Integrating QuesCom's GSM Gateway with the Cisco Unified Communications 500 Series (UC 500)

This application note provides guidelines and configuration instructions for the Cisco Unified Communications 500 Series System platform (UC 500) and the QuesCom's 200 GSM cellular gateway.

In many countries, calls from a fixed line to a mobile number are not billed at a flat low rate. Many Small Businesses can reduce their telecom expenses by deploying a cellular gateway so calls that are routed to the mobile network are treated as if made from a mobile phone, thus eliminating the fix-to-mobile cost.

The information in this document applies to CCA Version 2.2 and Cisco UC 500 software pack version 8.0.0

Scope and Assumptions

The information in this application note is intended for use by Cisco SMB Select-certified VARs and channel partners with a **strong recommendation for Express certification**. It is assumed that users are familiar with configuration of voice and security features on the Cisco Smart Business Communications System (SBCS). It is also assumed that users are familiar with fundamental data and voice networking knowledge.

The scope of this application is limited to the basic configuration of the QuesCom 200 GSM gateway and the UC 500 provisioning, in the context of the proposed topology. This document does not cover configuration of additional or optional voice and networking features.

The deployment guidelines in this document are for outbound calls only, which is the most typical application for which this integration would be used. Additional configuration is needed to define inbound call routing, i.e. calls made from the mobile network into the QuesCom gateway and then to the UC 500 via the SIP trunk.

The target customer for this integration is a small to medium customer site, with requirements to process a moderate call volume towards mobile destinations.

The procedures in this application assume the following:

- All network components have been upgraded and configured for basic connectivity.
- Each site has been provisioned for voice users and if required, PSTN termination.

The information in this document applies to CCA Version 2.2 and Cisco UC 500 software package version 8.0.0.

Solution Overview and Benefits

The integration with the QuesCom 200 gateway leverages the GSM and SMS gateway capabilities of the QuesCom device, to allow for low cost cellular calls from the UC 500 PBX users.

The QuesCom 200 embeds 2 GSM channels enabling 2 simultaneous calls to GSM phones. The QuesCom 200 is also directly connected to IP network & users' PC enabling them to send and receive SMS from a PC.

The QuesCom 200 gateway offers the following benefits:

- **One Number for savings and control**

    Do fixed-to-mobile calls usually constitute 35% to 55% of your company's telecom bill?
    Is your company multi-sited?
    Are your corporate cell phones costing you more and more because of roaming?

    Costs of calls to mobile phones are higher than for calls to fixed phones. This often represents more than 50% of corporate communications. The QuesCom equipment is an appliance that integrates the enterprise's SIM cards. The cost of each call placed from a fixed phone to a mobile phone is reduced. If the enterprise has a corporate fleet price plan, savings are even more significant. Calls from the office to the workforce's mobile phones are free of charge. So are call transfers to corporate mobile phones. The enterprise optimizes its telecom budget.

- **One Number for voice and fax**

    The solution allows employees to be reached at any time and have a personal fax, accessible with e-mail wherever they are. Only One Number needs to be displayed on your business card! Direct line becomes your One Number, to receive and send your calls and faxes, without requiring a new phone line.

    You receive and send fax by e-mail. QuesCom solution ensures confidentiality of documents and enables you to manage fax remotely. After sending a fax, an acknowledgement is received by email in your inbox.

- **One Number for mobility and convergence**

    One Number delivers optimal availability for fixed and mobile calls. The solution enables one to be reachable at any time with a single number. Employees can benefit from the corporate features on their mobile phones. The company is making cost savings thanks to convergence. Mobile phones become a mobile extension of the UC500.

    The solution also delivers SMS capacity. Either by sending individual SMS from applications like Microsoft Outlook, or linking the SMS sending with a special alert.

    For instance if there is an alarm on a network monitoring tool, the administrator can receive automatically an SMS with error description. Business applications are also possible, such as sending tracking number information to customers for a transportation company.

