OnCell Central Manager User's Manual

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MOXA®

OnCell Central Manager User's Manual

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1
Introduction

OnCell Central Manager v2.3 is a powerful tool that makes it possible for two sites configured with **Private IP** addresses to access each other over a public network. More specifically, Ethernet hosts with Internet access that are connected to the OnCell Central Manager can be configured to communicate with devices connected to an OnCell unit.

The following topics are covered in this chapter:

❑ **Key Features**
❑ **Overview**
❑ **Basic Concepts**
❑ **OnCell Central Manager Hardware Topology**
❑ **Moxa Device Compatibilities**
❑ **System Requirements**
  ➢ Minimum Hardware Requirements
  ➢ Software Requirements

Key Features

- Network administrators can manage up to 2000 OnCell devices and allow up to 200 simultaneous data connections between hosts* and serial/Ethernet devices with OnCell Central Manager.
- Cost-effective private IP solution
- Visual overview of device status and flexible monitoring on various platforms
- Grouping of user accounts and devices for effective access control
- Ability to manage, group, monitor, configure, and upgrade the firmware of all your devices from OnCell Central Manager

  *Control center computers

Overview

OnCell Central Manager makes it possible for multiple sites configured with private IP addresses to access each other over a public network. The sites connect to the OnCell Central Manager, which assigns port numbers to each site, thereby making the serial and/or Ethernet devices connected to an OnCell device accessible to hosts over the Internet. OnCell Central Manager allows a host to monitor the connection status of an OnCell device and the devices connected to it. OnCell Central Manager helps you reduce maintenance costs by making it convenient to diagnose and solve problems from a central site thereby reducing the number of trips engineers have to make to remote locations.

OnCell Central Manager supports the following modes of communication:

1. Direct communication with private IPs hidden from the public domain
2. Connection over the Internet to OnCell devices with private IP SIM cards

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⚠️ **ATTENTION**

The following terms are used throughout this manual:

- **OnCell** or **OnCell device** refers to an OnCell hardware product (e.g., OnCell G3150A-LTE).
- **Connected device** refers to an Ethernet device connected directly to an OnCell.
- **OnCell Central Manager** or **OCM** refers to a software utility, which is the topic of this manual.
- **Host** refers to a control center computer.

Basic Concepts

The OnCell Central Manager is designed based on the following:

- Both the host (control center computer) and OnCell devices connect with the OnCell Central Server
- OnCell Central Server designates ports on which a host can connect to serial and/or Ethernet devices attached to an OnCell device
- OnCell Central Manager allows the host to monitor the connection status of OnCell devices as well as their connected devices

OnCell Central Manager Hardware Topology

OnCell Central Manager allows private IP hosts and OnCell devices to communicate with each other over a public network.
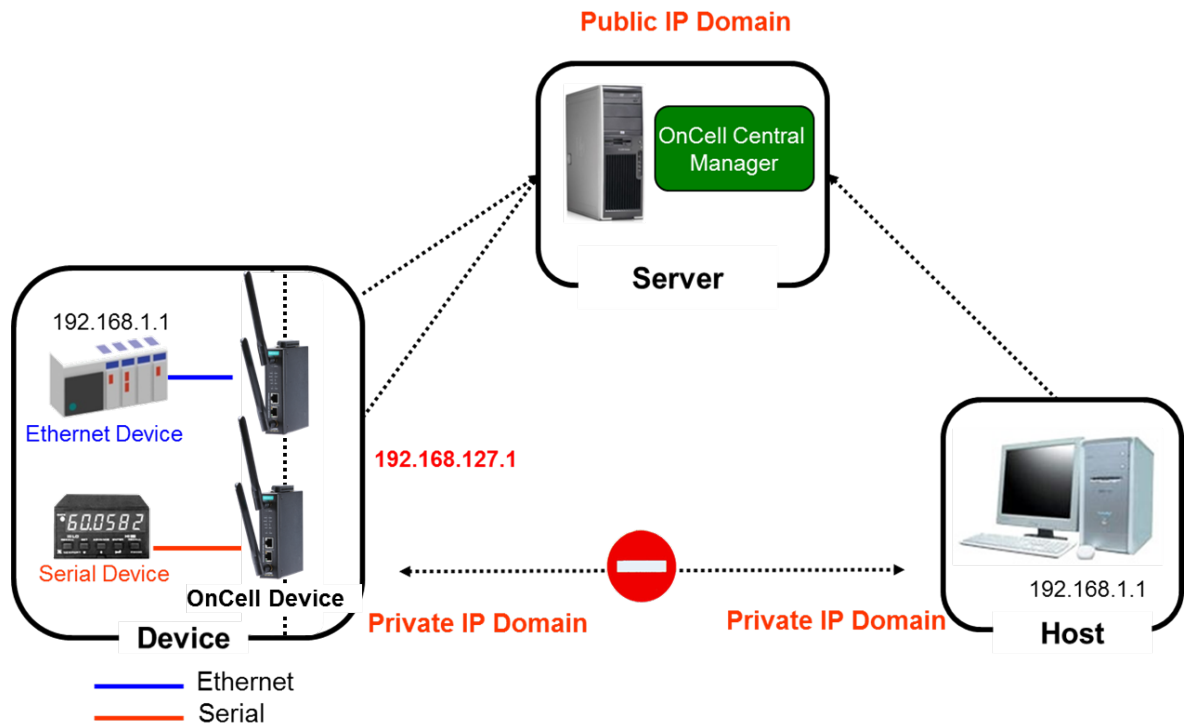
What are the problems associated with having private IP addresses?

• Most Internet Service Providers (ISP) only offer private IP address SIM cards for mobile devices due to the limited availability of public addresses
• Private IP addresses are hidden from the public domain
• If both the host and the modem have private IPs, they will not be able to "see" each other on a public network and thus cannot communicate with each other.

Moxa Device Compatibilities

OnCell Central Manager v2.3 is supported in the following OnCell and WDR models:

• OnCell G3100 series
• OnCell G3100-HSPA series
• OnCell G3111 series
• OnCell G3111-HSPA series
• OnCell 5000-HSPA series
• OnCell G3470A-LTE
• OnCell G3150A-LTE
• WDR-3124A

System Requirements

Minimum Hardware Requirements

- Intel® Core i5 or above CPU (64-bit is recommended)
- 4 GB RAM (or higher)
- 500 MB of free disk space (minimum)

Software Requirements

OnCell Central Manager v2.3 is compatible with the latest Windows operating systems, including Windows 64-bit operating systems.

Compatible Operating Systems

- **x86 OS**: Windows 2000 Server, Windows Servers 2003, Windows Server 2008, Windows 7, Windows 8, Windows 10, and Windows 2012
- **x64 OS**: Windows 2000 Server, Windows Server 2003, Windows Server 2008, Windows 7, Windows 8, Windows 10, and Windows 2012

Browsers

- Internet Explorer 6.0 or above
- Firefox
- Chrome

⚠️ **IMPORTANT!**

Windows XP is no longer supported by Microsoft. Moxa recommends that you use Windows 7 or above.

NOTE   You will require Adobe Flash on your system to install OnCell Central Manager.

2

Configuring Your OnCell and Connected Devices

In this chapter, we describe how to use the web console utility of an OnCell device to establish a connection with the OnCell Central Manager and configure other devices to connect to the OnCell device.

The following topics are covered in this chapter:

❑ **OnCell Central Manager Settings**
- ➢ Configuration
- ➢ Control Port

❑ **Service Forwarding**

OnCell Central Manager Settings

After opening the web console configuration utility for the OnCell device, click on the **OnCell Central Manager Settings** link in the navigation panel and then click **OnCell Central Manager** to open the settings page shown below:

OnCell Central Manager	
Configuration	
OnCell Central Manager	Enable ▾
Manager IP	
Auto reconnect period	10 (10 - 1000 secs)
Control Port	
Management information port	63201
Management configuration port	63202
Telnet port	63203
Operation mode data port	63211
Operation mode cmd port	63251
Submit	

The **OnCell Central Manager** page has two sections—**Configuration** and **Control Port.**

Configuration

Setting	Description	Factory Default
OnCell Central Manager	Select **Enable** to allow the OnCell device to connect to the OnCell Central Manager.	Disable
Manager IP	Enter the public IP address that is assigned to the OnCell Central Manager.	None
Auto reconnect period	Enter the number of seconds the OnCell device should wait before attempting to automatically reconnect to OnCell Central Manager Range: 10 to 1000	10

Control Port

Setting	Description	Factory Default
Management information port*	The TCP port used to transfer the status information of the OnCell device to the OnCell Central Manager	63201
Management configuration port*	The TCP port used to transfer configuration information from the OnCell device to OnCell Central Manager	63202
Telnet port*	The TCP port in OnCell Central Manager (the server) that is listening for a Telnet connection from OnCell devices	63203
Operation mode data port*	The operation mode data port to use when forwarding data from the OnCell device connected through LAN or serial interface to the OnCell Central Manager. The operation mode data port in the OnCell Central Manager is listening to OnCell devices.	63211
Operation mode cmd port*	This port is used to forward commands from the host to the OnCell device that is connected in operation mode through the LAN or serial interface.	63251

*-The port number must match the information port configured in OnCell Central Manager.

-To prevent port number conflicts with other applications, we suggest using port numbers in the range 49152-65535. These port numbers can be used for private and customized services, or for temporary purposes.

Service Forwarding

To access the **Service Forwarding** configuration page, expand the **OnCell Central Manager Settings** item in the navigation panel and click **Service Forwarding**.

