remote Manager.

Note You can also add multiple devices using a CSV file. See Add multiple devices using a CSV file.

1. Log in to Remote Manager.
2. Click **Device Management > Devices**.
3. Click **Add Devices**. The **Add Devices** dialog appears.
4. For each device you want to add:
    a. From the drop-down menu, select the device identifier type to use for the device: **MAC address**, **IMEI #**, or **Device ID**. Typically, you can find the MAC address or IMEI number on the device label.

    Note If a device has both a MAC address and an IMEI #, you must use the MAC address to add the device.

    b. Type in the device identifier.
    c. In the **Install Code** field, enter the installation code found on the device label. If you attempt to add a device that requires an installation code with a missing or incorrect code, you receive an error message. For devices that were not manufactured with an associated installation code, the installation code is optional.
    d. Click **Add**. The device is added to the device list box.
    e. Repeat this process to add additional devices.
5. When you have finished entering devices, review the listed devices. If necessary, use **Remove** to remove any incorrect entries.
6. Click **OK** to add all the listed devices to your Remote Manager inventory.
7. After a few minutes, click the refresh icon in the toolbar to refresh the device list. The new devices appear in your device inventory.
8. Information about the added device is saved in the event log. Click **Admin > Event Log** to display the Event log view.

Update the firmware on Connect IT from Remote Manager

You can update the firmware on Connect IT from Remote Manager. You must first get the current firmware file, and then you can upload it to the device.

1. Download the Connect IT firmware to your PC.
2. Log in to your Remote Manager account.
3. Click **Device Management**.
4. From the list of devices, click on the Connect IT for which you want to update the firmware.
5. In the toolbar, click **More > Update Firmware**. The **Update Firmware** dialog appears.
6. Click **Browse** to select the firmware file you just downloaded.

7. Click **Update Firmware** to immediately update the firmware.

Note By default, the firmware will update when you click the **Update Firmware** button. If you want to schedule when you want the update to occur, click the gear icon to display the options. See Schedule an action in the *Digi Remote Manager User Guide* for detailed information about the schedule options.

View identifying information about the Connect IT on the Home page

You can display information about Connect IT in the **Home** page, such as the IP address, global address, and the Connect IT device ID. From this page you can also view the data stream and device file.

1. Log into your Remote Manager account.
2. Click the **Device Management** tab.
3. Click **Devices**.
4. From the list of devices, find the Connect IT for which you want to view identifying information.

Note You can use the search bar to search for the Connect IT by an identifier, such as the MAC address, device ID, or device type.

5. Double-click on the device or click **Properties** in the toolbar. The **Home** page for the Connect IT appears.

Access the Remote Manager configuration page

You can display basic identification and version information about the selected Connect IT in the configuration **Home** page. You can also configure the device from this page.

Note The configuration options in Remote Manager are the same as the configuration options in the web user interface.

1. Log into your Remote Manager account.
2. Click **Device Management** > **Devices**.
3. Click **Devices**.
4. From the list of devices, click the Connect IT that you want to configure.
5. In the toolbar, click **Configure**.

   As an alternative, click **Properties** in the toolbar and then from the **Home** page, click **Edit Device Configuration**.
6. The configuration **Home** page appears, and shows basic identification and version information about the selected Connect IT.

7. You can use the links in the toolbar to manage the Connect IT.
   - **Home**: Click **Home** to return to the configuration **Home** page.
   - **Config**: Click **Config** to display configuration menu options:
     - Authentication
     - Central management
     - Firewall
     - Monitoring
     - Network
     - Serial
     - Services
     - System
     - VPN
   - **Status**: Click **Status** to display a system status menu option:
     - Communications
     - System

Schedule system maintenance from Remote Manager

You can schedule the system to run a set of system maintenance tasks to run within a specified time window. You can also schedule a custom script to run at the specified time and frequency.

Note If you are scheduling a custom script, you must have previously created the script.

For example, you can specify a start time of 10:00 and a duration window of 2 hours. In this example, the system maintenance can take place and custom scripts run at any time between 10:00 and 12:00.

1. Log into your Remote Manager account.
2. Access the Remote Manager configuration page.
3. Click **Config > System** in the toolbar. The **System** page appears.
4. Expand the **Schedule Tasks** section.

5. Configure a system maintenance task.
    a. Expand the **System maintenance** section.
    b. Enter the field values:

Field	Description
Start time	The start time of the maintenance window. All enabled maintenance tasks take place at any random time within the time block specified in the **Duration window** field. If this field is empty, maintenance is not scheduled and no maintenance tasks will run. **Syntax**: *HH:MM* If the duration in the **Duration window** field is set to 1 or more hours, the minutes field is truncated.
Duration window	The window of time during which the maintenance tasks are scheduled to run. The default values is **2 hours**. ■ **24 hours**: If this option is selected, the start time entered in the **Start Time** field becomes obsolete, as a value of 24 hours means the maintenance tasks are scheduled to run at any time during a 24-hour time period. ■ **Immediately**: If this option is selected, all maintenance processes will execute at the same time. This could potentially be dangerous, as this action may stress the system.
Frequency	The frequency at which the modem firmware check and update tasks will run. The default value is **Daily**. ■ **Daily**: The device runs the modem firmware check and update once a day within the given time window. ■ **Weekly**: The device runs the modem firmware check and update any day within the given time window only once during the week.

Field	Description
Modem firmware update	Select this option to enable the modem firmware update to be scheduled to occur within the specified maintenance window. The system looks for all available firmware over the air and in flash memory to see if an update is needed. If a newer firmware version is available, the update will occur.
Configuration check	Select this option to enable the system to check if configuration updates are scheduled to occur within the specified maintenance window. This check is in addition to the check defined in the **Central Management** section.

6. Configure a custom script to be run during the specified maintenance window
    a. Expand the **Custom scripts** section.
    b. Click the plus sign icon to specify a script. The section expands.
    c. Running a custom script is enabled by default. Verify that the **Enable** slider is blue.
    d. Complete the fields in each of the sections. You can hover over a field name to display information about what you should enter in each field.
7. Click **Apply** at the top of the screen to save the changes.

Configure VPN using Remote Manager

Configure an IPsec tunnel for a VPN from Remote Manager

You can configure an IPsec tunnel for a VPN.

1. Log into your Remote Manager account.
2. Access the Remote Manager configuration page.
3. Click **Config > VPN** in the toolbar. The **VPN** page appears.
4. Expand the **IPsec** section.
5. Set the NAT keep alive time.
    a. Expand the **advanced** section.
    b. In the **NAT keep alive time** field, enter the length of time to keep NAT alive for IPSEC tunnels. the default is **40** seconds. The syntax for the entry is *number* {w|d|h|m|s}.

6. Create an IPsec tunnel.
    a. Expand the **Tunnels** section.
    b. Expand the **IPsec tunnel** section.
    c. Click the plus sign icon to define an IPsec tunnel. The **Add IPsec tunnel** dialog appears.
    d. Enter an IPsec tunnel name in the field.
    e. Click **OK**.
    f. The tunnel is enabled by default. Verify that the **Enable** slider is blue.
    g. Complete the fields in each of the sections. You can hover over a field name to display information about what you should enter in each field.
7. Click **Apply** at the top of the screen to save the changes.

Configure an OpenVPN server from Remote Manager

You can configure an OpenVPN server and client list.

1. Log into your Remote Manager account.
2. Access the Remote Manager configuration page.
3. Click **Config > VPN** in the toolbar. The **VPN** page appears.
4. Expand the **OpenVPN** section.
5. Define an OpenVPN server.
    a. Expand the **Servers** section.
    b. Expand the **OpenVPN server** section.
    c. Click the plus sign icon to define an OpenVPN server. The **Add OpenVPN server** dialog appears.
    d. Enter an OpenVPN server name in the field.
    e. Click **OK**.
    f. The tunnel is enabled by default. Verify that the **Enable** slider is blue.
    g. Complete the fields in each of the sections. You can hover over a field name to display information about what you should enter in each field.
6. Create a client list for the OpenVPN server.
    a. Expand the **Clients** section.
    b. Expand the **OpenVPN client** section.
    c. Click the plus sign icon to define a client. The **Add OpenVPN client** dialog appears.
    d. Enter a client name in the field.
    e. Click **OK**.
7. Click **Apply** at the top of the screen to save the changes.