How does the solution work?

QuesCom 200 allows businesses to migrate smoothly to new FMC technologies (Fixed Mobile Convergence). All communications (fixed, mobile, fax) and services are centrally managed and delivered uniformly to all users.

QuesCom 200 is plug and play. The web interface allows user-friendly administration of the gateway and user accounts and controls your communications.

QuesCom 200 is a true back-up system for the enterprise telecom network. For example, if access to the VoIP operator access is interrupted, the QuesCom 200 can provide a failover link to the GSM network.
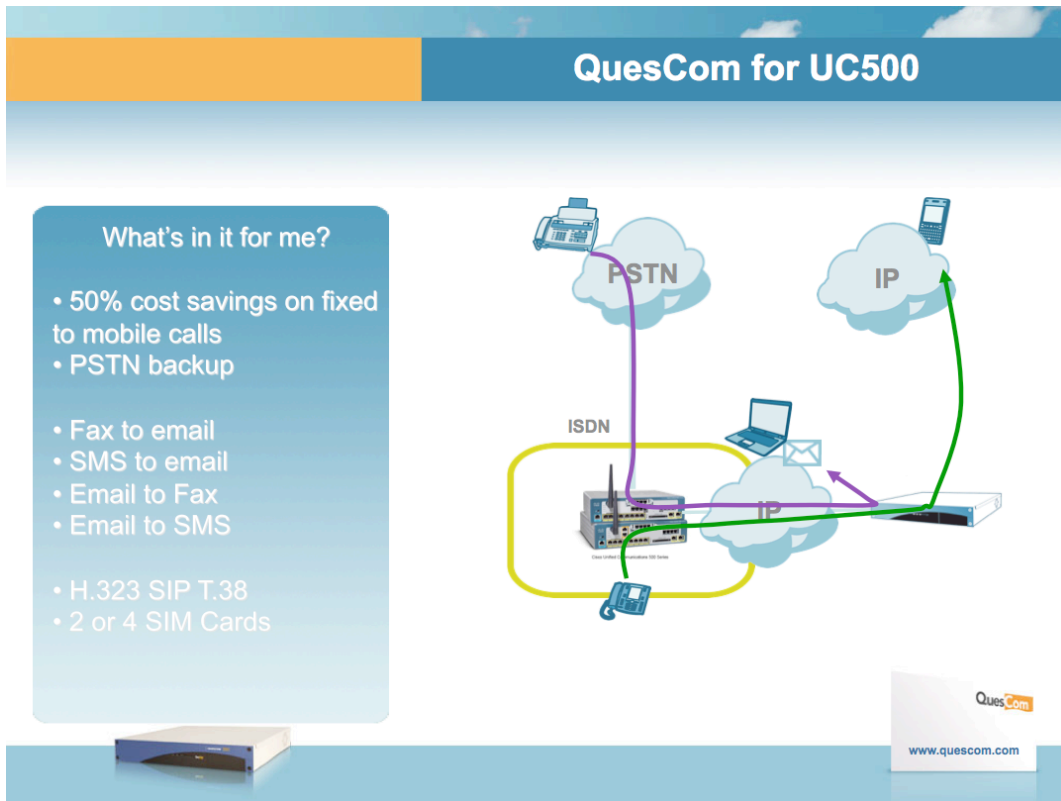
Basic Network Topology

