

DeviceHQ Deployment Guide

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Welcome

MultiTech DeviceHQ® is a cloud based device management solution that simplifies and scales the management of MultiTech's latest generation of networking devices. It allows users to remotely monitor, upgrade, and configure an entire device population from a single location. Whether you have one or more than 10,000 devices to manage, DeviceHQ simplifies access to your devices, resulting in lower total cost of ownership and increased operational efficiency.

Highlights

- Dashboards provide notifications and device group views with simple navigation to easily drill down to detailed device level data for troubleshooting and device status updates.
- Firmware and configuration updates can be executed with a few simple clicks on individual devices or user defined groups of devices across entire device populations.
- View managed devices on a map based on GPS location (GPS enabled devices) or a manually defined location.

Architecture Overview

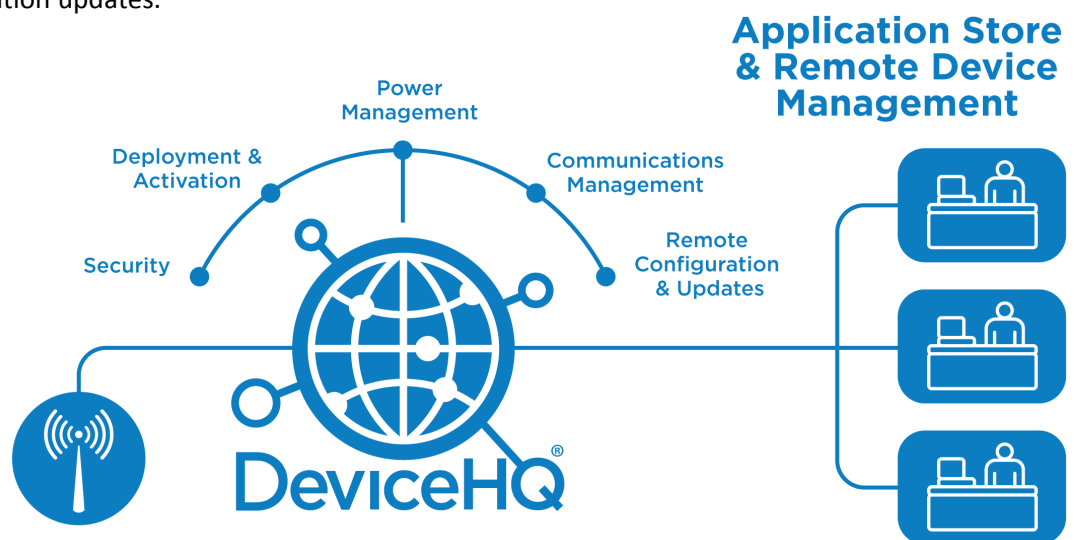
Once a device is configured to communicate with DeviceHQ, it will periodically send device information and statistics to the cloud platform and check for firmware and/or configuration updates to download. The frequency with which devices connect to the platform is configurable on a per-device basis.

Figure 1 shows a high level overview of the platform.

For more information on changing the check-in interval, see the online help file that accompanies the device's web management interface.

Note: It is important to understand that devices do not maintain a persistent connection to the platform. Any pending actions, such as firmware and configuration updates, are applied to the device only when it checks into the platform. A "live" connection does not exist and historical device statistics, such as signal level, are recorded at the time the device checks in. The user will sign into the cloud platform to view device statistics and schedule firmware and configuration updates.

Multiple Remote Devices



Understanding Check-in Intervals

Devices periodically send device information and statistics to DeviceHQ, where they also check for firmware and configuration updates to download. By default, devices check in every 12 hours.

You can use the device's web management interface to change how frequently any device checks in. The minimum a device can check-in is 240 minutes (4 hours). DeviceHQ ignores values less than 240 minutes.

For more information on changing the check-in interval, see the online help file that accompanies the device's web management interface.

Before You Begin

There are two basic steps required to begin:

1. Register for a DeviceHQ account.
2. Enable device management on the device.

Register for an account to begin. You will receive an email from MultiTech with a link to activate your account. After you activate your account MultiTech will send another email with an account key that you program into the organization's devices. Once the key is programmed, the device periodically sends device information and statistics to DeviceHQ and checks for firmware and configuration updates to download.

To program the account key, use the device's web management interface. See the help file that comes with the interface for information about programming the account key.

Opening DeviceHQ

To access the web management interface:

1. Open an Internet browser.
2. In the address field, type the default address for DeviceHQ: **www.devicehq.com**.
3. A login page will open.
4. Perform one of the following:
 - Register for an account.
 - Log In.