Service Forwarding						
Service forwarding			Disable ▾	(This function is for OnCell Central Manager only.)		
Service forwarding port			63204			
No	☐ Act.	Protocol	Eth. Device Name	Eth. Device IP	Port	Description
1	☐	TCP ▾				
2	☐	TCP ▾				
3	☐	TCP ▾				
4	☐	TCP ▾				
5	☐	TCP ▾				
6	☐	TCP ▾				
7	☐	TCP ▾				
8	☐	TCP ▾				
Submit						

Settings Specific to OnCell

The following settings that govern the connection between an OnCell device and OnCell Central Manager:

Setting	Description	Factory Default
Service forwarding	Select **Enable** to allow this OnCell to forward data from its connected devices to OnCell Central Manager	Disable
Service forwarding port	The Ethernet port number used to establish an Ethernet connection between this OnCell and OnCell Central Manager	63204

Settings Specific to Connected Devices

Settings that relate to the connection between an OnCell and its connected Ethernet devices:

Setting	Description	Factory Default
Act.	Select this checkbox to activate the connection between this Ethernet device and the OnCell. Note: If **Service forwarding** is set to **Enable**, the connected device will be able to communicate with OnCell Central Manager.	unchecked
Protocol	Select the protocol (TCP or UDP) to use for establishing a connection between the connected device and the OnCell.	TCP
Eth. Device Name	Specify a name for the connected device.	Not applicable (N/A)
Eth. Device IP	Specify the private IP address (192.168.xxx.xxx) assigned to the connected Ethernet device.	N/A
Port	Specify the Ethernet port number assigned to the connected Ethernet device.	N/A
Description	Specify a description for the connected Ethernet device.	N/A

3

Installing OnCell Central Manager

In this chapter, we explain how to install Moxa's OnCell Central Manager utility and quickly set up and test your network to make sure the connections are up and running.

The following topics are covered in this chapter:

□ **Installing OCM**

□ **Using the OCM Server Tool**

  ➢ OCM Server Tool Settings

Installing OCM

Download the OnCell Central Manager v2.3 executable from
http://www.moxa.com/product/OnCell_Central_Manager.htm. Be sure to select the download option for the
type of OS (32-bit or 64-bit) installed on your system.

Run the OnCell Central Manager executable and follow the onscreen instructions to install the tool.

Using the OCM Server Tool

You must first configure the IP address for the OnCell Central Manager, which will be used by other computers and OnCell devices to connect to the tool.

In the Start menu select **OnCell Central Manager** to launch the server. In the **OCM Server tool**, use the **IP for User Connection** drop-down box to select an IP address for the OnCell Central Manager. This is usually a private IP address.
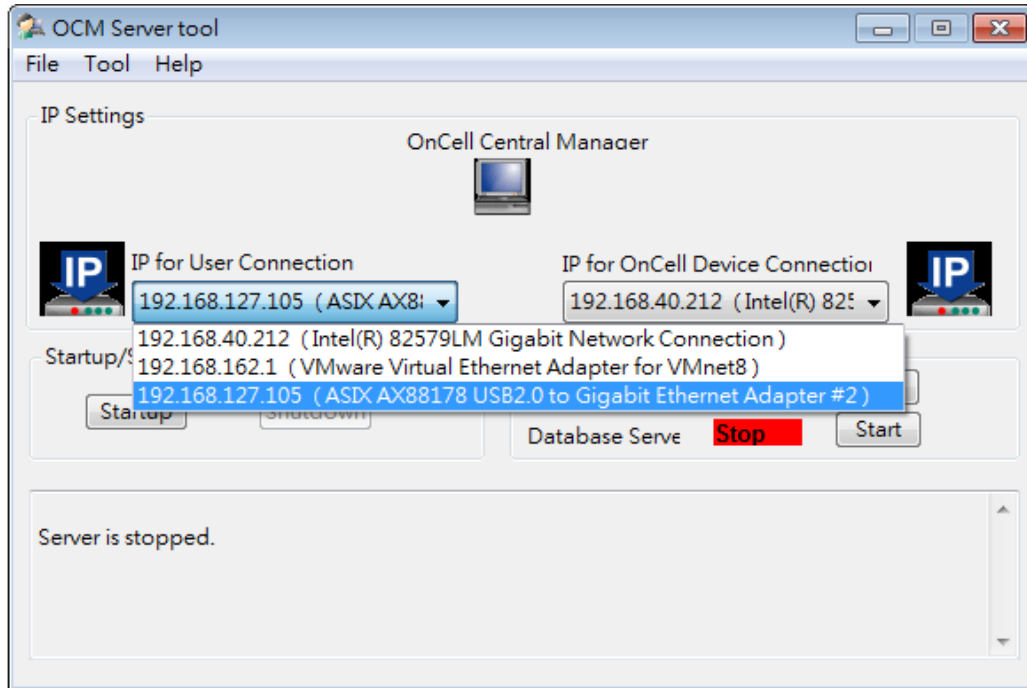
Use the **IP for OnCell Device Connection** drop-down box to select which IP address OnCell Central Manager will use to connect to OnCell devices. This is usually a public IP address.
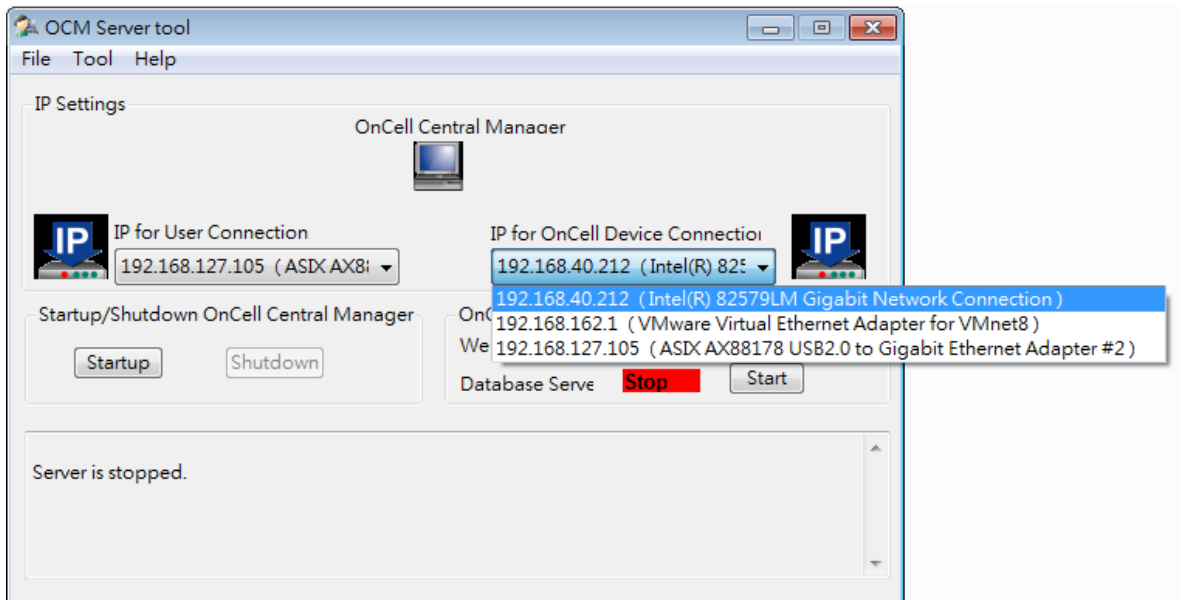
OCM Server Tool Settings

In the OCM Server tool, click on the **Tool** tab to access tools settings such as **Control Port Settings** and **User Port Settings**.

Control Port Settings

Select **Control Port Settings** to view and/or modify the OnCell Central Manager control ports.
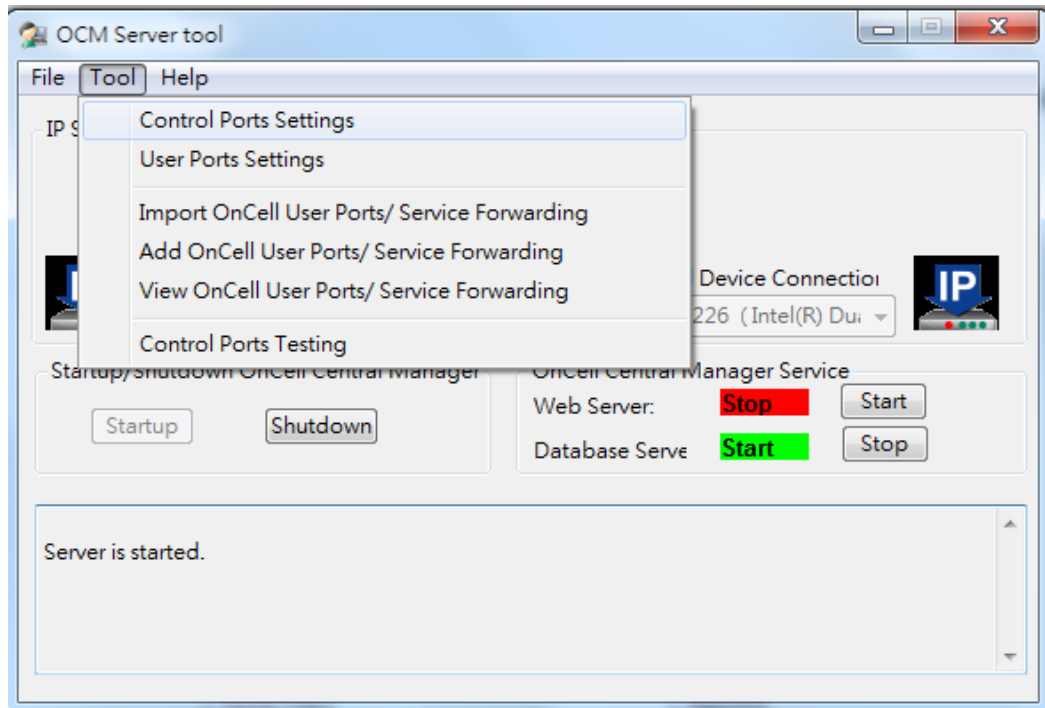
The control ports are the communication ports between OnCell Central Manager and OnCell devices. The aim is to allow OnCell Central Manager to access and manage OnCell devices. Make sure the port numbers shown here match the control port numbers in your OnCell devices.
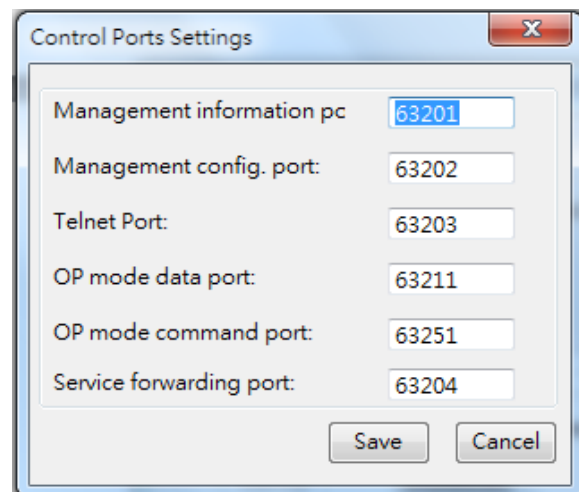
User Port Settings