Configure an IP tunnel for a VPN from Remote Manager

You can configure an IP tunnel for a VPN.

1. Log into your Remote Manager account.
2. Access the Remote Manager configuration page.
3. Click **Config > VPN** in the toolbar. The **VPN** page appears.
4. Expand the **IP Tunnels** section.
5. Click the plus sign icon to define an IP tunnel. The **Add IP tunnel** dialog appears.
6. Enter an IP tunnel name in the field.
7. Click **OK**.
8. The tunnel is enabled by default. Verify that the **Enable** slider is blue.
9. Create an IP tunnel.
    a. Expand the **Tunnels** section.
    b. Expand the **IPsec tunnel** section.
    c. Click **OK**.
    d. The tunnel is enabled by default. Verify that the **Enable** slider is blue.
    e. Complete the fields in each of the sections. You can hover over a field name to display information about what you should enter in each field.
10. Click **Apply** at the top of the screen to save the changes.

View system status information from Remote Manager

You can display identifying information about the Connect IT and information about load average, disk usage, and RAM usage.

1. Log into your Remote Manager account.
2. Access the Remote Manager configuration page.
3. Click **Status > System** in the toolbar. The **System** page appears. Identifying information for the Connect IT displays at the top of the page.
    - Expand the **Load average** section to display the load average for the last 1, 5, and 15 minutes.
    - Expand the **RAM usage** section to display information about the percentage of RAM used.
    - Expand the **Disk usage** section to display various filesystem sections. You can expand each of the following sections to display information about the filesystem space used: **Config Filesystem**, **/opt Filesystem**, **/var Filesystem**, and **/tmp Filesystem**.

View Connect IT summary dashboard

Remote Manager tracks connection history between a Connect IT and Remote Manager. You can a graph of the connection information. See View Connect IT connection history for detailed information.

1. Log into your Remote Manager account.
2. Click **Device Management**.
3. Click **Devices**.
4. From the list of devices, click on the Connect IT for which you want to view connection history.
5. Click **Properties** in the toolbar. The **Home** page for the Connect IT appears.
6. Click **Summary Dashboard** in the left pane. The connection history graph for the Connect IT displays.

View Connect IT connection history

Remote Manager tracks and displays a detailed connection history between a Connect IT and Remote Manager. You can view connection and disconnection times, connection methods, and disconnect reasons. See View Connect IT summary dashboard for a graph of the connection history.

1. Log into your Remote Manager account.
2. Click **Device Management**.
3. From the list of devices, click on the Connect IT for which you want to view connection history.
4. Click **Properties** in the toolbar. The **Home** page for the Connect IT appears.
5. Click **Connection History** in the left pane. The connection history displays.

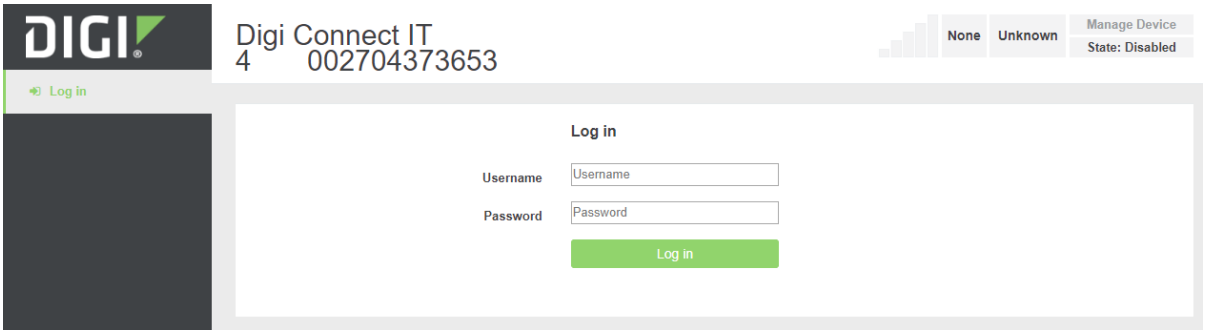
Configure Connect IT using the web user interface

If your 16/48 is not provisioned in Remote Manager, you can use the web user interface which enables basic cellular connectivity (primary or backup) to your router. Your device operates as a transparent bridge and all traffic on all ports is passed directly to and from the equipment connected to the Connect IT's Ethernet port.

Log in to the Connect IT web UI

To be able to access the web UI, your PC and the Connect IT must be connected by an Ethernet cable.

1. Connect your PC to the Connect IT with an Ethernet cable.
    a. Connect one end of an Ethernet cable to your computer.
    b. Connect the other end of the Ethernet cable to the LAN Ethernet port on the 16/48.
2. Open a web browser on your PC.
3. Type in the IP address for the Connect IT: 192.168.210.1
4. Press **Enter**. The login screen displays.



5. Enter the user name and password:
    - **User Name**: The default user name is: root
    - **Password**: The default password for the Connect IT is printed on the label attached to the device. Once you are logged in you can change the password.
6. Click **Log in**. The Connect IT web user interface appears.

Manage users, groups, password, and two-factor authentication from the web UI

You can manage the root user, add groups, and configure two-factor authentication.

Configure idle timeout from the web UI

You can configure the length of time after which users are disconnected from services. If you do not enter a value, the idle timeouts feature is disabled, and the user will not be disconnected from services.

1. Log in to the Connect IT web UI.
2. Click **Configuration** in the left pane.
3. Expand the **Authentication** section.
4. In the **Idle timeout** field, enter the length of time after which users are disconnected from services. Leave this field blank to disable this feature.

    Syntax: *number*{**w**|**d**|**h**|**m**|**s**}
5. Click **Save** at the bottom of the screen to save the changes.

Add a new user from the web UI

You can add a new user.

1. Log in to the Connect IT web UI.
2. Click **Configuration** in the left pane.
3. Expand the **Authentication** section.
4. Expand the **Users** section.
5. In the **Add User** field, enter a unique user name.
6. Click **Add** to add the new user. The new user is immediately added to the list of users.
7. Click **Save** at the bottom of the screen to save the changes.

Add a user group from the web UI

You can add a new group. After a group has been added, you can assign users to the group. The users assigned to the group have the rights specified for that group.

1. Log in to the Connect IT web UI.
2. Click **Configuration** in the left pane.
3. Expand the **Authentication** section.
4. Expand the **Groups** section.
5. In the **Add Group** field, enter the group name.
6. Click **Add**. The new group is immediately added to the list of groups.
7. A new user does not have access to any of the features on the Connect IT. See Configure the user groups from the web UI for configuration information.
8. Click **Save** at the bottom of the screen to save the changes.

Configure the user groups from the web UI

You can configure the user groups with access to the desired serial ports and processes.

Two groups are available by default: **admin** and **serial:**

- **admin**: Users in this group have full access to all of the features on the Connect IT.
- **serial**: Users in this group have access to all serial ports by default.

When you add a new user, you can allow access to the desired features.

1. Log in to the Connect IT web UI.
2. Click **Configuration** in the left pane.
3. Expand the **Authentication** section.
4. Expand the **Groups** section.

5. Expand the group that you want to configure.
6. Configure the group as desired.

Setting	Description
Admin access	When selected, allows members assigned to this group to manage the Connect IT. **Note** Members will have full access to the Connect IT.
Shell access	When selected, allows members of this group access a shell process on this Connect IT. **Note** Members will have full access to the Connect IT.
Serial access	When selected, allows members of this group access to the set of ports listed in the **Serial ports** section.
Serial ports	A list of ports to which members of this group may access. The **Serial access** option must be selected for the users in this group to have access to the ports. a. Click **Add**. A new port row is added. b. From the **Port** list box, select the appropriate port.
OpenVPN access	When selected, allows members of this group access the specified OpenVPN tunnels listed in the **OpenVPN** section.
OpenVPN	A list of OpenVPN tunnels to which members of this group may access. The **OpenVPN access** option must be selected for the users in this group to have access to the tunnels. You must have previously added at least one OpenVPN tunnel. a. Click **Add**. A new tunnel row is added. b. From the **Tunnel** list box, select the appropriate tunnel.
Nagios access	When selected, allows members of this group to query the device for service status for Nagios.

7. Click **Save** at the bottom of the screen to save the changes.

Change a Connect IT password from the web UI

You can change either the root password for the web UI on the Connect IT or the password a user would use to log onto the web UI.