The QuesCom 200 GSM Gateway connects to one of the UC 500 LAN ports, or to an ESW500 switch port. The QuesCom gateway will appear as a SIP Trunk to the UC 500 and calls will be routed to it by using a specific dialing prefix. This means that the end user controls where to send the calls (PSTN or SIP) based on this prefix. Redundancy can also be configured via CCA, so calls that are sent to the GSM network and fail, can be rerouted to the traditional PSTN trunks, or vice versa.
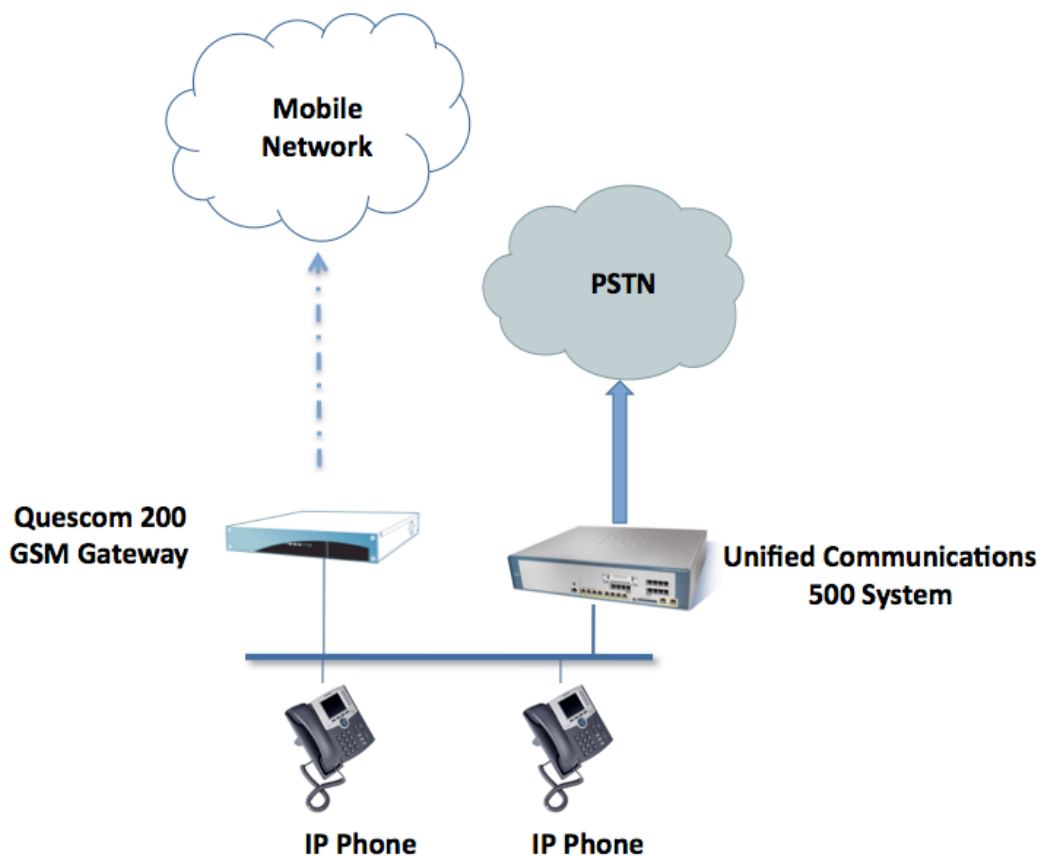
Configuring the QuesCom 200 GSM Gateway

The following are the necessary steps to configure the QuesCom Gateway. To view the complete user manuals, visit http://www.QuesCom.com/

Important: The SIM card (or cards) need to be inserted in the gateway before completing the configuration below.

QuesCom provides a Web Administration Interface to configure and manage the QuesCom gateway. Follow the instructions below to access to the QuesCom Gateway web administration interface.

1) Launch the Microsoft® Internet Explorer 5.5 or above, or the Mozilla Firefox web browser.