Select **User Port Settings** to view and/or modify the OnCell Central Manager's user ports.
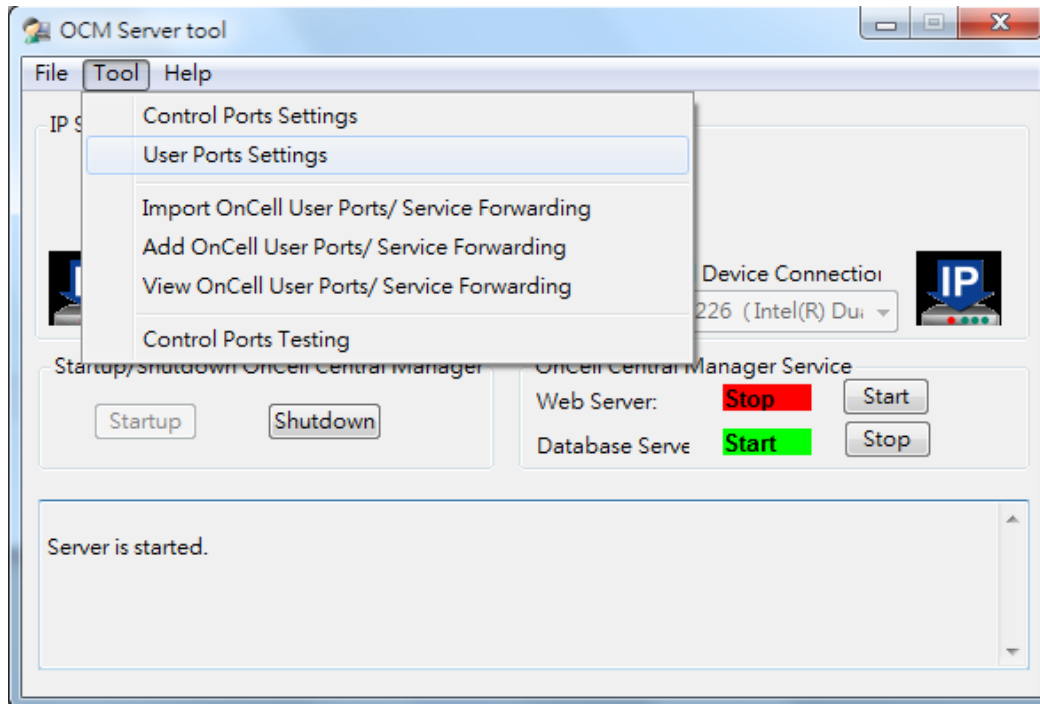
The port ranges that you specify here will be used to generate port numbers of connected devices. The port numbers will map to the TCP server ports of an Ethernet device connected to an OnCell, or serial devices directly connected to an OnCell device.
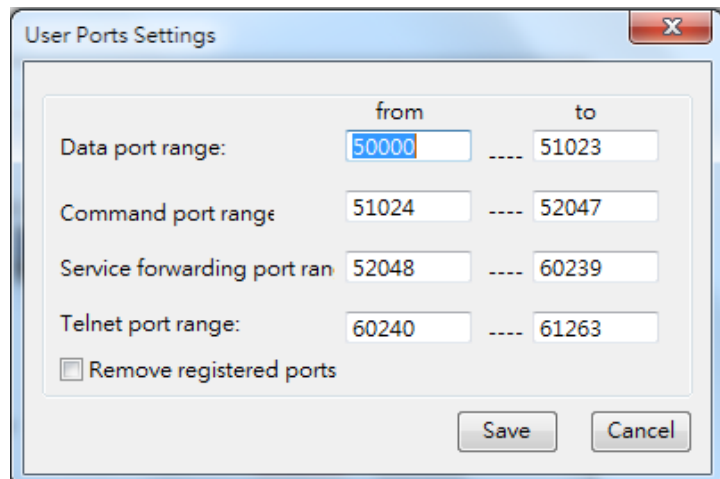
OnCell Central Manager Web Server Ports

The following table shows the ports used by OnCell Central Manager. Make sure that these port numbers are not already in use by other applications.

OnCell Central Manager Web Server ports:	
Web Server Ports	8005, 8080, 8443
OCM Service Ports	63201, 63202, 63203, 63204, 63211, 63251
OCM Monitoring Ports	63206, 63207, 63210
OnCell Central Manager Database Server ports	
Database Server	1527

NOTE   The port numbers used in the screenshots in this section are for illustration purposes only. The port numbers that you can use depend on the network setup and connection status in your system.

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Configuring OnCell Central Manager

In this chapter we explain the advanced functions in the OnCell Central Manager that you can use to configure, manage, and monitor devices as well as upgrade the firmware.

The following topics are covered in this chapter:

Launching OnCell Central Manager

To access OnCell Central Manager:

1. Open a web browser.
2. Enter the OnCell Central Manager's IP address (e.g., http://localhost:8080).
3. In the welcome screen, enter the **login ID** and **Password** and click **Login**.
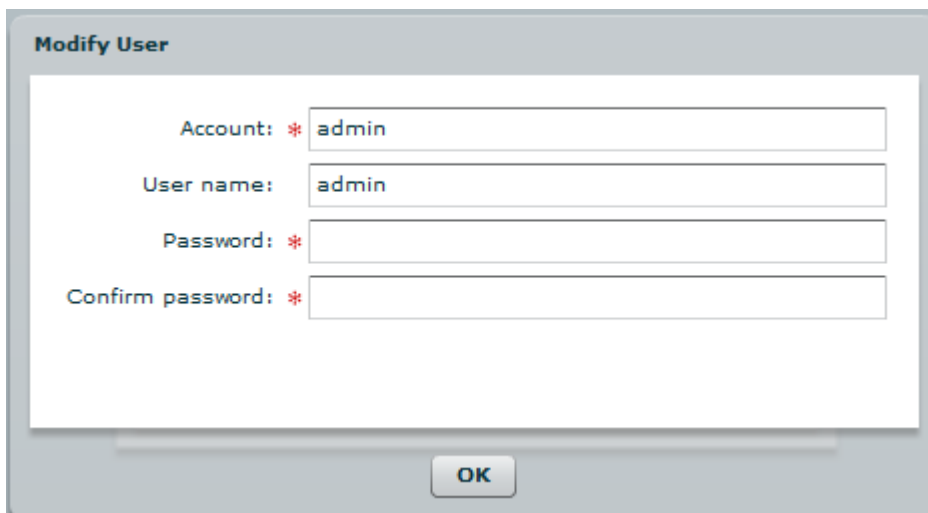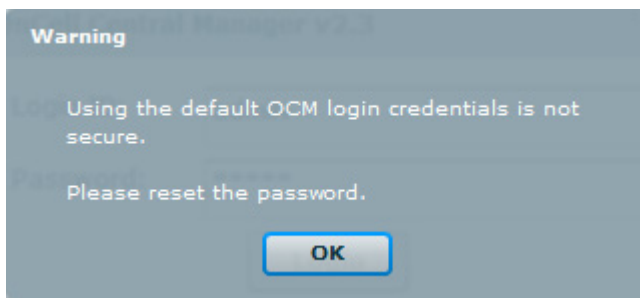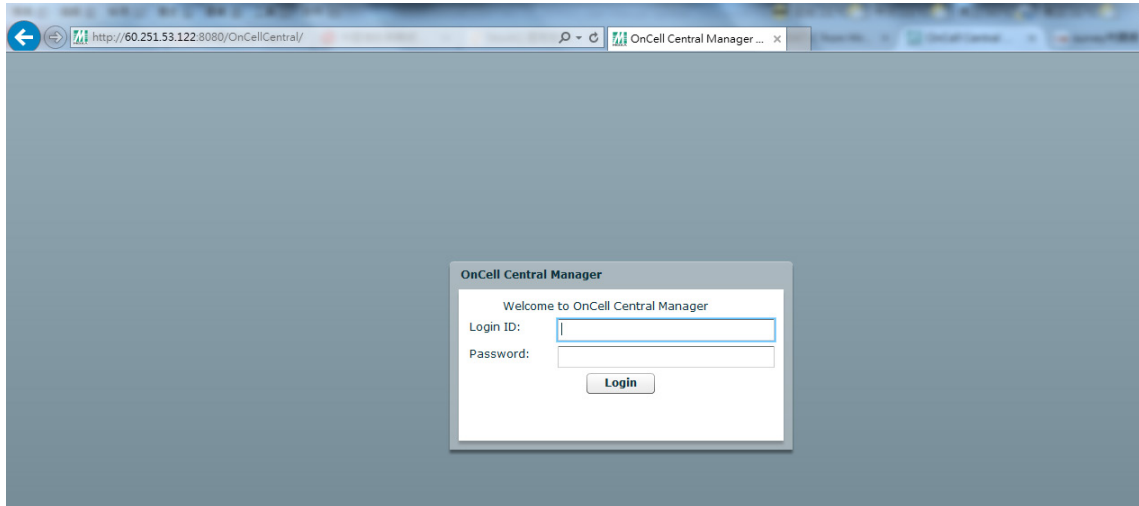
NOTE   Default user name and password:

Username: **admin**
Password   **admin**

For security reasons, we strongly recommend changing the default password. You will be prompted to change the default password after your first login. Please follow the onscreen instructions to reset your account password.
To reset the password select **Server → Change Password**.