1. Log in to the Connect IT web UI.
2. Click **Configuration** in the left pane.
3. Expand the **Authentication** section.
4. Expand the **Users** section.
5. Determine for whom you want to change the password.
   - Expand the **root** section to change the root password for the Connect IT.
   - Expand a section with a **user name** to change the password that user would use when logging on to the web UI on the Connect IT.
6. In the **Password** field, enter a new password.
7. Select the **Show** option if you want the password to display in the field. If you don't select this option, a series of dots displays.
8. Click **Save** at the bottom of the screen to save the changes. The next time the user logs in to the web UI, they will need to use the new password.

Configure two-factor authentication from the web UI

You can configure two-factor authentication for a user. for user login.

1. Log in to the Connect IT web UI.
2. Click **Configuration** in the left pane.
3. Expand the **Authentication** section.
4. Expand the **Users** section.
5. Expand the group that you want to configure for two-factor authentication.
6. Expand the **Two-factor authentication** section.
7. Click **Enable**.
8. Complete the fields in the section. To display information about what you should enter in each field, click the down arrow and then **Help** next to each field.
9. Click **Save** at the bottom of the screen to save the changes.

Configure authentication methods from the web UI

You can configure a list of the authentication methods to use when authenticating access to services on the Connect IT. The methods are attempted in the list order until the first successful authentication result is returned. A user fails authentication when no method succeeds.

1. Log in to the Connect IT web UI.
2. Click **Configuration** in the left pane.
3. Expand the **Authentication** section.

4. Expand the **Methods** section. One method is included by default. The **Local users** option is selected by default.
5. You can add additional methods.
    a. Click **Add**. The new row is immediately added to the list of methods.
    b. From the **Method** list box, select the method that you want to use for authentication:
        - **Local users**: Authenticate using the users defined with the configuration.
        - **TACACS+**: Authenticate using an external TACACS+ server. If you choose this option, make sure you have configured an external TACACS+ server, in Step 6.
6. Configure an external TACACS+ server. This allows access to services on this Connect IT to be authenticated externally, which is useful for central management of users.

    Note This step is required only if you chose the **TACACS+** option in Step 5.

    Expand each sub-section and complete the fields in each of the sections. To display information about what you should enter in each field, click the down arrow and then **Help** next to each field.
7. Click **Save** at the bottom of the screen to save the changes.

Update Connect IT firmware

You can update the firmware on the Connect IT. Before you begin, you must download the desired version of the firmware onto your PC.

1. Download the Connect IT firmware to your PC.
2. Log in to the Connect IT web UI.
3. Select the **System** tab in the left pane.
4. In the **Device Firmware** section, click **Choose File**.
5. Browse for and select the firmware file downloaded to your PC.
6. Click **Update Firmware**.

Download the Connect IT firmware to your PC

1. Go to www.digi.com/support.
2. Scroll down to the **Support Downloads** section.
3. Click **Firmware Updates**.
4. In the **Filter the list** box, enter **Connect IT**. As you type, matches display.
5. Click **Connect IT**.
6. From the list of options, select the option for your model: **Connect IT 16** or **Connect IT 48**.
7. From the **Firmware Updates** section, select the version you want to download. The file is downloaded to a folder on your computer. Make a note of the folder path and name.

Configure connection to Remote Manager from the web UI

You can configure the settings for connection to Remote Manager in the Connect IT web UI.

1. Log in to the Connect IT web UI.
2. Click **Configuration** in the left pane.
3. Expand the **Central management** section.
    a. Select the **Enable central management** option to enable Connect IT to connect to Remote Manager.
    b. From the **Service** list box, select the **Digi Remote Manager** option.
    c. In the **Management server** field, enter the URL for Remote Manager.
    d. In the **Retry interval** field, enter the interval at which Connect IT should attempt to connect to Remote manger, after a disconnect. The time is measured in seconds.
    e. In the **Keep-alive interval** field, specify how often to send keep-alive messages when using a non-cellular interface.
4. Click **Save**.
5. Disconnect the Ethernet cable from the Connect IT and your PC.

Update modem firmware

You can update the modem firmware on the Connect IT. Before you begin, you must download the desired version of the modem firmware onto your PC.

1. Download the Connect IT firmware to your PC.
2. Log in to the Connect IT web UI.
3. Select the **System** tab in the left pane.
4. Scroll down to the **Modem Firmware** section.
5. Click **Choose File**.
6. Browse for and select the modem firmware file downloaded to your PC.
7. Click **Upload & Install Firmware**.

Configure a serial port

You can configure the connection, determine if changes are monitored, and enable a TCP, Telnet, or SSH connection for each serial port. Each port must be individually configured.

Configure the connection settings for a serial port

You can configure the serial ports on the Connect IT. Each port must be configured individually.

1. Log in to the Connect IT web UI.
2. Click **Configuration** in the left pane.

3. Expand the **Serial** section.
4. Expand the port that you want to configure.
5. Configure the settings.

Setting	Description
Enable	Select the **Enable** option to enable this port for use. If it is not selected, the port won't work.
Serial mode	Select an access mode for this serial port. ■ **Login**: Select this option to display the **Login Manger** screen when you access the web UI. ■ **Remote access**: Select this option to allow OOB management. This is the default.
Label	The name of the serial port. If left blank, the default label is used. An entry is optional.
Baud rate	The baud rate for the serial port. This value must match the baud rate configuration for the equipment connected to the Connect IT. The default is **9600**.
Data bits	The number of data bits for the serial port. This value must match the data bits configuration for the equipment connected to the Connect IT. The default is **8**.
Parity	The type of parity bit for the serial port. This value must match the parity bit configuration for the equipment connected to the Connect IT. The default selection is **NONE**.
Stop bits	The number of stop bits for the serial port. This value must match the stop bits configuration for the equipment connected to the Connect IT. The default is **1**.
Flow control	The type of flow control for the serial port. This value must match the flow control configuration for the equipment connected to the Connect IT. The default selection is **NONE**.
Escape sequence	The sequence of characters used to start an escape sequence. Escape sequences allow a user to send control commands to the serial port interface. These commands are removed from the data stream and are not sent to the equipment connected to the serial port. If left blank, the escape sequence is disabled. The default is a tilde (**~**). An entry is optional.

Setting	Description
History size	The number of bytes from the serial port which should be buffered. The buffered bytes are redisplayed when a user connects to the serial port. The minimum value is 0. The default is **4000**.
Exclusive access	Select this option if access to the serial port should be limited to a single active section. If not selected, multiple active sessions are available on the port.
Idle timeout	The length of time after which the active session is disconnected after a period of user inactivity. Syntax: *number*{w|d|h|m|s} A setting of **0** disables idle timeouts. The default is **15m**.

6. Click **Save**.

Monitor serial port changes

You can choose to monitor CTS and/or DCD changes on the serial port.

1. Log in to the Connect IT web UI.
2. Click **Configuration** in the left pane.
3. Expand the **Serial** section.
4. Expand the port that you want to configure: **Port 1**, **Port 2**, **Port 3**, or **Port 4**.
5. Expand the **Monitor** section.
6. Configure the settings.

Setting	Description
CTS	Select the **CTS** option to monitor CTS changes on this port.
DCD	Select the **DCD** option to monitor DCD changes on this port.

7. Click **Save**.

Enable a Telnet connection on the serial port

You can enable a Telnet connection on the serial port.

1. Log in to the Connect IT web UI.
2. Click **Configuration** in the left pane.
3. Expand the **Serial** section.
4. Expand the port that you want to configure: **Port 1**, **Port 2**, **Port 3**, or **Port 4**.

5. Expand the **Telnet connection** section.
6. Configure the settings.

Setting	Description
Enable	Select the **Enable** option to allow the serial port to be directly accessed by a Telnet connection.  **WARNING!** This connection is not authenticated or encrypted.
Port	Specify the Telnet port for the service. Minimum value: 1 Maximum value: 65535 Default: **2001**

7. Specify the addresses, interfaces, and firewall zones which are allowed to access the serial port. Expand the **Access control list**.