2) Enter the URL of the Web Administration Interface of as follows:
http://QuesCom_gateway_IP_address/Qportal

QuesCom_gateway_IP_address stands for the IP address of the QuesCom gateway:

http://192.168.200.145/Qportal

or

http://192.168.200.145:8000
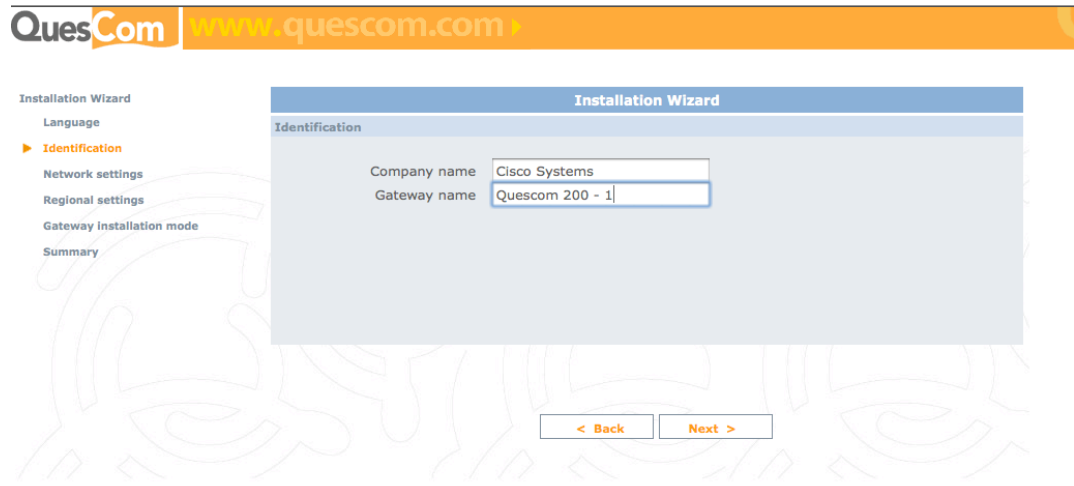
(The TCP port can be modified by administrators if necessary)