Registering for an Account

Before you can use DeviceHQ, you must register for an account.

1. To register for an account, click **Register Account**. The registration page will open.
2. Complete information on the page.
3. Read the End User License Agreement (EULA).
4. To accept the EULA check **Accept EULA**.
5. Type in the CAPTCHA text into the text box.
6. Click **Create Account**.
7. You receive an email, asking you to confirm your new account. To complete the activation process, click on the link in the email.
8. You will receive another email with your registration information.

Note: This information includes your unique account key. The Account Key is used by your devices to allow remote management by DeviceHQ. The account key may also be found in the Account Info tab of the user name drop down information after you are logged into DeviceHQ. For more information about entering the key, see the help file that accompanies the web management interface for your device.

Logging In

1. Enter the username and password used when you registered for an account.

2. Click **Login**. The home page will open.

Enabling Device Management on an rCell

DeviceHQ currently supports Multi-Tech’s MultiConnect® rCell 100 Series of routers (MTR-xx), firmware release 3.0.9 and higher. Devices are shipped from the factory with device management disabled. To enable device management, you must login into the device’s Graphical User Interface (GUI), navigate to the Administration: Remote Management page as displayed below in Figure 2.

1. Check the **Enabled** box.
2. Enter your unique Account Key that you received upon completion of your account registration.
3. Click **Submit**.
4. Click **Save and Restart**.

Note: Your device will automatically begin to upload its device statistics and check for firmware and configuration updates.

You can now sign in to your DeviceHQ account to view and manage your device.

The screenshot displays the 'Administration : Remote Management' configuration page. The 'Remote Server' section has the 'Enabled' checkbox checked and the 'Account Key' field populated with a masked value. The 'Auto Update Settings' section shows both 'Check-In Interval' and 'GPS Data Interval' set to 1440 minutes. The 'Device Upgrade Settings' section has both 'Allow Firmware Upgrade' and 'Allow Configuration Upgrade' checkboxes checked. A 'Submit' button is visible at the bottom right of the configuration area.

Figure 2: MultiConnect® rCell Graphical User Interface

Additional Device Settings

Auto Update Settings: These settings determine how often the device checks in and sends GPS data to DeviceHQ. The default intervals on the device are set to 720 minutes (12 hours) at the factory. The intervals can be set to any value by the user. The minimum value is 240 minutes (4 hours). DeviceHQ will override the setting in the device GUI if it is set to any value less than 240 minutes (4 hours).

SSL Enabled: Check this box to have all device management communications sent with SSL. Data transactions with SSL enabled will utilize more cellular data per transaction.

Device Upgrade Settings: Uncheck these boxes to disable remote firmware and configuration.

Sync with Dial-on-Demand: When this box is un-checked (default), there will be no restriction on the device check-in process. If this box is checked, the device will verify that the PPP link is established before it performs its check-in with DeviceHQ. If a PPP link is not established, the check-in will not be performed. There is a feature on the MultiConnect® rCell products called “Dial-on-Demand” that will tear down the PPP connection when there is inactivity on the LAN and will re-establish a PPP connection when LAN traffic is detected. Please see the device documentation for further details.

Cellular Data Usage: Depending on the configuration settings and the device you are managing, the cellular data usage will vary.

Note: See the rCell Help for more information on Remote Management.

Enabling Device Management on an MTCDDT-AEP

Register a Conduit with DeviceHQ

The first step in deploying a Conduit is to register it with your account. If the Conduit has not been registered with an account, it will not be able to communicate with DeviceHQ.

To register a device you will need the Serial number and UUID from the Conduit. These are located on the label on the bottom of the Conduit. Once you have this information:

1. Log into DeviceHQ.
2. Click **Devices** on the top menu.
3. Click on the **Tasks** button and select **Register Device**.
4. Complete the form using the Serial number and UUID from the label on the bottom of the Conduit.
5. Click **Register Device**. The dialog window will close and the Conduit will be listed in the device list.

Note: There will be no checked-in time listed until the Conduit actually connects to DeviceHQ.

Enabling Remote Management on the MTCDDT-AEP

Once the Conduit is registered with DeviceHQ, remote management may be initiated in one of two ways:

1. The Conduit has a Call Home feature, that when an unconfigured Conduit attached to a DHCP network with internet access will attempt to automatically connect to DeviceHQ and verify its registration. For more information on the Call Home function see: <http://www.multitech.net/developer/software/aep/call-home-remote-management/>
2. To enable device management, you must login into the Conduit's Graphical User Interface (GUI), navigate to the Administration: Remote Management page as displayed below in Figure 3.
 - a. Check the **Enabled** box.
 - b. Click the **Submit** button.
 - c. Click the **Save and Restart** button.