Setting	Description
IPv4 Addresses	Expand the **IPv4 Addresses** section to add IPv4 addresses or networks from which this serial port can be accessed. Click **Add** to add an address.
IPv6 Addresses	Expand the **IPv6 Addresses** section to add IPv6 addresses or networks from which this serial port can be accessed. Click **Add** to add an address.
Interfaces	Expand the **Interfaces** section to add network interfaces from which this serial port can be accessed. Click **Add** to add an interface.
Zones	Expand the **Zones** section to add firewall zones from which this serial port can be accessed. Click **Add** to add a zone.

8. Click **Save**.

Enable a TCP connection on the serial port

You can enable a TCP connection on the serial port.

1. Log in to the Connect IT web UI.
2. Click **Configuration** in the left pane.
3. Expand the **Serial** section.
4. Expand the port that you want to configure: **Port 1**, **Port 2**, **Port 3**, or **Port 4**.

5. Expand the **TCP connection** section.
6. Configure the settings.

Setting	Description
Enable	Select the **Enable** option to allow the serial port to be directly accessed by a raw TCP connection.  **WARNING!** This connection is not authenticated or encrypted.
Port	Specify the TCP port for the service. Minimum value: 1 Maximum value: 65535 Default: **4001**

7. Specify the addresses, interfaces, and firewall zones which are allowed to access the serial port. Expand the **Access control list**.

Setting	Description
IPv4 Addresses	Expand the **IPv4 Addresses** section to add IPv4 addresses or networks from which this serial port can be accessed. Click **Add** to add an address.
IPv6 Addresses	Expand the **IPv6 Addresses** section to add IPv6 addresses or networks from which this serial port can be accessed. Click **Add** to add an address.
Interfaces	Expand the **Interfaces** section to add network interfaces from which this serial port can be accessed. Click **Add** to add an interface.
Zones	Expand the **Zones** section to add firewall zones from which this serial port can be accessed. Click **Add** to add a zone.

8. Click **Save**.

Enable an SSH connection on the serial port

You can enable an SSH connection on the serial port.

1. Log in to the Connect IT web UI.
2. Click **Configuration** in the left pane.
3. Expand the **Serial** section.
4. Expand the port that you want to configure: **Port 1**, **Port 2**, **Port 3**, or **Port 4**.

5. Expand the **SSH connection** section.
6. Configure the settings.

Setting	Description
Enable	Select the **Enable** option to allow the serial port to be directly accessed by anSSH connection.
Port	Specify the SSH port for the service. Minimum value: 1 Maximum value: 65535 Default: **3001**

7. Specify the addresses, interfaces, and firewall zones which are allowed to access the serial port. Expand the **Access control list**.

Setting	Description
IPv4 Addresses	Expand the **IPv4 Addresses** section to add IPv4 addresses or networks from which this serial port can be accessed. Click **Add** to add an address.
IPv6 Addresses	Expand the **IPv6 Addresses** section to add IPv6 addresses or networks from which this serial port can be accessed. Click **Add** to add an address.
Interfaces	Expand the **Interfaces** section to add network interfaces from which this serial port can be accessed. Click **Add** to add an interface.
Zones	Expand the **Zones** section to add firewall zones from which this serial port can be accessed. Click **Add** to add a zone.

8. Click **Save**.

Configure the modem in the Connect IT

You can enable a modem in the Connect IT and configure the modem to enable gateways and network interfaces.

Configure the modem

You can configure the modem in the Connect IT.

1. Log in to the Connect IT web UI.
2. Click **Configuration** in the left pane.
3. Expand the **Modem** section.
4. Configure the settings.

Setting	Description
Enable	Select **Enable** to enable the network interface.
Interface type	The address configuration method for the network interface. ■ **Modem**: The address is determined by the cellular modem. The default is **Modem**.
Zone	The firewall zone assigned to this network interface. This can be used by packet filtering rules and access control lists to restrict network traffic on this interface. The default is **External**.
Device	The modem used by this network interface. The default is **Modem**.
Match SIM by	The match criteria to apply when determining if this interface should be used. ■ **Any SIM**: Apply this interface to the modem with any SIM. ■ **SIM slot**: Apply this interface when a specified SIM slot is active. An entry in the **Match SIM slot** field is required. ■ **Carrier**: Apply this interface with SIM cards from a particular cellular carrier. An entry in the **Match SIM carrier** field is required. ■ **PLMN identifier**: Apply this interface with SIM cards that have a specific PLMN identifier. An entry in the **Match PLMN identifier** field is required. ■ **IMSI**: Apply this interface with SIM cards that have a specific IMSI. An entry in the **Match IMSI** field is required. ■ **ICCID**: Apply this interface with SIM cards that have a specific ICCID. An entry in the **Match ICCID** field is required.
Match SIM slot	This conditional field displays when the **SIM slot** option is selected from the **Match SIM by** list box. Enter the SIM slot match criteria. The interface is applied when the modem is using this SIM slot. Modems with a single SIM slot will always match **SIM1**. The default value is **SIM1**.

Setting	Description
Match SIM carrier	This conditional field displays when the **Carrier** option is selected from the **Match SIM by** list box. Select the appropriate SIM carrier from the list box. The interface is applied when the SIM card is provisioned from the carrier. The default value is **AT&T**.
Match PLMN identifier	This conditional field displays when the **PLMN identifier** option is selected from the **Match SIM by** list box. Enter the SIM PLMN (Public Land Mobile Network) match criteria. The interface is applied when the SIM card is provisioned from the carrier with this PLMN carrier. The PLMN identifier consists of the Mobile Country Code (MCC) followed by the Mobile Network Code (MNC).
Match IMSI	This conditional field displays when the **IMSI** option is selected from the **Match SIM by** list box. Enter the IMSI (International Mobile Subscriber Identity) match criteria. The interface is applied when the SIM card has this IMSI.
Match ICCID	This conditional field displays when the **ICCID** option is selected from the **Match SIM by** list box. Enter the ICCID (Integrated Circuit Card Identifier) match criteria. The interface is applied when the SIM card has this ICCID.
PIN	The PIN required to unlock the SIM card. Leave blank if not PIN is required.
Phone Number	The phone number stored on the SIM card will be automatically reported to enable SMS services. If the SIM is not provisioned with a phone number, or it contains an incorrect phone number, it will be necessary to complete this field with the correct phone number to reach this device. In normal operation, this field should be blank.
Roaming	Enable roaming to allow connections to data services outside of the original country of the SIM. When enabled, the cost of data use may increase significantly.

Setting	Description
Use DNS	Specify when this interface's DNS servers will be used. ■ **Always**: Always use the DNS servers provided for this interface. If multiple interfaces have the same DNS server, requests to the DNS server will be routed through the interface with the lowest metric. ■ **When primary default route**: Use the DNS servers provided for this interface only when the interface is the primary default route. This is the default. ■ **Never**: Never use the DNS servers provided for this interface.
SIM failover	Enable **SIM failover** to automatically switch the active SIM slot to the next available SIM if the modem interface fails to connect.
Connection attempts before SIM failover	The number of unsuccessful connection attempts before switching to the next SIM slot. Minimum value: **1** The default value is **5**.
SIM failover alternative	The action to perform when the connection retries have been exceeded but no other SIM is available to switch to. ■ **None**: Perform no alternative action. ■ **Reset modem**: Reset the modem if the **SIM failover** feature is not enabled and thus automatic SIM switching is not available. ■ **Reboot device**: Reboot the device if the **SIM failover** feature is not enabled and thus automatic SIM switching is not available.
APN list only	Determine which APN should be used. ■ **Enabled**: When enabled, the APN list is used exclusively. ■ **Disabled**: When disabled, configured APNs are tried before the APNs built into the firmware are tried.

5. Click **Save**.

Define a custom APN

You can define a list of custom APNs to try when connecting to the cellular network.

1. Log in to the Connect IT web UI.
2. Click **Configuration** in the left pane.
3. Expand the **APN list** section.

4. Expand the **Modem** section.
5. In the **Add APN** field, enter the custom APN.
6. Click **Add**.
7. If the custom APN requires a specific user name and password, enter them in the **Username** and **Password** fields.
8. Click **Save**.

Configure an IP passthrough for the modem

You can configure an IP passthrough. This is used to assign the address obtained from the cellular network to an external device using DHCP, rather than assigning it to the modem device in this Connect IT.

1. Log in to the Connect IT web UI.
2. Click **Configuration** in the left pane.
3. Expand the **Modem** section.
4. Expand the **Passthrough** section.
5. Configure the settings.