Server Mode

In the **Server** view, OnCell Central Manager provides the device grouping function to organize the OnCell devices into different groups. An administrator can assign different roles, give each account various access levels, and assign different access rights to the various groups. You can also view information on the OS version, connected devices and their ports, device grouping, and user accounts.

Overview

The **Overview** page displays the version and copyright details of the OnCell Central Manager tool.
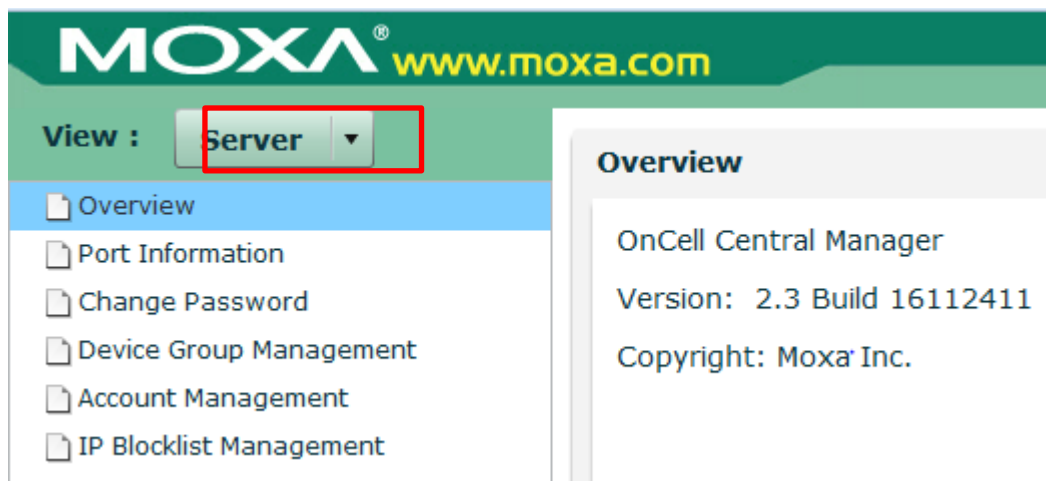
Port Information

Click the **Port Information** link in the server menu to view the current port numbers for OnCell Central Manager. You can modify the port numbers using the web console on the device (see *Device Mode*). For detailed information, see *Chapter 2 Configuring Your OnCell and Connected Devices*.

View :	Server ▾			
Overview		**Port Information**		
Port Information		**Control Ports**		
Change Password		Management information port	63201	
Device Group Management		Management configuration port	63202	
Account Management		Operation mode data port	63211	
IP Blocklist Management		Operation mode command port	63251	
		Telnet port	63203	
		Service forwarding port	63204	
		User Ports		
		Data port	50000 to 51023	
		Command port	51024 to 52047	
		Service forwarding port	52048 to 60239	
		Telnet Port	60240 to 61263	
		Server Properties		
		Connection idle timeout for data	120	Secs (60 to 1800) [Change]

Change Password

Use the **Change Password** function to change your account password.

Change Password

Password

Old password: [   ]

New password: [   ]

Confirm password: [   ]

[Change]

Managing Device Groups

Administrators can use the **Device Group Management** page to create and manage user groups and allocate devices to specific groups. Use the **Add**, **Remove**, **Rename**, and **Reload** functions to create, delete, or rename groups and subgroups.
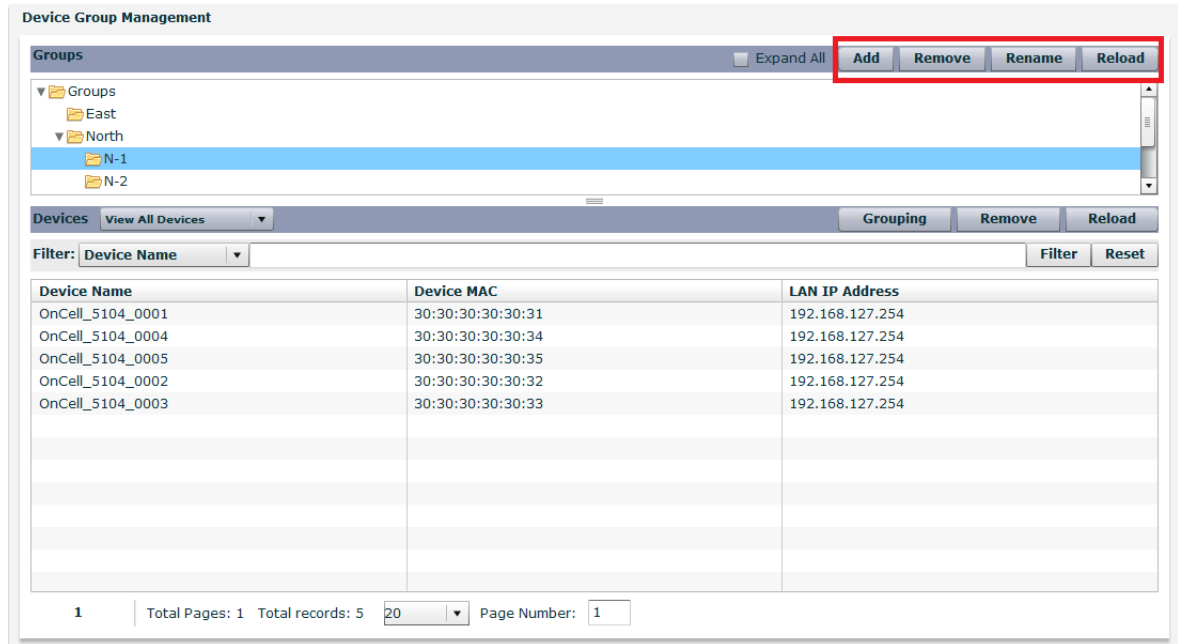
Basic Functions

The four basic group management functions, **Add**, **Remove**, **Rename**, and **Reload**, are described below:
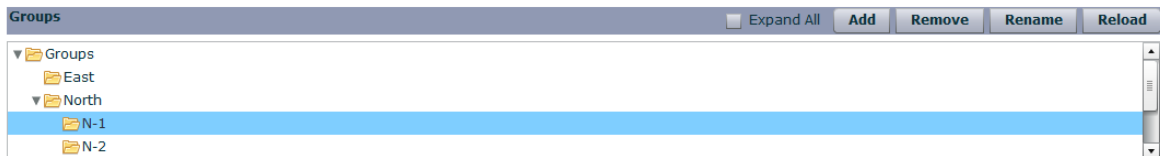
Function Name	Description
Add	Create a new group or a subgroup under the selected item
Remove	Delete the selected group or subgroup
Rename	Rename the selected group or subgroup
Reload	Refresh the groups listing

Devices

You can use the **Devices** option on the **Device Group Management** page to **View Current Groups** or **View All Devices**.

Viewing Option	Description
View Current Groups	View all the devices in the selected group
View All Devices	View all devices currently registered with OnCell Central Manager

Device Groups

Administrators can add a device to a group provided the device does not already belong to another group. To add a device to a group, select the group from the **Groups** section on the **Device Group Management** page and then click on the **Grouping** button below the section to open the **Select Device/New Device** window.

NOTE	A device can be part of only one group. You must first remove a device from its current group to be able to add it to another group.

Adding an Existing Device to a Group

You can view the devices that are not assigned to any group in the **Select Device** section of the **Select Device/New Device** window. Select one or more devices and then click **OK** to add the devices to the selected group.
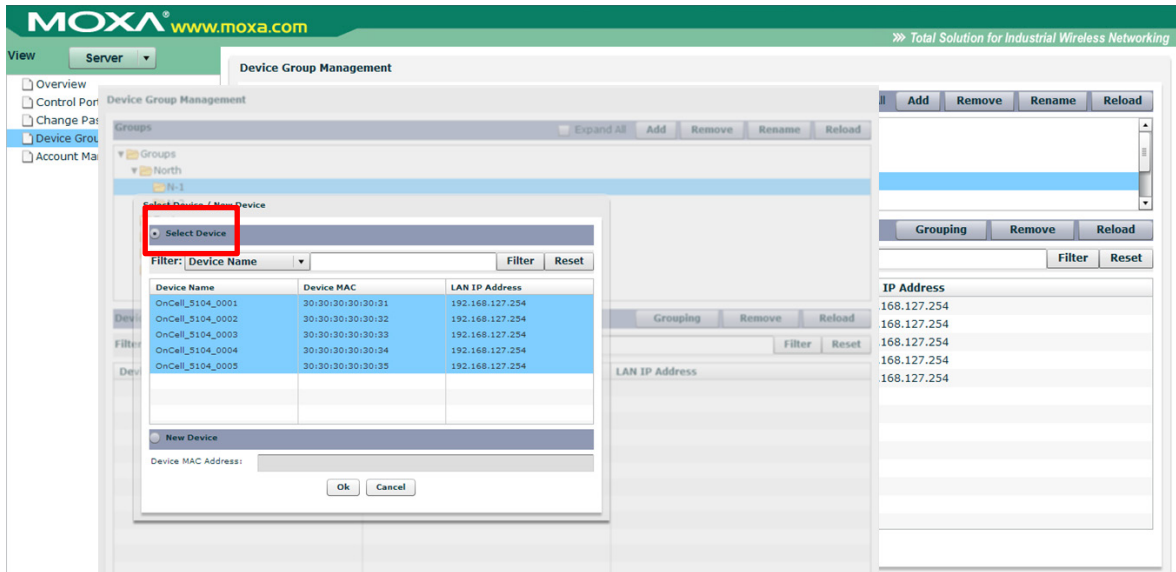
Adding a New Device to a Group