Your device will automatically begin to upload its device statistics and check for firmware and configuration updates.

You can now sign in to your DeviceHQ account to view and manage your device.

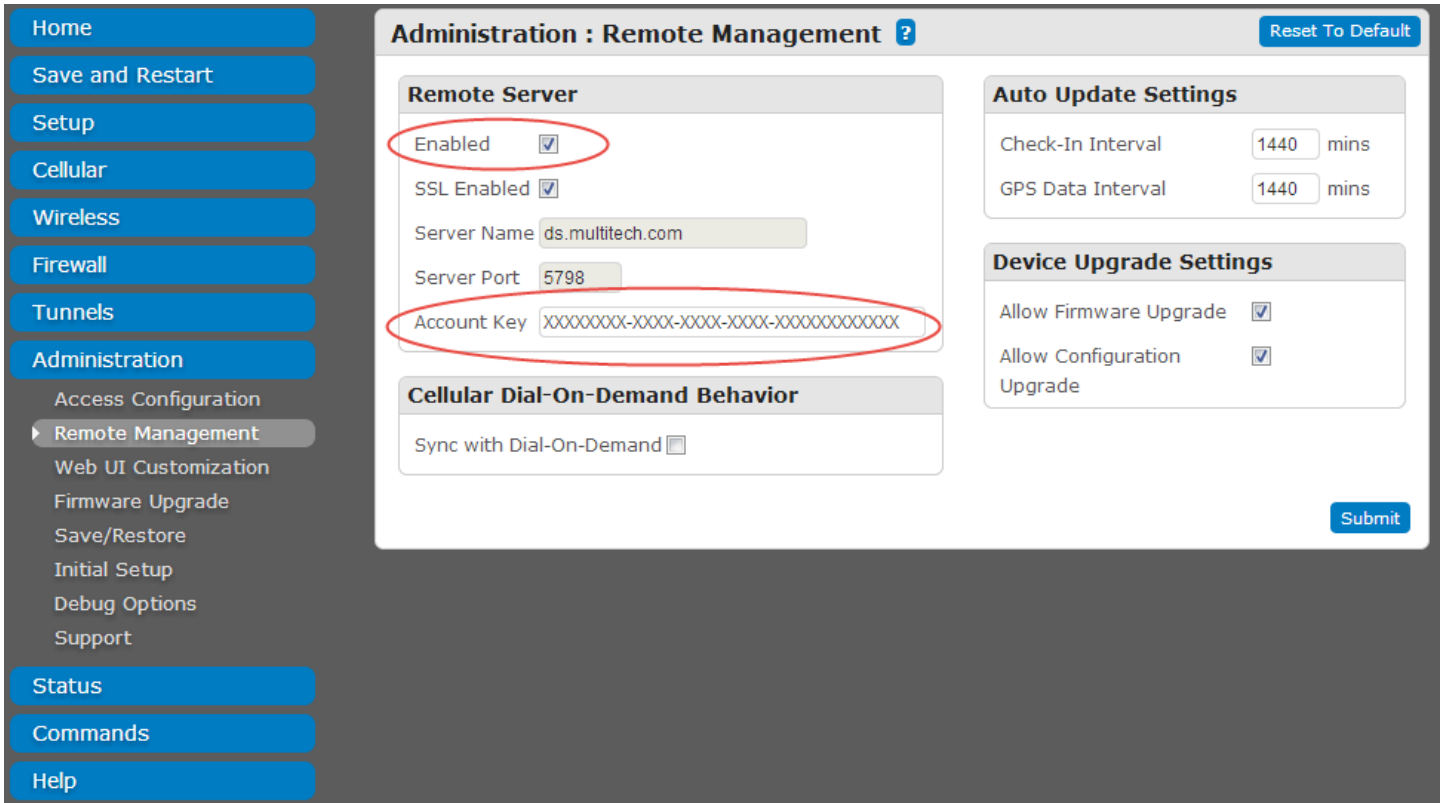


Figure 3: MultiConnect® Conduit Graphical User Interface

Scheduling a Configuration Download

When a new Conduit is plugged into a DHCP network, it will attempt to contact DeviceHQ to download its configuration. Scheduling a configuration upgrade for the Conduit will ensure that the Conduit is successfully configured for its deployment. Once the configuration file has been created and uploaded to DeviceHQ (see <http://www.multitech.net/developer/software/aep/generating-a-configuration-file/>), complete the following:

1. Log into DeviceHQ.
2. Click **Devices** on the top menu.
3. Select the device or devices you want to schedule a configuration download for.
4. Click on the **Actions** menu and select **Upgrade Config**.
5. Select the configuration file that you uploaded for this deployment and click **OK**.
6. Click **OK** to confirm download. The new Conduit is now registered to the account and is scheduled to download a configuration file as soon as the Conduit checks in for the first time.