Setting	Description
Enable	Select **Enable** to enable IP passthrough for this network interface.
Device	The network device that the external device is connected to. The address from the cellular network will be assigned to the external device via DHCP, rather than being assigned to the modem device in this unit. Options are: **Loopback**, **LAN**, or **WAN**.
Zone	The firewall zone assigned to the passthrough network interface. This can be used by packet filtering rules and access control lists to restrict network traffic on the passthrough interface. Options are: **Any**, **Loopback**, **Internal**, **External**, **Setup**, **IPsec**, **Dynamic routes**.
Packet filtering	Enable firewall packet filtering rules for the passthrough network traffic. If this setting is disabled, then network traffic is allowed in both directions, and it is the responsibility of the external device to provide its own firewall.

Setting	Description
Allow all addresses	Enable forwarding between the cellular network and any network/address connected using the passthrough device. This allows connected devices to forward and receive packets without NAT. Disable this option unless specifically required, as some cellular networks will disconnect modems that send packets that are not from the carrier-assigned IP address(es).
Ancillary addressing	When enabled, the ancillary address and gateway will be provided to the connected client while the passthrough modem is not connected.
Ancillary address/netmask	When the passthrough modem is not connected, the ancillary address/netmask will be provided to clients to allow functional local networking. **Syntax**: *IPv4_address/netmask* **Default**: 10.0.0.2/24
Ancillary gateway	When the passthrough modem is not connected, the ancillary gateway will be provided to clients to allow functional local networking. **Syntax**: *IPv4_address/netmask* **Default**: 10.0.0.1
Ancillary DNS redirect	When the passthrough modem is not connected, the ancillary gateway will resolve all DNS requests to itself. HTTP traffic will be redirected to the device's web administration page.

6. Click **Save**.

Configure a custom gateway for the modem

You can configure a custom gateway/netmask that overrides the automatic values normally provided. This is particularly useful when supporting a group of static UP addresses that communicate directly.

1. Log in to the Connect IT web UI.
2. Click **Configuration** in the left pane.
3. Expand the **Modem** section.
4. Expand the **Custom gateway** section.
5. Configure the settings.

Setting	Description
Enable	Select **Enable** to enable a custom gateway for this network interface.

Setting	Description
Gateway/Netmask	The gateway address and netmask to use for this network interface. If either the gateway address or the netmaks is all 0's, it is not overridden. For example, 0.0.0.0/32 will operate as normal using the network-provided gateway IP, but with a /32 netmask.

6. Click **Save**.

Configure an IPv4 network interface for the modem

You can configure an IPv4 network interface.

1. Log in to the Connect IT web UI.
2. Click **Configuration** in the left pane.
3. Expand the **Modem** section.
4. Expand the **IPv4** section.
5. Configure the settings.

Setting	Description
Enable	Select **Enable** to enable an IPv4 network interface.
Metric	The priority of routes associated with the network interface. If there are multiple active routes that match a destination, then the route with the lowest metric will be used. **Default**: 3 **Minimum**: 0 **Maximum**: 65535
Weight	The relative weight of default routes associated with this network interface. If there are multiple active default routes with the same metric, then connections will be load-balanced between the default routes in proportion to their weight. **Default**: 10 **Minimum**: 1 **Maximum**: 65535

Setting	Description
Management priority	The management priority assigned to this interface. An interface that is up and has the highest management priority will have its address reported as the preferred contact address for central management and direct device access. **Default**: 0 **Minimum**: 0 **Maximum**: 1000
MTU	Specify a desirable Maximum Transmission Unit (MTU) for this interface. If this is a non-static (DHCP) interface, the lower MTU value of the one offered by the DHCP and the one specified will be in effect. **Default**: 1500 **Minimum**: 576 **Maximum**: 65535
Active recovery	Active recovery performs regular network tests to determine if working connections can be made to remote targets. The network tests available are ping tests, HTTP/HTTPS tests, and DNS tests. This interface's default route will be disabled when the connectivity tests fail, allowing other interfaces with lower metrics to take precedence.

6. Click **Save**.

Configure an IPv6 network interface for the modem

You can configure an IPv6 network interface.

1. Log in to the Connect IT web UI.
2. Click **Configuration** in the left pane.
3. Expand the **Modem** section.
4. Expand the **IPv6** section.
5. Configure the settings.

Setting	Description
Enable	Select **Enable** to enable an IPv4 network interface.

Setting	Description
Metric	The priority of routes associated with the network interface. If there are multiple active routes that match a destination, then the route with the lowest metric will be used. **Default**: 3 **Minimum**: 0 **Maximum**: 65535
Weight	The relative weight of default routes associated with this network interface. If there are multiple active default routes with the same metric, then connections will be load-balanced between the default routes in proportion to their weight. **Default**: 10 **Minimum**: 1 **Maximum**: 65535
Management priority	The management priority assigned to this interface. An interface that is up and has the highest management priority will have its address reported as the preferred contact address for central management and direct device access. **Default**: 0 **Minimum**: 0 **Maximum**: 1000
MTU	Specify a desirable Maximum Transmission Unit (MTU) for this interface. If this is a non-static (DHCP) interface, the lower MTU value of the one offered by the DHCP and the one specified will be in effect. **Default**: 1500 **Minimum**: 576 **Maximum**: 65535
Active recovery	Active recovery performs regular network tests to determine if working connections can be made to remote targets. The network tests available are ping tests, HTTP/HTTPS tests, and DNS tests. This interface's default route will be disabled when the connectivity tests fail, allowing other interfaces with lower metrics to take precedence.

6. Click **Save**.

Configure the network from the web UI

You can configure the network for the Connect IT.

1. Log in to the Connect IT web UI.
2. Click **Configuration** in the left pane.
3. Expand the **Network** section.

4. Each sub-section enables you to configure a different network type. Expand the sub-section and complete the fields in each of the sections. To display information about what you should enter in each field, click the down arrow and then **Help** next to each field.

Section	Description
Interfaces	Configure the interface types that you want to use.
Virtual LAN	A list of virtual LAN devices supporting the IEEE 802.1Q standard. These are virtual devices that are layered over an Ethernet device by including a VLAN tag within the Ethernet frame. The VLAN tag contains the VLAN identifier associated with the virtual LAN.
Bridges	A list of bridges supporting that IEEE 802.1D standard. A bridge learns which addresses are associated with devices on the bridge, and automatically forwards packets between devices as required. Bridged packets bypass the firewall.
Routes	Configure a list of the routing methods you want to use.
Modems	Settings for cellular modems. Each modem configuration describes the modem it applies to, and the settings for the modem.
Dynamic DNS	Dynamic DNS allows the IP address of a network interface to be registered with an external dynamic SNS service provider. This is useful when external systems need to initiate connections to this device, but the IP address assigned to the interface is not static.
VRRP	A list of VRRP (Virtual Router Redundancy Protocol) instances.
Advanced	Configure the ULA prefix for this site, and the TCP read and write buffer window size.

5. Click **Save** at the bottom of the screen to save the changes.

Configure VPN from the web UI

Configure an IPsec tunnel for a VPN from the web UI

You can configure an IPsec tunnel for a VPN.

1. Log in to the Connect IT web UI.
2. Click **Configuration** in the left pane.
3. Expand the **VPN** section.
4. Expand the **IPsec** section.

5. Set the NAT keep alive time.
    a. Expand the **advanced** section.
    b. In the **NAT keep alive time** field, enter the length of time to keep NAT alive for IPSEC tunnels. the default is **40** seconds. The syntax for the entry is *number* {w|d|h|m|s}.
6. Create an IPsec tunnel.
    a. Expand the **Tunnels** section.
    b. In the **Add IPsec tunnel** field, enter a name for the tunnel.
    c. Click **Add**.
    d. The tunnel is enabled by default. Verify that the **Enable** option is selected.
    e. Complete the fields in each of the sections. To display information about what you should enter in each field, click the down arrow and then **Help** next to each field.
7. Click **Save** at the bottom of the screen to save the changes.

Configure an OpenVPN server from the web UI

You can configure an OpenVPN server and define clients.