To create a new device object, enter the **Device MAC Address** in the **New Device** section of the **Select Device/New Device** window and click **OK** to add the device to the selected group.
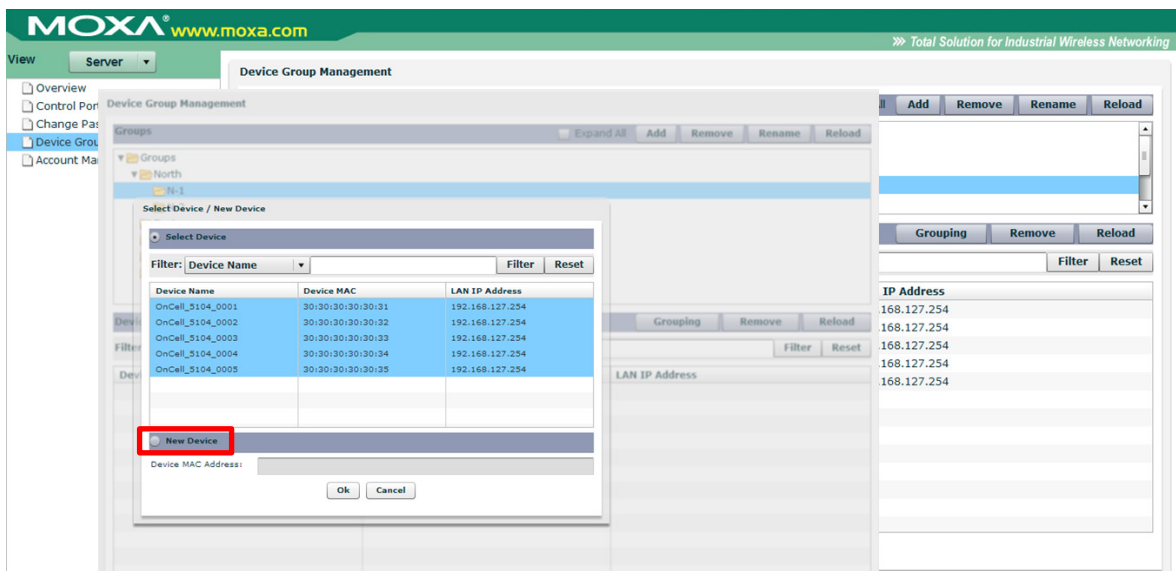
Removing a Device from a Group

To remove a device from a group, select the device and click **Remove**.

Reloading the Device List

Click **Reload** to refresh the device list.
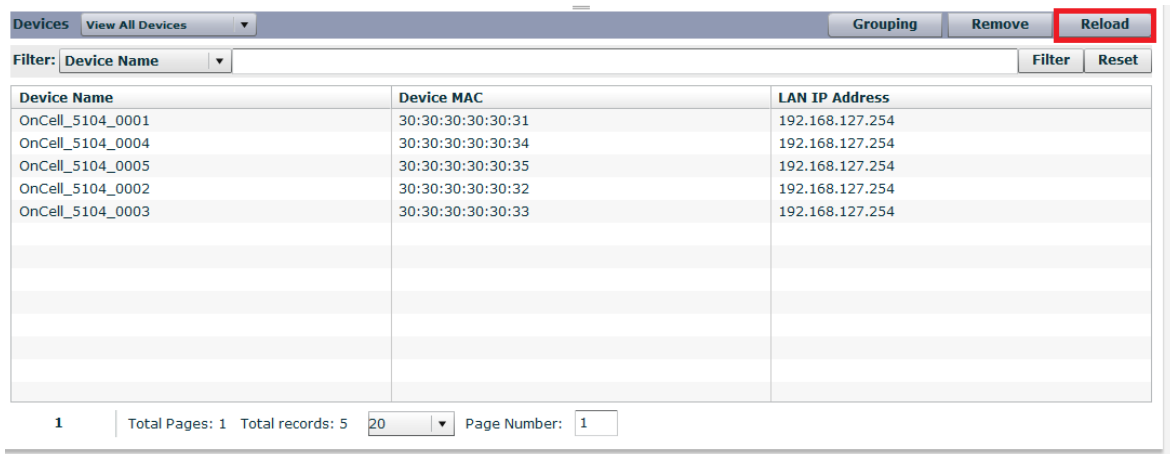
Device Filter

The **Filter** function allows you to search for devices based on the **Device Name**, **Device MAC**, or device **LAN IP Address**.
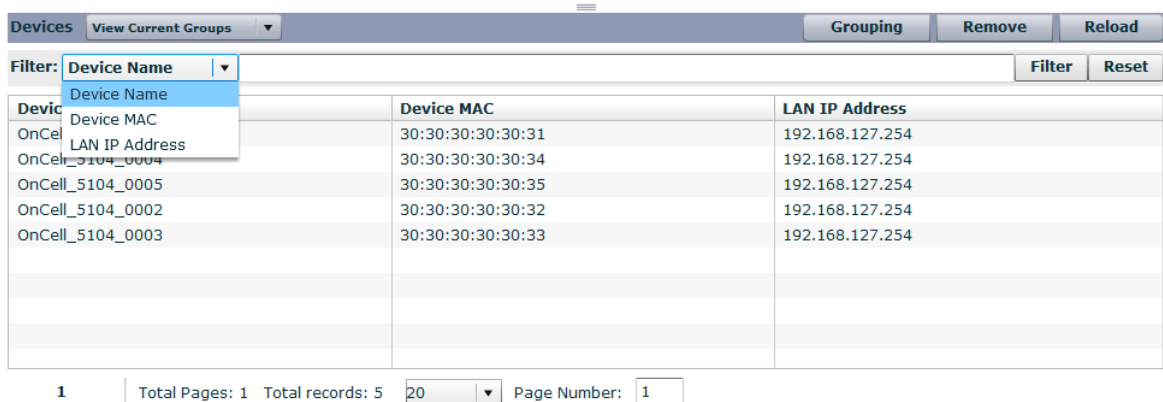
Device Name

To filter devices based on a device name, choose **Device Name** in the filter options and input a keyword in the field. Click **Filter** to show the devices that match the device name keyword.

Device MAC

Choose the **Device MAC** option and input a partial or complete MAC address to filter the devices based on their MAC addresses.

Device LAN IP Address

To filter the devices based on their IP address, choose the **LAN IP address** option and key in the complete or partial IP address to filter the devices.

Resetting the Filter

Use the **Reset** button to clear all device filter criteria.

NOTE	The information in the above screens is for illustration purposes only. The device parameters of the devices featured depend on the connection status of the devices and the actual network environment.

Managing User Accounts

You can assign different roles to users, give each user account various access levels, and monitor the current status of the user accounts on the **Account Management** page.

Creating a New User Account

To create a new user account, click on the **Add** button in the **Account Managemen**t page. Specify an **Account** name, assign a role to the user account, specify the parent level, and select the groups to which the user has access rights. Enable the account and click **Ok.**

NOTE	Fields marked with a red asterisk (*) are mandatory.

Field	Description
Account	Account name used to log in to OnCell Central Manager
User name	(optional) You may enter a nickname or the user's name.
Password	Password used to log in to OnCell Central Manager.
Confirm Password	Confirm the password by retyping the same in this field
Role	**Admin:** Can access all groups, devices, and user information. **Super User:** Can only access subgroups, devices in the subgroup, and user information for users created by this Super User. **User:** Can only view device information
Parent	The higher level or top administrator of the current account.
Enable account	Check this option to activate the user account.

Modifying User Account Information

On the **Account Management** page, select the user account and click **Edit** to modify the account information.

Update the user information as needed in the **Modify User** window and click **Ok** to apply the changes.
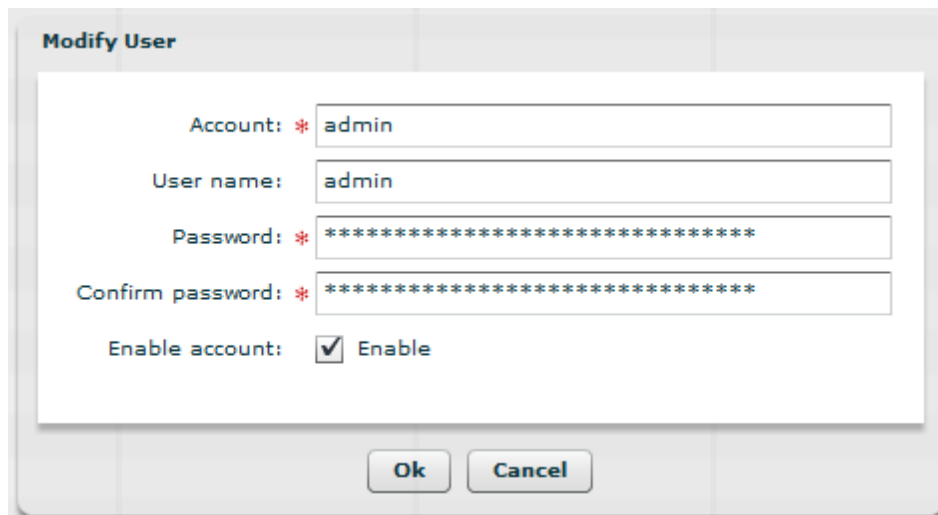
Refreshing User Information

Click **Reload** in the **Account Management** page to refresh the user information.

Managing the IP Blocklist

The **IP blocklist** allows administrators to block communication from specific IP addresses.