Adding Apps to the My Apps List

In addition to registering a Conduit to an account, you must also add apps to the My Apps list. The My Apps list is a subset of the App Store. It is created by browsing the App Store and selecting apps to add to the My Apps list.

- **Store Basics:** The Store on the DeviceHQ site is a place where users can find apps that they can download and install on their Conduits. The Store lists all of the public and private apps that belong to your Account.

When a user finds an app that meets their needs, they can add it to their My Apps list. Only apps in the My Apps list will be shown when scheduling downloads.

- **Details:** You can view the details of an app by clicking on its icon in the Store. A page displaying more information about the app will appear. This page has a longer description of the app, the name of the publisher, and the reviews it has received. The details page has a button to add the app to (or remove it from) the My Apps list.
- **Reviews:** In addition to reading the reviews that were created by other users, a user can create one of their own. The reviews are averaged and the resulting score is shown on this page. Only the last three reviews will be shown, more reviews can be seen by clicking on the More Reviews button.
- **Adding/Deleting from the My Apps list:** If a user decides to use an app, they click the **Add to My Apps** button. When this button is clicked, a new dialog window appears that displays the Terms of Service agreement that is associated with the specified app. The user must check the checkbox and click **Accept** to proceed. Once the Terms of Service are accepted, the app will be added to the My Apps list. The app will now display "Remove App" links and buttons, clicking these buttons will remove the app from the My Apps list.

Scheduling an App Download

Scheduling an app download is similar to scheduling a configuration download for the Conduit. You can schedule an app download before the Conduit has called home for the first time. To schedule an app download complete the following:

1. Log into DeviceHQ.
2. Click **Devices** on the menu at the top.
3. Select the device or devices you want to schedule an app download for.
4. Click on the **Tasks** menu and select **Install App** from the dropdown.
5. Choose the app and version you want to download.
6. Click **Schedule Action** to confirm the download. The Devices listing will appear again. The device/devices will be scheduled for an app download.

Note: If a configuration update is still pending for the device, the listing will show that action. The app download can be confirmed by clicking the device's row. A details page for that device will display and show both pending actions.

Working with the Home Page

The Home page displays device information. The page has these areas: alerts, maps, and device charts.

Responding with Alerts

The home page displays alerts about devices that might need your attention, including:

- Devices that have failed to check into the platform.
 - Devices that failed a firmware upgrade.
 - Devices with no location information.
 - Low signal strength.
 - High data usage.
 - Devices that have rebooted.
1. To respond or see more information, click the alert. This will bring up the device specific page or a list of impacted devices.
 2. If there are pending or in-progress firmware or configuration updates, an actions area also appears to show their progress.

Working with Maps

The Map View displays devices that have reported their GPS location. It can also show location information for fixed devices.

To work the mapping feature:

1. Click a device map marker. A device pop-up appears. The pop-up shows basic device identification details and a link to view detailed device information.
2. If many devices are located in the same geographical area, the map displays a cluster marker showing the number of devices in that area, rather than displaying all individual markers. To see the individual devices, click the device cluster marker to zoom in.

Working with Charts

Device charts represent device statistics and attributes. They can indicate how well the device fleet is performing. To list devices according to a particular category or with a particular attribute, click a colored section of a chart. You can configure the chart display to show pie or bar charts.

Working with Devices

This section describes how to work with devices that have checked in.

Filtering Device List

You can filter the list of devices to show only the devices that interest you.

1. To show the filter tree, click the **Filter** button.
2. Select the filter criteria you desire, including:
 - **Action**: shows all devices with pending actions.
 - **Firmware**: filter by firmware version.
 - **Products**: filter by product model.
 - **Groups**: filter by user-defined groups of devices
3. To clear the filter and show all devices, click the **Filter** button.

Viewing Device Details

To view an individual device's details, click the desired device. A window opens, showing:

- Identifying information
- Device status
- Location (either supplied by GPS or user-defined)
- When the device checked in to the platform
- Signal strength
- WAN and LAN network statistics

Devices do not maintain a persistent connection to DeviceHQ. Device statistics, such as signal level, are recorded when the device checks in. There is no live connection.

Scheduling Device Actions

You can also use a device's information window to schedule firmware updates, configuration updates, or a reboot of the device.