1. Log in to the Connect IT web UI.
2. Click **Configuration** in the left pane.
3. Expand the **VPN** section.
4. Expand the **OpenVPN** section.
5. Define an OpenVPN server.
    a. Expand the **OpenVPN** section.
    b. Expand the **Servers** section.
    c. In the **Add OpenVPN server** field, enter a name for the server.
    d. Click **Add**.
    e. The server is enabled by default. Verify that the **Enable** option is selected.
    f. Complete the fields in each of the sections. To display information about what you should enter in each field, click the down arrow and then **Help** next to each field.
6. Define a client.
    a. Expand the **Clients** section.
    b. In the **Add OpenVPN client** field, enter a name for the client.
    c. Click **Add**.
    d. Verify that the **Enable** option is selected.
    e. Verify that the **Use .ovpn** file option is selected.
    f. Complete the fields in each of the sections. To display information about what you should enter in each field, click the down arrow and then **Help** next to each field.
7. Click **Save** at the bottom of the screen to save the changes.

Configure an IP tunnel for a VPN from the web UI

You can configure an IP tunnel for a VPN.

1. Log in to the Connect IT web UI.
2. Click **Configuration** in the left pane.
3. Expand the **VPN** section.
4. Expand the **IP Tunnels** section.
5. In the **Add IP tunnel** field, enter a name for the tunnel.
6. Click **Add**.
7. The tunnel is enabled by default. Verify that the **Enable** option is selected.
8. Complete the fields in each of the sections. To display information about what you should enter in each field, click the down arrow and then **Help** next to each field.
9. Click **Save** at the bottom of the screen to save the changes.

Back up, restore, and delete the configuration

You can back up, restore, or delete configuration settings for a Connect IT.

Back up the Connect IT configuration

From the **System** page in the web UI, you can back up the Connect IT configuration file and save it to your PC. You can then use that file to restore the saved configuration to any Connect IT.

1. Log in to the Connect IT web UI.
2. Click **System** in the left pane.
3. Scroll to the **Configuration Management** section.
4. In the **Passphrase** field, enter a password for the configuration file you are going to save. This is used when you restore the configuration file.
5. Click **Save Config**. The file is created and saved in the download folder on your PC.

Restore the Connect IT configuration

From the **System** page in the web UI, you can restore a Connect IT configuration file that was previously backed up.

This feature is useful if you want to copy the configuration from one Connect IT to others.

1. Log in to the Connect IT web UI.
2. Click **System** in the left pane.
3. Scroll to the **Configuration Management** section.
4. In the **Passphrase** field, enter the password for the configuration file that you want to restore.
5. Click **Choose File** to select a configuration file that was previously backed up.
6. Browse for and select the file. The file name appears in the page.
7. Click **Restore Config** to copy the configuration from the file to the Connect IT.

Delete the Connect IT configuration

From the **System** page in the web UI, you can remove the Connect IT configuration.

1. Log in to the Connect IT web UI.
2. Click **System** in the left pane.
3. Scroll to the **Configuration Management** section.
4. Click **Erase Config** to remove the configuration from the Connect IT.

Configure the firewall from the web UI

You can configure the firewall for the Connect IT.

1. Log in to the Connect IT web UI.
2. Click **Configuration** in the left pane.
3. Expand the **Firewall** section.
4. Each sub-section enables you to configure a firewall component. Expand the sub-section and complete the fields in each of the sections. To display information about what you should enter in each field, click the down arrow and then **Help** next to each field.

Section	Description
Zones	Configure the groups of network interfaces that can be referred to by packet filtering rules and access control lists.
Port forwarding	Configure a list of port forwarding rules. These rules allow network connections to the Connect ITto be forwarded to other servers by translating the destination address.
Packet filtering	Configure a list of packet filtering rules. These rules define whether to accept or reject network connections that are forwarded through the Connect IT.
Custom rules	Configure a script that is run to install advanced firewall rules beyond the scope or capabilities of the standard Connect IT configuration.
Quality of Service	Configure the quality of service, bandwith allocation, traffic shaping, and traffic prioritizing features.

5. Click **Save** at the bottom of the screen to save the changes.

Configure services from the web UI

You can configure services for the Connect IT.

1. Log in to the Connect IT web UI.
2. Click **Configuration** in the left pane.
3. Expand the **Services** section.

4. Each sub-section enables you to configure a different service. Expand the sub-section and complete the fields in each of the sections. To display information about what you should enter in each field, click the down arrow and then **Help** next to each field.

Section	Description
Web administration	The web administration service provides an HTTPS interface for managing the Connect IT.
SSH	The SSH service provides and SSH server for managing the Connect IT.
Telnet	The Telnet service provides a Telnet server for managing the Connect IT. **Note** Telnet is an insecure protocol. It should only be used for compatibility reasons, and only if steps have been taken to ensure the network connection is secure.
DNS	The DNS service provides a caching DNS server. This server forwards queries to the DNS servers that are associated with the network interfaces, and caches the results. **Note** This server is used within the Connect IT, and cannot be disabled. Use the access control list to restrict external access to this server.
Remote control	Not available.
SNMP	The SNMP service provides an SNMP agent for using SNMP management on this Connect IT.
Multicast	The multicast service provides a multicast route.

5. Click **Save** at the bottom of the screen to save the changes.

Monitor the data from the Connect IT

You can configure the network for the Connect IT.

1. Log in to the Connect IT web UI.
2. Click **Configuration** in the left pane.
3. Expand the **Monitoring** section.
4. Each sub-section enables you to configure a different monitoring method. Expand the sub-section and complete the fields in each of the sections. To display information about what you should enter in each field, click the down arrow and then **Help** next to each field.

Section	Description
NetFlow probe	Probe network traffic on this device and export statistics to NetFlow collectors.
Device Health	Device Health is a system monitor that collects and stores metrics over a period to time and reports them to Digi Remote Manager.
intelliFlow	Reserved for future use.

5. Click **Save** at the bottom of the screen to save the changes.

Configure the find me feature

You can configure the find me feature to cause an LED on the Connect IT to blink, which can help you to identify a specific device.

1. Log in to the Connect IT web UI.
2. In the left pane, click the **Find Me** button. When it is selected, the circle button is blue.

   The Status LED on the front of the Connect IT and the Status LED on the back of the Connect IT both continuously flash once per second until the **Find Me** button is de-selected or the device is rebooted.
3. Click the **Find Me** button again to turn off the feature.

Reboot from the web UI

You can choose to reboot the Connect IT immediately, or schedule a daily reboot.

Immediately reboot the Connect IT

From the **System** page in the web UI, you can reboot the Connect IT. The device is immediately restarted.

Note You can also choose to schedule a daily reboot. See Schedule a reboot from the web UI.

1. Log in to the Connect IT web UI.
2. Click **System** in the left pane.
3. In the **Device Reboot** section, click **Reboot**.

Schedule a reboot from the web UI

You can schedule the Connect IT to automatically reboot every day at a scheduled time.

Note You can also choose to reboot the Connect IT immediately. See Immediately reboot the Connect IT.

1. Log in to the Connect IT web UI.
2. Click **Configuration** in the left pane.

3. Expand the **System** section.
4. Expand the **Scheduled tasks** section.
5. In the **Reboot time** field, enter the time at which the Connect IT should reboot every day. If the Connect IT is unable to synchronize its time with an NTP server, the Connect IT automatically reboots after 24 hours of uptime. The syntax for this field is: *HH:MM*
6. Click **Save** at the bottom of the screen to save the changes.

Schedule system maintenance from the web UI

You can schedule the system to run a set of system maintenance tasks to run within a specified time window. You can also schedule a custom script to run at the specified time and frequency.

Note If you are scheduling a custom script, you must have previously created the script.

For example, you can specify a start time of 10:00 and a duration window of 2 hours. In this example, the system maintenance can take place and custom scripts run at any time between 10:00 and 12:00.

1. Log in to the Connect IT web UI.
2. Click **Configuration** in the left pane.
3. Expand the **System** section.
4. Expand the **Scheduled tasks** section.
5. Enter values into the fields.

Field	Description
Start time	The start time of the maintenance window. All enabled maintenance tasks take place at any random time within the time block specified in the **Duration window** field. If this field is empty, maintenance is not scheduled and no maintenance tasks will run. **Syntax**: *HH:MM* If the duration in the **Duration window** field is set to 1 or more hours, the minutes field is truncated.