To block communication from a specific IP address or a range of IP addresses, Click on the **IP Blocklist Management** link in the **Server** view to define a **Block Action**. Fill in the details and click **Add**.
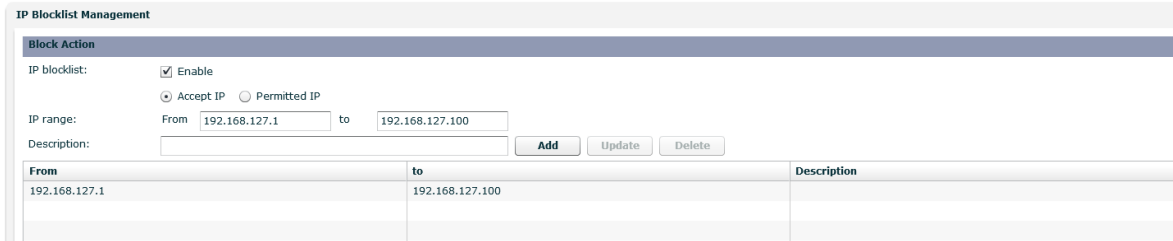
You can use the **Update** button to update the block action or the **Delete** button to delete an existing block action.

NOTE   To further increase security during communication, some OnCell devices can form OpenVPN tunnels. Refer to the user manual for your OnCell device for details on setting up the OpenVPN function.

Device Mode

OnCell Central Manager provides a dashboard that displays the connection status, signal RSSI, and cellular mode of connected devices. You can view these details in the **Device** or **Group** view. Click on the various headings (Device MAC, Device Name, etc.) to change the way the information is sorted.

Pass your cursor over the pie charts to view detailed information.

Device View

The **Device** view is selected by default. In the device view, you can view device details, perform batch configuration of devices, and perform firmware upgrades.
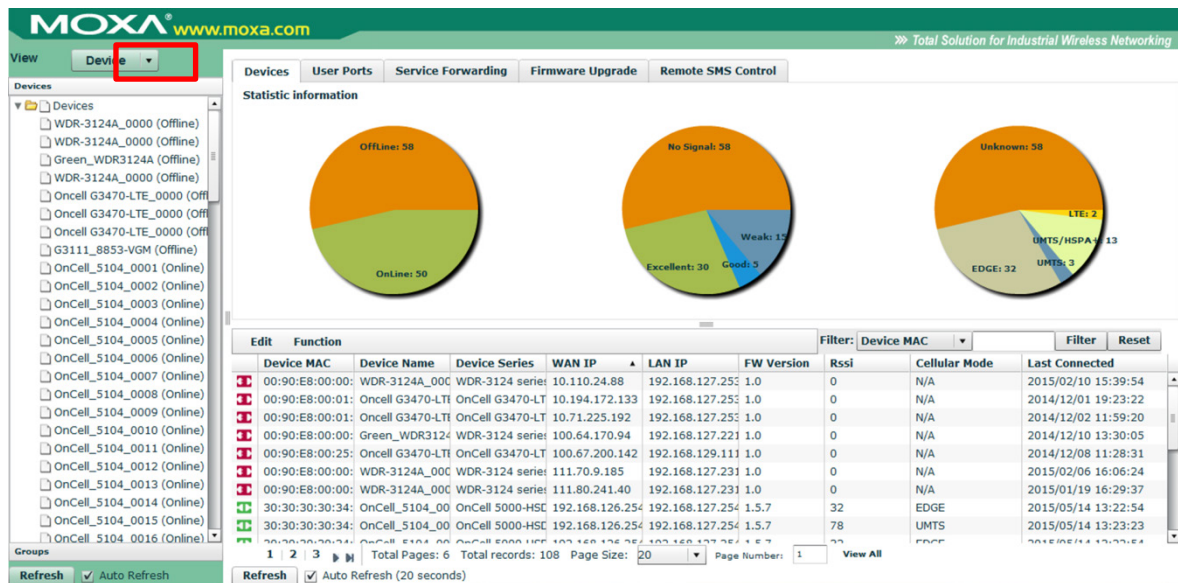
Group View

Click the **Group** option to view information organized by device groups. You can use this view to batch configure device settings in device groups or subgroups.

Batch Configuration and Firmware Upgrade in Devices

You can use the OnCell Central Manager to remotely update firmware on devices and configure devices in batches. Use the **Multiple Firmware Upgrade** or the **Multiple Import Config** options, as applicable, to select the devices or groups to apply the configuration updates and firmware upgrades.

User Ports

In the **Device** mode, click on the **User Ports** tab to display the status details of all ports, including their operation mode and port type (command/data/telnet).

Service Forwarding

Click on the **Service Forwarding** tab to display all ports mapped to OnCell Central Manager with their TCP port status set to service forwarding.

Service Forwarding Concept

Firmware Upgrade

In the **Device** mode, click on the **Firmware Upgrade** tab to display the upgrade status and history of all devices connected to the OCM.

| NOTE | The information shown in the figures is for demonstration purposes only. The actual information depends on the connection status and configuration of your network. |

Remote SMS Control (Available Only on the OnCell G3150A-LTE)

The OnCell Central Manager uses a third-party cloud service from Twilio to send SMS control commands to OnCell devices to remotely reboot the devices, initiate VPN connections, get status information, and perform firmware upgrades.

In the **Device** mode, click on the **Remote SMS control** tab to access the Twilio function. Fill in the **account SID** and **authorized token** and click **OK** to activate Twilio function.

A group-based view of all the OnCell G3150A-LTE devices is displayed.

Twilio

Twilio is a third-party cloud service provider of SMS messaging service. To use this OCM service, you will require a Twilio account and token. You can click on the **Register** button to register an account with Twilio and retrieve a token. Additional details on Twilio are available at: https://www.twilio.com/


NOTE   To enable the Twilio platform to accurately process your SMS messages, make sure you set the correct locale setting (country and region) when you register your account on the Twilio website.


⚠ **IMPORTANT!**

There might be instances where the ISP used by Twilio changes the character "@" to "Δ" when performing remote SMS control commands. If this happens, we suggest that you switch to another ISP to prevent such issues in the future.