From the Schedule menu, select the desired action.

Only one pending action for the device occurs each time the device checks in.

Editing Device Information

To change information about a device:

1. From the device's window, click **Edit**.
2. Change the following as desired:
 - Set or change device description.
 - Set or change the device's group.

- Set or change location of the device. The location you set is only used if the device does not have a GPS receiver.
- Set or change the device's data plan.

Grouping Devices

To make devices easier to manage, you can assign devices to groups.

1. To select the devices to put in a group click the devices' check boxes.
2. Click the **Tasks** button.
3. Select **Group Devices**.

A dialog box opens where you can create a new group or enter the name of an existing group.

or

1. Open the filter tree, right-click on Groups and select **New Group**.
2. To assign devices to the group, drag devices to it.

Updating Firmware

MultiTech offers firmware updates that you can download from our web site. You can download the firmware and evaluate it before updating it on devices.

You can use DeviceHQ to update the firmware running on any supported device. You schedule a device for a firmware update. The firmware is updated the next time the device checks.

Devices do not maintain a persistent connection. Pending actions, such as firmware updates, are applied to the device only when it checks in. There is no live connection.

Scheduling Firmware Updates

1. Click **Devices**. The device list page opens.
2. Click the name of the device whose firmware you want to update. You can update firmware on filtered devices or selected devices. If you select individual devices, you update firmware on selected devices or the filtered devices. If you do not select devices you update the firmware on the filtered devices.
3. From the **Schedule** drop-down menu, select **Upgrade Firmware**. From the list of firmware that appears, select the name of the firmware file.
A confirmation message appears, informing you that the new firmware is to be applied to the device when the device next checks in.
4. To confirm that you want to update the firmware click **OK**.

Note: To schedule multiple devices at once, see help file within DeviceHQ.

Updating Configuration Files

This section describes how to use DeviceHQ to apply configuration settings to a device or a group of devices.

Before you Begin

- Use a device's web management interface to create a configuration file that specifies a unique set up for a device. For information about creating a configuration file, see the help file that accompanies the device's web management interface.
- Before changing a device's configuration remotely, verify that the configuration settings work correctly on a local device. If you apply a configuration to a remote device that disables the device's ability to communicate with DeviceHQ, you may have to physically visit the site of the device to reconfigure the device.
- To recover a device at the local site, you might be able to use the device's reset button. See the device's documentation to determine if the device has a reset button, and if so, how to use it.
- If a device has remote LAN access using a virtual private network (VPN), you might be able to use the device's web management interface to change the configuration and allow communication with DeviceHQ to resume.

Uploading Configuration Files

After you create, save, and verify your desired configuration files, you can upload the files to DeviceHQ. To apply the settings in the configuration file to other devices:

1. Click **Files**.
2. Click **New Configuration**. A dialog box will appear.
3. In the **Name** and **Description** fields, type the name and description that you want to assign to a configuration file.
4. Click **Choose File**. Navigate to the location where the configuration file is saved.
5. Select the file and click **Upload**.

The configuration file appears on the Files page. You can select the file when you schedule a configuration update for a device or a group of devices.

Scheduling Configuration Updates

1. Click **Devices**. The device list page opens.
2. Click the name of the device whose firmware you want to update.
3. From the **Schedule** drop-down menu, select **Upgrade Config**. From the list of configuration files that appears, select the name of the configuration file.
A confirmation message appears, informing you that the new configuration is to be applied to the device when the device next checks in.
4. To confirm that you want to update the configuration click **OK**.
Note: To schedule multiple devices at once, see help file within DeviceHQ.

Creating, Editing and Deleting User Accounts

The first user to log into DeviceHQ from your organization can create, then edit or delete, additional users or managers.

Managers can add managers and users to the account. They can also update firmware and change configuration files for devices. Users have read-only access.

To create, edit or delete user accounts, click **Users**.

Adding Users

1. Click **Admin**.
2. Click **New User**. The User list page opens.
3. In the **Role** drop-down list, select the desired role of the user: User or Manager.
4. Type the users email address in the **Email** field. Then the user's first name and last name in the respective fields.
5. In the **Password** field, type a password that is at least 8 characters long. Type this same password in the **Confirm Password** field.
6. Click **Create User**.

Editing Existing User Information

1. Click the pencil/edit icon on the line of the user account whose information you want to edit.
2. The Editing Users page opens, where you can change role, email address and user first and last names.

Deleting User Accounts

1. Click the **X** icon on the line that represents the user account you want to delete.
2. A dialog box appears, where you can confirm that you really want to delete the user account.