Field	Description
Duration window	The window of time during which the maintenance tasks are scheduled to run. The default values is **2 hours**. ■ **24 hours**: If this option is selected, the start time entered in the **Start Time** field becomes obsolete, as a value of 24 hours means the maintenance tasks are scheduled to run at any time during a 24-hour time period. ■ **Immediately**: If this option is selected, all maintenance processes will execute at the same time. This could potentially be dangerous, as this action may stress the system.
Frequency	The frequency at which the modem firmware check and update tasks will run. The default value is **Daily**. ■ **Daily**: The device runs the modem firmware check and update once a day within the given time window. ■ **Weekly**: The device runs the modem firmware check and update any day within the given time window only once during the week.
Modem firmware update	Select this option to enable the modem firmware update to be scheduled to occur within the specified maintenance window. The system looks for all available firmware over the air and in flash memory to see if an update is needed. If a newer firmware version is available, the update will occur.
Configuration check	Select this option to enable the system to check if configuration updates are scheduled to occur within the specified maintenance window. This check is in addition to the check defined in the **Central Management** section.

6. Configure a custom script to be run during the specified maintenance window.
    a. Expand the **Custom Scripts** section.
    b. Click **Add**.
    c. Verify that the **Enable** option is selected.
    d. Complete the fields in each of the sections. To display information about what you should enter in each field, click the down arrow and then **Help** next to each field.
7. Click **Save** at the bottom of the screen to save the changes.

Synchronize system time from the web UI

You can define the Connect IT time zone and specify the servers that should be used to synchronize its time.

1. Log in to the Connect IT web UI.
2. Click **Configuration** in the left pane.
3. Expand the **System** section.
4. Expand the **Time** section.
5. In the **Timezone** field, enter the time zone for the Connect IT's physical location. The time zone is used to adjust the time for logged messages and to start scheduled system maintenance.
6. Specify the NTP servers used to synchronize the time on the Connect IT.
    a. Expand the **NTP servers** section.
    b. In the **Server** field, enter the name of the NTP server that is used to synchronize the time. The syntax is: {*hostname*|*UPv4_address*|*IPv6_address*}
    c. If you want to enter an additional NTP server, click **Add** to add a new row and enter the NTP server name.
7. Click **Save** at the bottom of the screen to save the changes.

View Connect IT status information

In the **Status** page in the web UI, you can view status information about the Connect IT, cellular modem, network connections, tunnels, and the equipment connected to the serial ports.

The **Status** page displays by default when you open the web UI.

1. Log in to the Connect IT web UI.
2. Click **Status** in the left pane.
3. Click the desired tab to display status information.
    - **Device Details**: Displays status information about the Connect IT.
    - **Cellular Details**: Displays status information about the cellular modem, cellular network connection, and the SIM cards.
    - **Networks**: Displays status information about the network interfaces and network devices.
    - **Tunnels**: Displays status information about open tunnels.
    - **Serial**: Displays information about the status of the serial ports.

Download an archive of the supported MIBs

You can download a .zip archive of the MIBs supported by this device.

1. Log in to the Connect IT web UI.
2. Select the **System** tab in the left pane.
3. Scroll down to the **SNMP MIBs** section.
4. Click **Download MIBs**. The .zip archive file is downloaded to your downloads folder.

Download a support report file

You can download a support report file for the Connect IT and include it with support requests.

1. Log in to the Connect IT web UI.
2. Select the **System** tab in the left pane.
3. Scroll down to the **Support Report** section.
4. Click **Download report**. The file is downloaded to your downloads folder.

Configure and view events and logs in the web UI

You can configure and view events and log messages for a Connect IT.

View events information

In the **Events** page in the web UI, you can view detailed information about events that have occurred. The type of event, level of activity, and a description is displayed.

1. Log in to the Connect IT web UI.
2. Click **Events** in the left pane.

Information	Description
Type	Describes the type of event. Options are: ■ network ■ stat ■ system ■ firmware ■ dhcpserver
Level	Describes the level of the event. Options are: ■ status ■ info
Information	Includes a description of the event.

Configure log messages from the web UI

You can configure the log messages for the Connect IT.

1. Log in to the Connect IT web UI.
2. Click **Configuration** in the left pane.
3. Expand the **System** section.
4. Expand the **Log** section.

5. In the **Heartbeat** interval field, enter the minimum time interval between sending heartbeat status events. These events are only sent if no other events have been sent for this interval. If this field is blank, heartbeat events are disabled.
6. Configure log messages for individual event categories.
    a. Expand the **Event categories** section.
    b. For each category that you want to configure, expand the section and complete the fields in each of the sections. To display information about what you should enter in each field, click the down arrow and then **Help** next to each field
7. Click **Save** at the bottom of the screen to save the changes.

View system log information

In the **System Logs** page in the web UI, you can view detailed debugging, warning, and critical messages.

1. Log in to the Connect IT web UI.
2. Click **System Logs** in the left pane.
3. From the drop-down list box at the top of the screen, select the type of messages you want to view. By default, all messages are displayed.
    - **Select All**: All messages appear. This is the default.
    - **Critical messages**: Only critical messages appear. These display in red text.
    - **Warning messages**: Only warning messages appear. These display in blue text.
    - **Info messages**: Only informational messages appear. These display in black text.
    - **Debug messages**: Only debugging messages appear. These display in gray text.

Troubleshooting

Reset your device to the factory defaults

You can reset the Connect IT to the factory default settings. Resetting the device to factory defaults performs the following actions:

- Clears all configuration settings.
- All firmware updates are deleted.
- Deletes all user files, including Python scripts.
- Regenerates SSH keys.
- Clears event and system log files.
- Creates a new event in the event log, indicating a factory reset.

Note While the settings are reset, the device's firmware version remains the same.

1. Make sure that the Connect IT has been powered on for at least 30 seconds.
2. Locate the **ERASE** button on the right side of the device.
3. Locate the **Reset** button on the back of the device.
4. Press and hold the **Reset** button for 15 seconds.
5. The device resets to factory defaults and then reboots automatically.

Tips for improving cellular signal strength

If the signal strength LEDs or the signal quality for your device indicate Poor or No servcie, try the following things to improve signal strength:

- If available, connect a different set of antennas.
- Purchase a Digi Antenna Extender Kit: Antenna Extender Kit, 1 m.

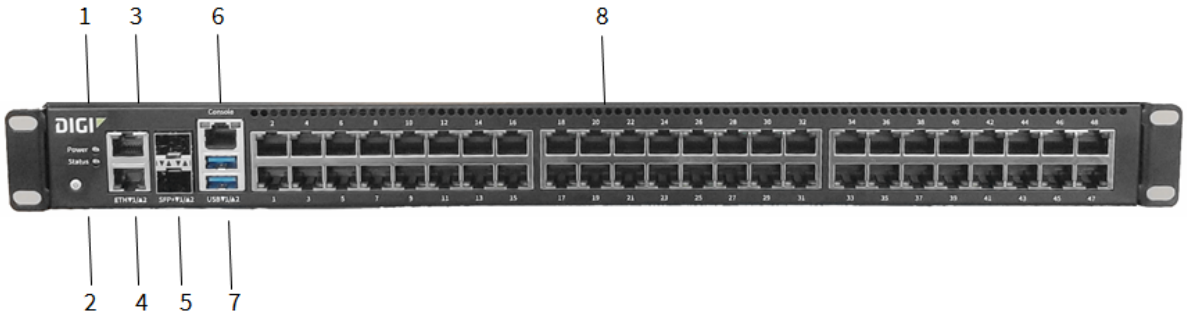
Download a support report

You can download a support report from the device to provide to technical support. The report file contains all of the current details for the device's state, and a full record of the system logs from the device.

See Download a support report file.