If you are sending an SMS message to a Taiwanese ISP whose SIM card is used in the OnCell device, select the ASIA region as shown below. The ASIA region setting includes Taiwan.
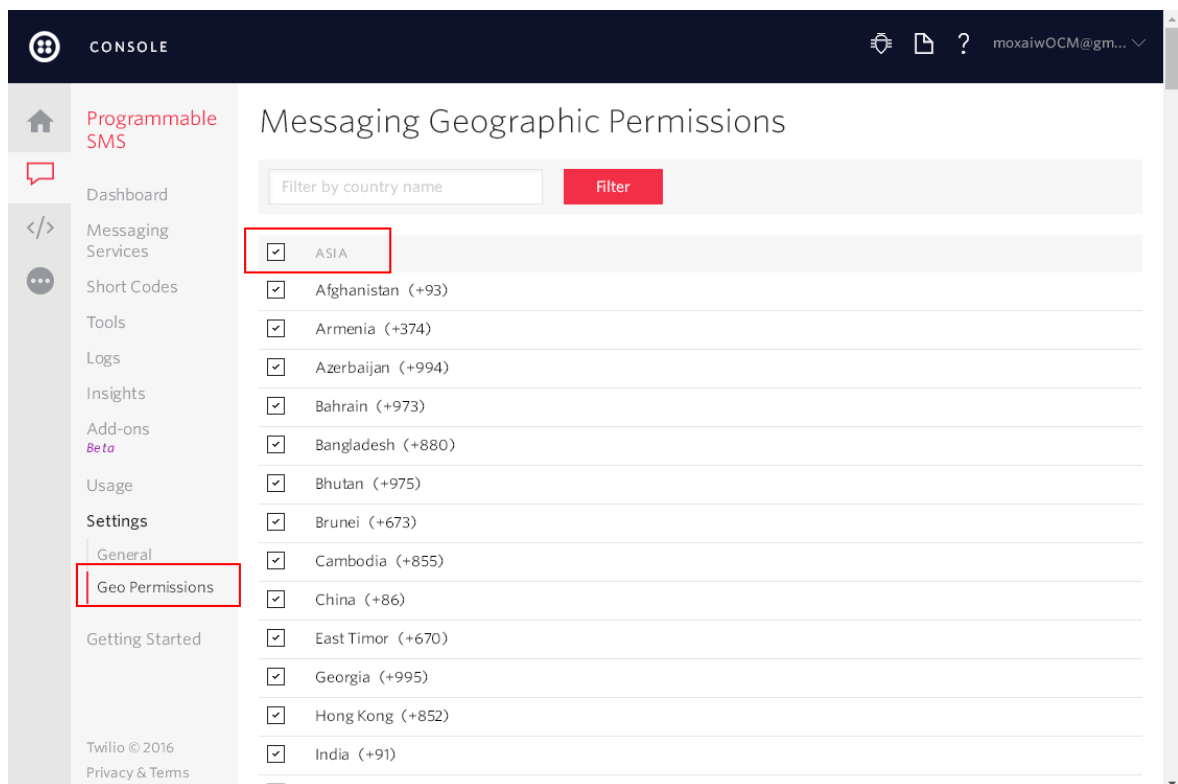
If the country/region is not set correctly, it may result in the Twilio system not sending out the SMS messages. The following example shows an error message as a result of a failed transmission of an SMS message because of incorrect location settings.
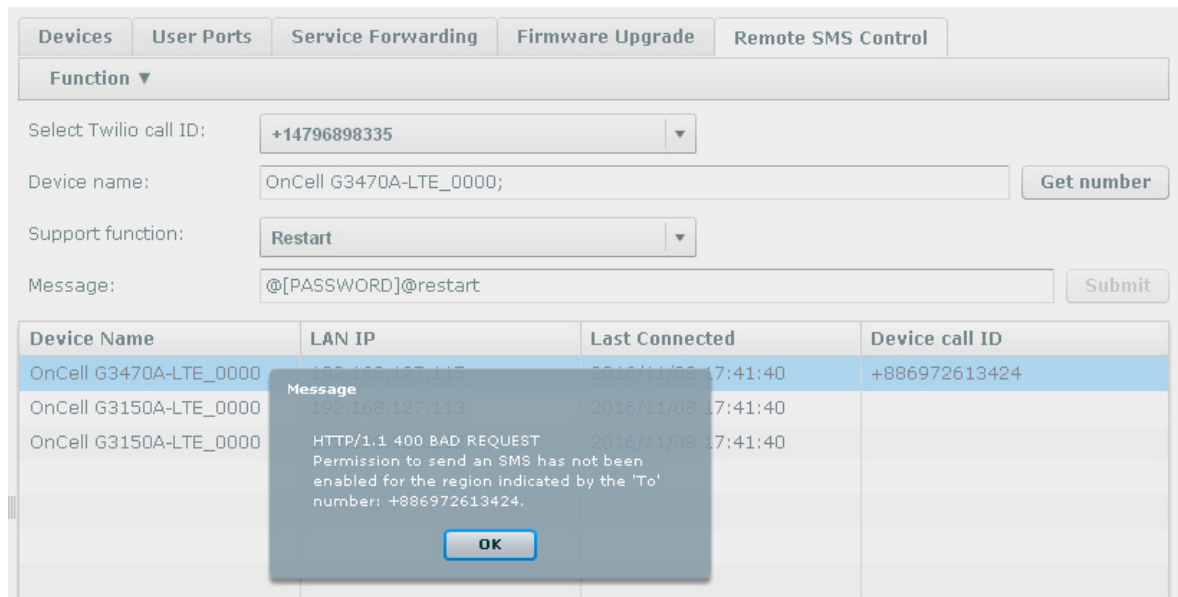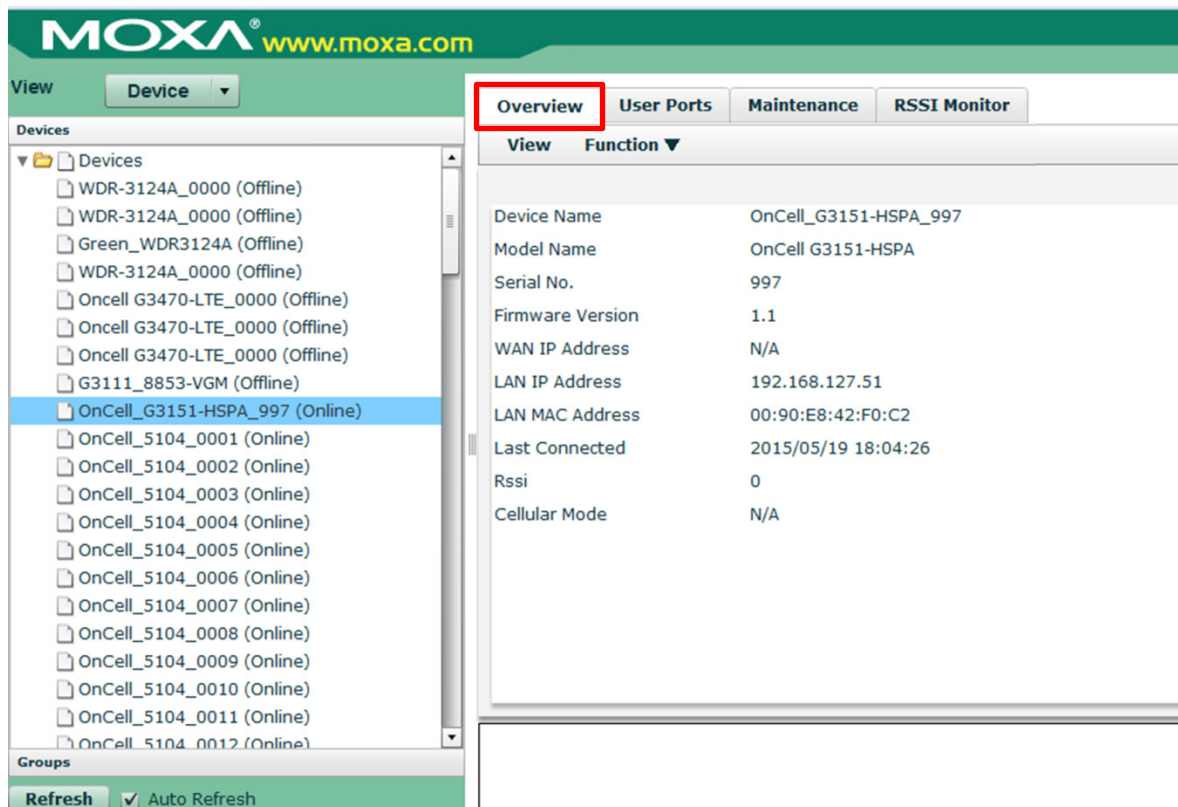

Managing an OnCell Device

Click on a device in the **Devices** list to view and/or manage the information for the device.

Overview

The **Overview** tab, which displays information for the device, is selected by default.

User Ports

The **User Ports** tab allows administrators to manage and monitor specific device ports, including the Telnet, OP mode, and Service Forwarding configurations. The **Service Forwarding** section only allows you to delete records or assign a new forwarding port.
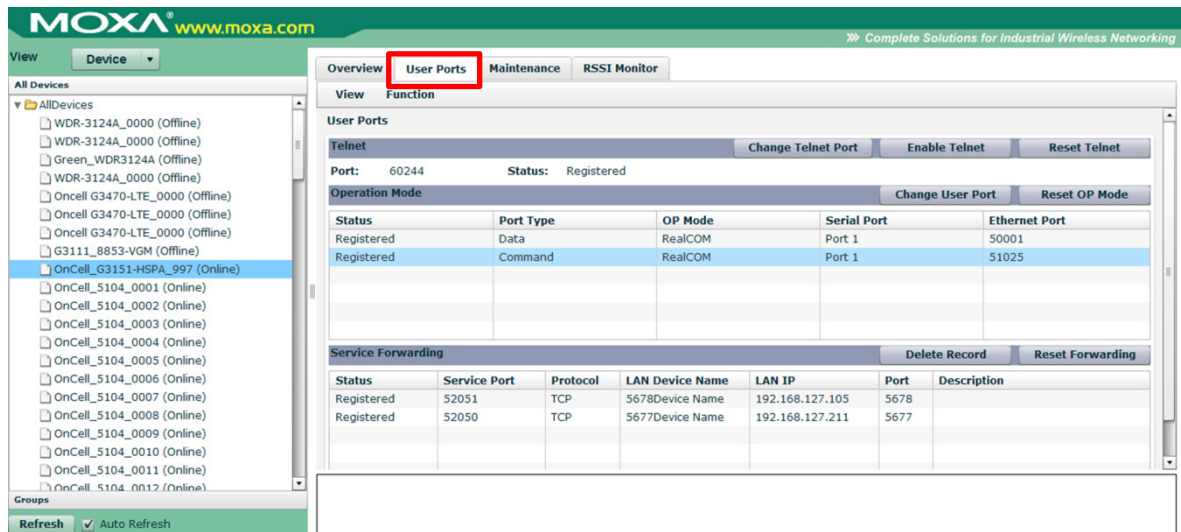

Maintenance

Maintenance functions provide an administrator with tools to manage the Telnet and user ports (configuration and activation), export RSSI signal records, restore an operation mode with service forwarding, export/import configuration, and upgrade firmware.
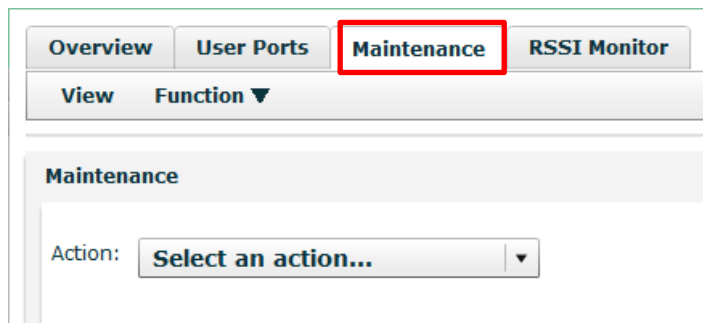
Function

In the **Maintenance** tab, click on the **Function** drop-down box to view the maintenance functions available.
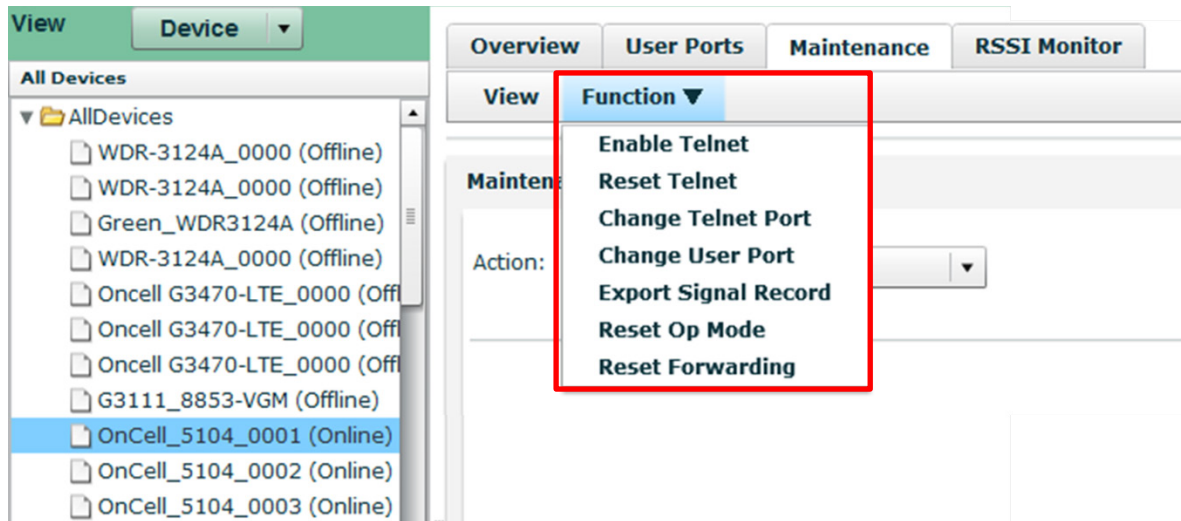

| Item	Description
Enable Telnet	Activates Telnet
Reset Telnet	Restores Telnet connection
Change Telnet Port	Used to change the Telnet port number of the device
Change User Port	Used to change the user port number of the device
Export Signal Record	Select an OnCell device and use this option to export RSSI statistics to view the signal history
Reset Op mode	Used to restart the operation mode in the device to restore its connection with OCM
Reset Forwarding	Used to restart the Service Forwarding function in the device to restore its connection with OCM

Action

Select one of four actions from the **Action** drop-down list.