Hardware

Front panel and LEDs

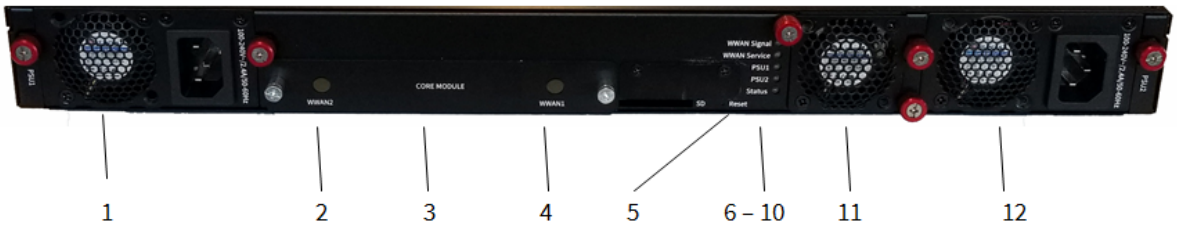


Item	Name	Description
1	Power	The LED lights up when the power is supplied to the device and the device powered on. ■ Solid blue: The LED is solid blue when the power source is connected and power is being supplied to the device. ■ Flashing blue: The Connect IT is shutting down, caused by pressing the ACPI power button. ■ Red: The LED is red when the power supply has failed.
2	Status	The LED lights up when the Connect IT starts up or you have activated the find me feature. ■ Flashing blue: The LED flashes blue once per second when the Connect IT starts up or you have activated the find me feature. When starting up, the WWAN Signal, WWAN Service, and Status LEDs on the back of the Connect IT also flash. ■ Solid blue: The Connect IT initialization is complete. ■ Red: The Connect IT has had start-up failure.

Item	Name	Description
3	ETH2	Indicates the status of the backup connection on the LAN. ETH2 is configured for LAN/DHCP server. See Connect hardware and connect to site network using an Ethernet LAN. The LED indicates the connection status: ■ Flashing: The unit is attempting to establish a backup connection on the LAN. ■ Solid: A backup network connection has been established on the LAN.
4	ETH1	Indicates connection to Ethernet WAN network. ETH1 is configure for WAN/DHCP client.
5	SFP1 SFP2	Connect an SFP+ module to the Connect IT. ■ SFP1: Enabled for WAN\DHCP client. SFP1 is the bottom slot. ■ SFP2: Enabled for LAN\DHCP server. SFP2 is the top slot. **Note** When you use an SFP+ module, you cannot use the equivalent Ethernet port. For example, if you insert an SFP+ module into the SFP1 slot, you cannot use the ETH1 slot. If you insert an SFP+ module into the SFP2 slot, you cannot use the ETH2 slot. The LED indicates the connection status. ■ Green: The LED lights green: ◦ 10 Gb/s: constant light ◦ 1 Gb/s: OFF light ■ ACT: The LED is green.
6	Console port	A console adapter accessory can be used with a straight through RJ45 cable to connect a serial port on a computer to the console port of the Connect IT. ■ Left: The left LED for a port lights yellow. ■ Right: The right LED for a port lights green. Behaviors: ON, OFF, slow blink, fast blink.
7	USB ports	Connect a USB flash drive to the Connect IT for backup or logging.

Item	Name	Description
8	Serial ports	Connect equipment to a serial port to provide console access to the equipment through the cellular network. See Connect equipment to the Connect IT serial ports. ■ Connect IT 16: serial ports 1-16. ■ Connect IT 48: serial ports 1-48. The LED on the left lights: ■ Yellow: There is activity on the port. ■ Green: The port is in use. The LED on the right for ACT lights yellow.

Back panel and LEDs



Item	Name	Description
1	Power and fan item	Connect the power supply and fan unit to the device. For installation information, see Connect the power supplies and fans.
2	WWAN2	
3	CORE module	The CORE module is used to complete a cellular connection. See Connect hardware and connect to a cellular network.
3	Antennas	Antennas can be attached if the module is used to complete a cellular connection. See Connect hardware and connect to a cellular network.
4	WWAN1	
5	Reset	Press this switch to reset the device. See Reset your device to the factory defaults.

Item	Name	Description
6	WWAN Signal	The LED indicates the strength of the cellular signal. The color relates to "bars" of service. ■ LED off: no bars ■ Red, slow flash: 0 bars ■ Blue, slow flash: 1 or 2 bars ■ Blue, fast flash: 3 or 4 bars ■ Blue, solid: 5 bars
7	WWAN Service	The LED indicates the status of the cellular service. ■ Off: No modem detected in the slot. ■ Slow flashing blue: The LED flashed once per second when the modem is detected and is initializing. ■ Fast flashing blue: The LED flashes two times a second when the modem is connecting to the cellular network. ■ Solid blue: A modem is detected and a cellular data session is established. ■ Solid red: A SIM card is not detected in the modem.
8	PSU1	The LED indicates the status of the PS1 power supply and fan unit. ■ Off: No power is connected to the PS1 power supply. ■ Solid blue: Power is connected to the PS1 power supply and is in use by the Connect IT. ■ Flashing blue: Power is connected to the PS1 power supply, but is it unusable.
9	PSU2	The LED indicates the status of the PS2 power supply and fan unit. ■ Off: No power is connected to the PS2 power supply. ■ Solid blue: Power is connected to the PS2 power supply and is in use by the Connect IT. ■ Flashing blue: Power is connected to the PS2 power supply, but is it unusable.

Item	Name	Description
10	Status	The LED lights up when the Connect IT starts up or you have activated the find me feature. ■ Flashing blue: The LED flashes blue once per second when the Connect IT starts up or you have activated the find me feature. When starting up, the WWAN Signal, WWAN Service, and Status LEDs on the back of the Connect IT also flash. ■ Solid blue: The Connect IT initialization is complete. ■ Red: The Connect IT has had start-up failure.
11	Fan	Connect the fan unit to the device. For installation information, see Connect the power supplies and fans.
12	Power and fan item	Connect the second power supply and fan unit to the device. For installation information, see Connect the power supplies and fans.

Hardware specifications

Hardware	Description
Input rating for redundant dual power	■ 100-240 VAC ■ 50-60 Hz ■ 2.4 A maximum for each power supply
Operating temperature	0° C - 50° C

Power supply

The Connect IT 16 or 48 must be operated only with power supplies from a Digi-provided power supply kit, either ITPS-PSIK (for Port Side Air Intake) or ITPS-PSIK (for Port Side Air Exhaust), as appropriate for the device installation location.

Electrical rating

The Connect IT 16 and Connect IT 48 devices require an appropriate power cable that meets national standards to connect to a standard outlet. The appropriate requirements are listed per region:

- **EU/International**: VDE Mark, conforming to IEC 60083, IEC 60227, or IEC 60320, with C13 to the appropriate national mains connector, 2 x 0.75 mm2.

- **USA/Canada**: UR Mark, conforming to UL 62, UL 817, or CSA-C22.2, with C13 to 1-15P, 5-15P, or NEMA locking connector, 18 AWG.

Mounting options

Install the Connect IT device on a 19" rack using the provided rack mount ears. If necessary, the ears can be moved to the rear side of the device.

Regulatory and safety information

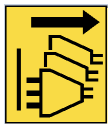
Safety warnings

Review the following safety warnings for Connect IT 16/48.

WARNING! Notice the following safety warnings:

- Risk of explosion if battery is replaced by incorrect battery type. Dispose of used batteries according to the instructions.
- Use UL-recognized Laser Class I Optical Transceiver product.
- Ensure that the power cord is connected to a socket-outlet with earthing connection.
- This appliance does not contain any user-serviceable parts. Never open the equipment. For safety reasons, the equipment should be opened only by qualified personnel.

WARNING! Risk of electric shock.



WARNING! Disconnect all energy sources.

AVERTISSEMENT! Notice the following safety warnings:

- Il y a risque d'explosion si la batterie est remplacée par une batterie de type incorrect.
- Mettre au rebut les batteries usagées conformément aux instructions.

Power supply and supplemental fan module considerations

When you install or remove a power supply or the supplemental fan, be aware of the following requirements:

- Main power must be removed from both power supplies before installation or removal of either power supply or the supplemental fan.
- Do not force a fan module or power supply into its slot. This may cause damage to the connector if it is not properly aligned.
- A fan or power supply that is not fully connected can cause the system to not operate properly.
- Do not operate the device with one power supply module empty. Proper device cooling requires both modules and the supplemental fan to be present.
- The device will continue to operate if one of the power supplies and/or the supplemental fan are in a failed state unless the internal temperature exceeds a safe limit. If this occurs the device will write a failure message to the internal flash log file and then shut down.
- Make sure that both power supplies and the supplemental fan module are properly seated and the thumb screws tightened before applying power to the unit.

Information access

Manuals and further information are provided.

Warning messages for replacing batteries and for restricted access area requirements are available in this manual. See Safety warnings.

The *Digi Connect IT® 16/48 User Guide* is accessible online.