Configuration Export

Click **Configuration Export** to back up OnCell Central Manager settings.
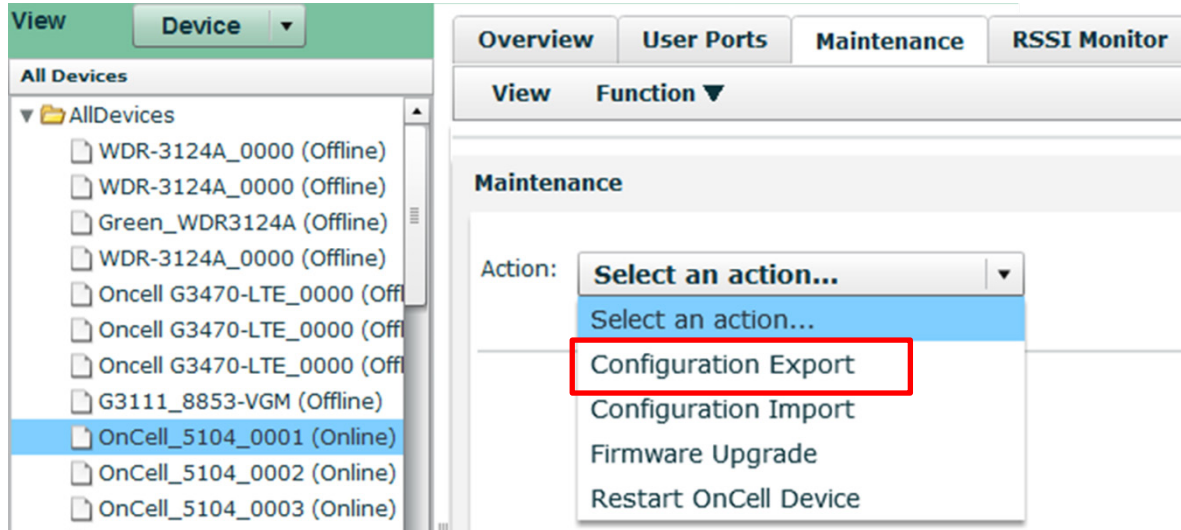
Next, click **Download** to save the configuration settings to a text file (*.conf), which can be viewed and edited with any text-editing tool.
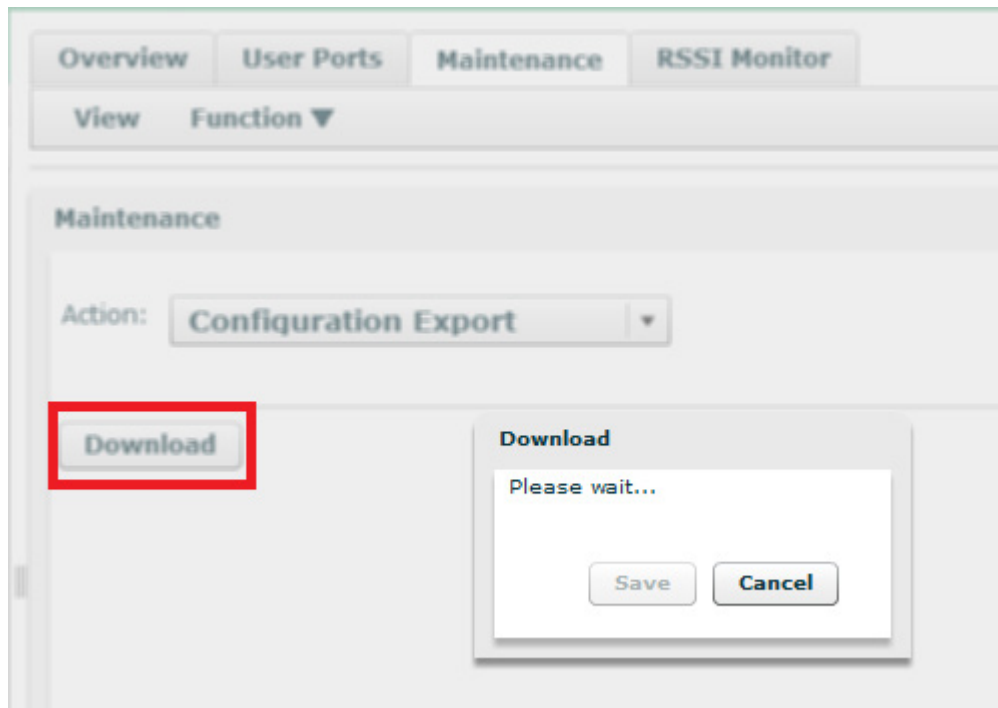
Configuration Import

Click **Configuration Import** to restore the OnCell Central Manager settings using a configuration file.

Next, in the **Configuration Import** section, click **Browse** to select a configuration file, click on the **Open files** button, and click **Submit** to import the configuration.
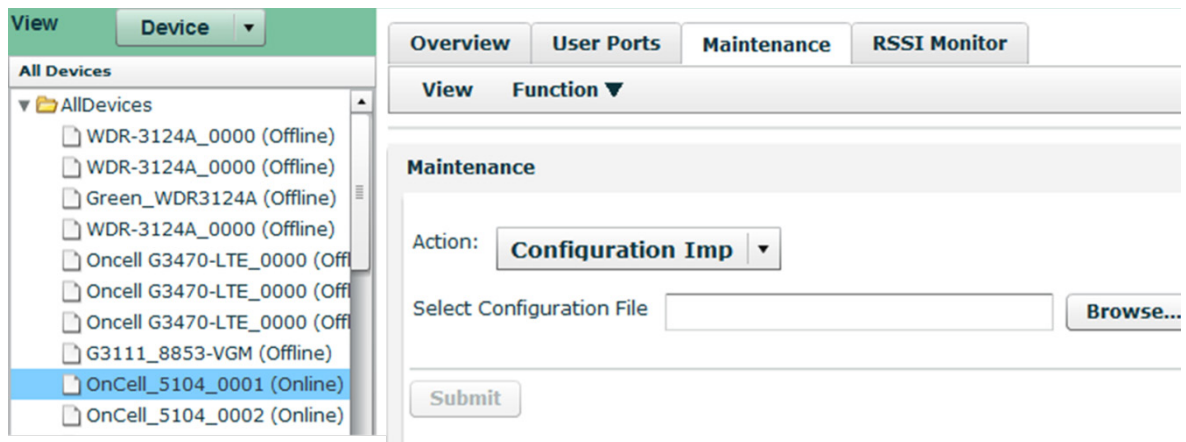

Firmware Upgrade

OnCell Central Manager allows administrators to run a **Firmware Upgrade** deployed at remote sites. The latest firmware is available from Moxa's download center.

Before running a firmware upgrade, make sure the OnCell device is **off**. Click the **Browse** button to select the firmware image file and click **Firmware Upgrade** to start the firmware upgrade. After the progress bar reaches 100%, the device will reboot itself.

When upgrading your firmware, you cannot use any other functions on the OnCell device.
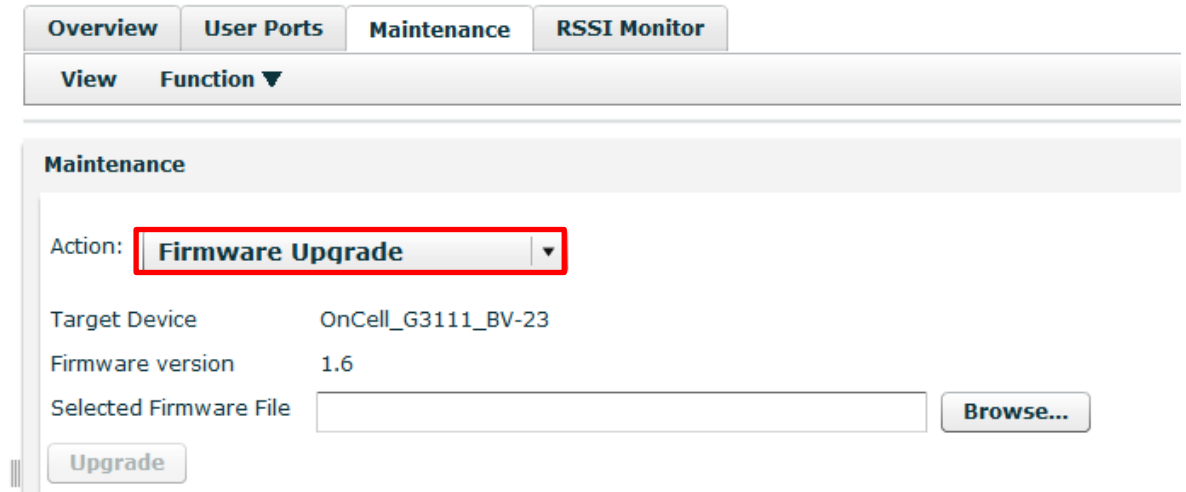
Restarting an OnCell Device

To restart an OnCell device, click on the **Restart** button in the **Maintenance** tab.

Device Logout

The **Log out** option allows users to disconnect from the OnCell Central Manager. For security reasons, we recommend that you log out before closing the console manager.