3) The Web Administration Interface login page will be displayed 3) Enter the user login and password: **administrator / quescom**. Then, click on the "Enter" button.
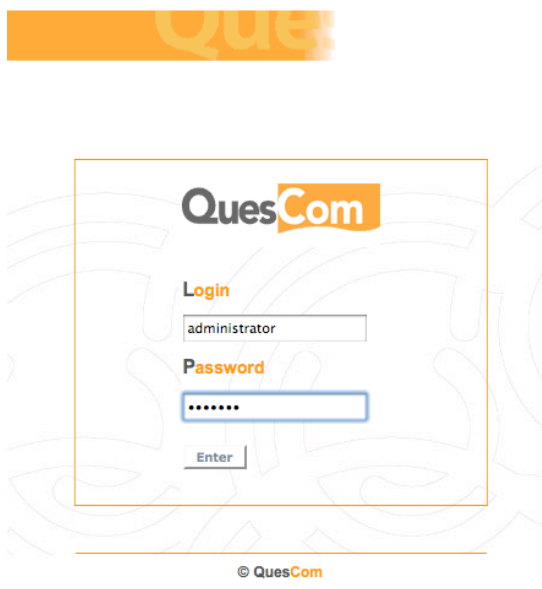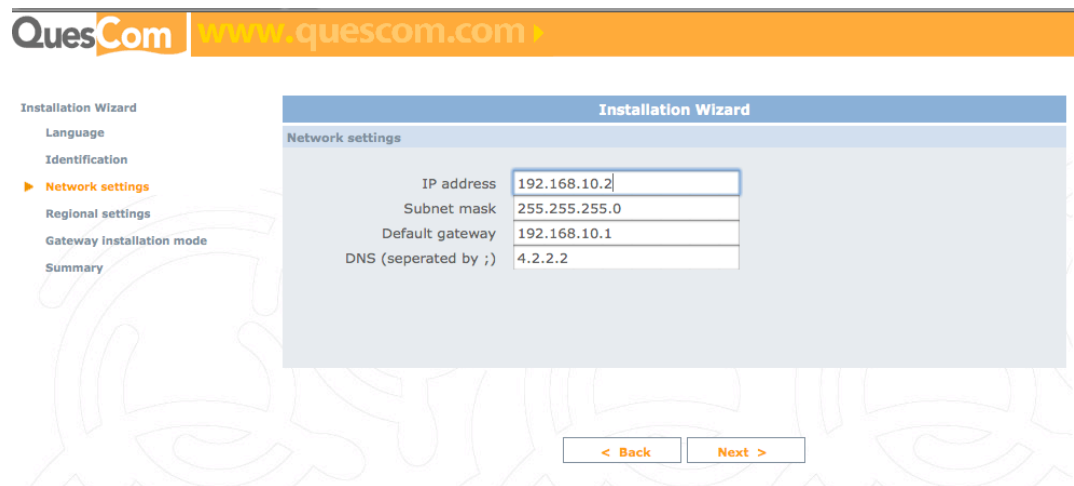
4) On the left hand side, click on **Wizards > Installation** to run the basic setup wizard. If necessary, apply the factory default settings to the system. Run the wizard and select your desired language.
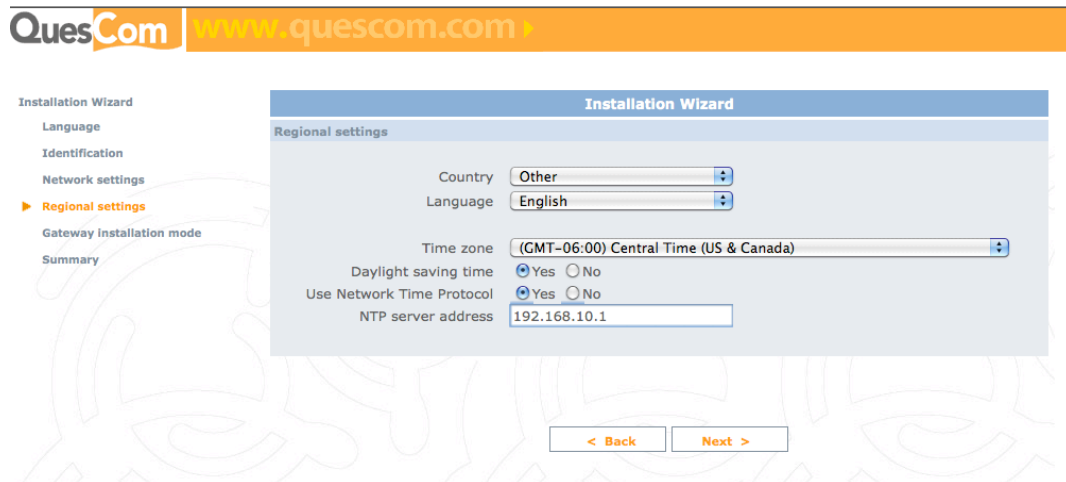
5) Enter the system ID information:

6) Enter the IP address and subnet mask information for the gateway. In this example, we are using an IP address from the static pool of the UC 500 data VLAN, 192.168.10.2/24:
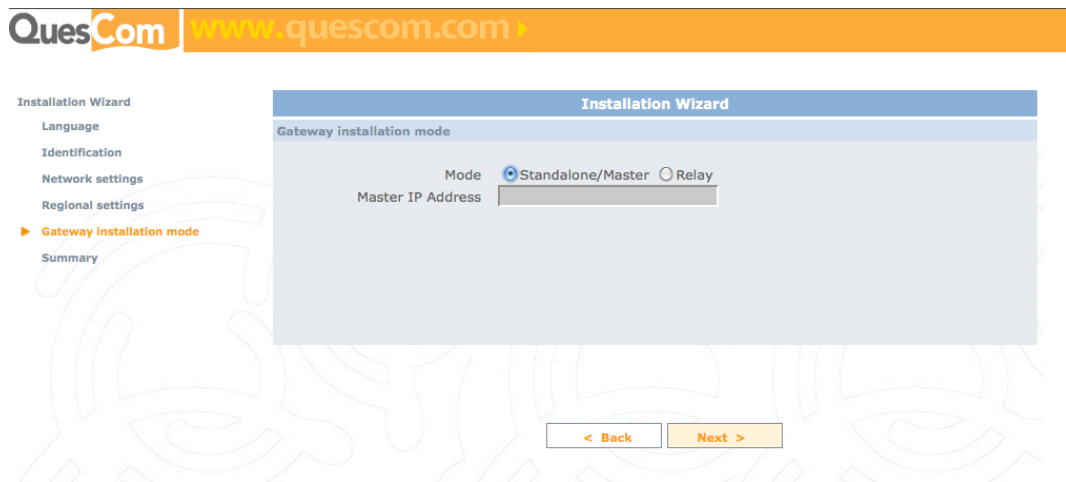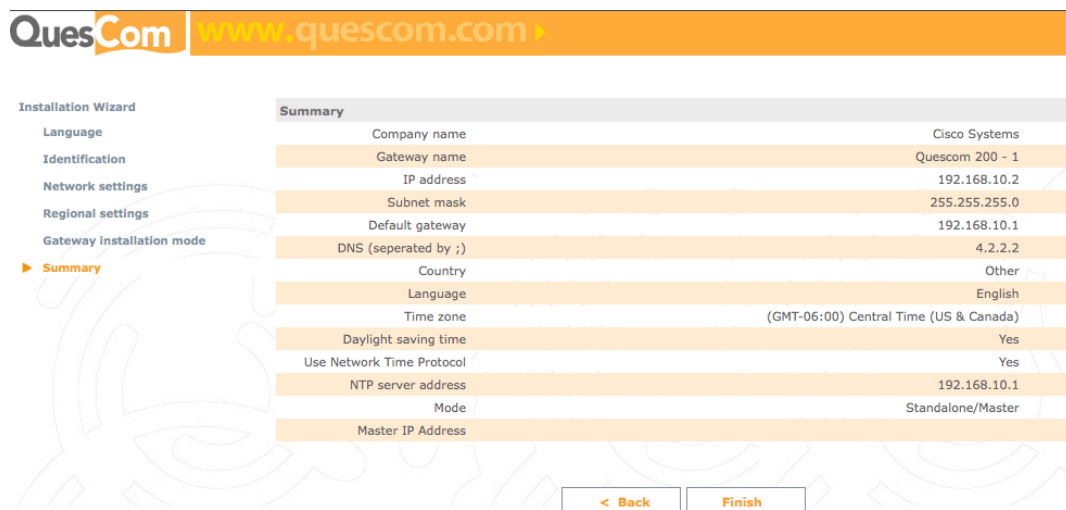

7) Select your region and Network Time Protocol Settings. The UC 500 Data VLAN IP can be used as the main NTP reference:

8) In the next screen, select **Standalone/Master** operation for the GSM gateway:

9) Review the settings and apply the changes to finish the basic installation:

The next series of steps show how to provision the SIP settings so the QuesCom gateway is able to receive calls from the UC 500P:

1) Click on **Wizards >> Configuration**. Remove any existing confoguration, if necessary.

2) In the **Functions Selection** screens, check the **GSM gateway and SMS** checkbox:

3) Next, specify the IP address of the UC 500 that will be sending SIP calls to the QuesCom gateway:

4) Enter the prefix that is required (according to your local dialplan) for cell phone calls. In this example, we are using "1" which is the long distance prefix in the US. Other countries might need different prefixes. This prefix **is not** the same as the access code that will be specified in CCA later:
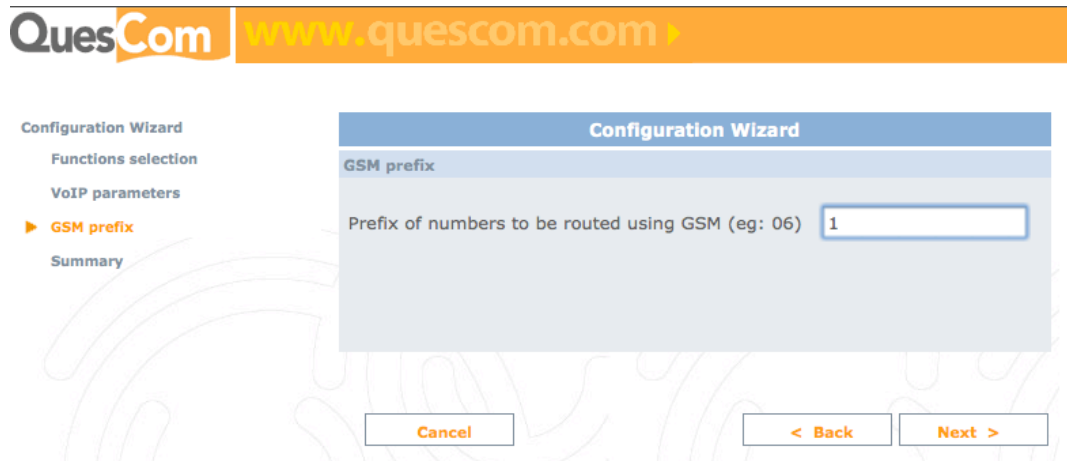
5) Review your settings and apply the changes:
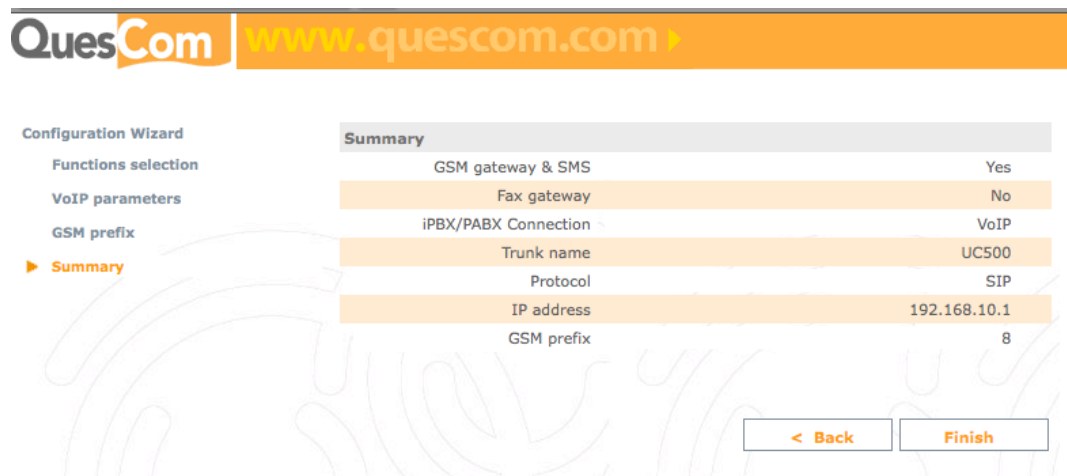
At this point, the gateway is ready to receive calls from the UC 500 and send them to the mobile network accordingly. It is still necessary to configure the UC 500 side, which we will be doing next.

Configuring the UC 500 to send calls to the QuesCom 200 Gateway

The following are the necessary steps to configure the UC 500 in order to send calls to the QuesCom gateway. In this example, calls to the GSM network will use a prefix, number "8", and calls to the regular PSTN will use "9".

1) Open the Cisco Configuration Assistant, CCA, and connect to the UC 500.

2) Navigate to **Trunks >> SIP Trunk**, select "Generic SIP Trunk Provider" and enter the IP address of the QuesCom gateway in the "Proxy Server" field. Notice that registration is not needed against the QuesCom gateway and that a QuesCom 200 device can only handle 2 simultaneous calls. Click **Apply** and then **OK** when done.
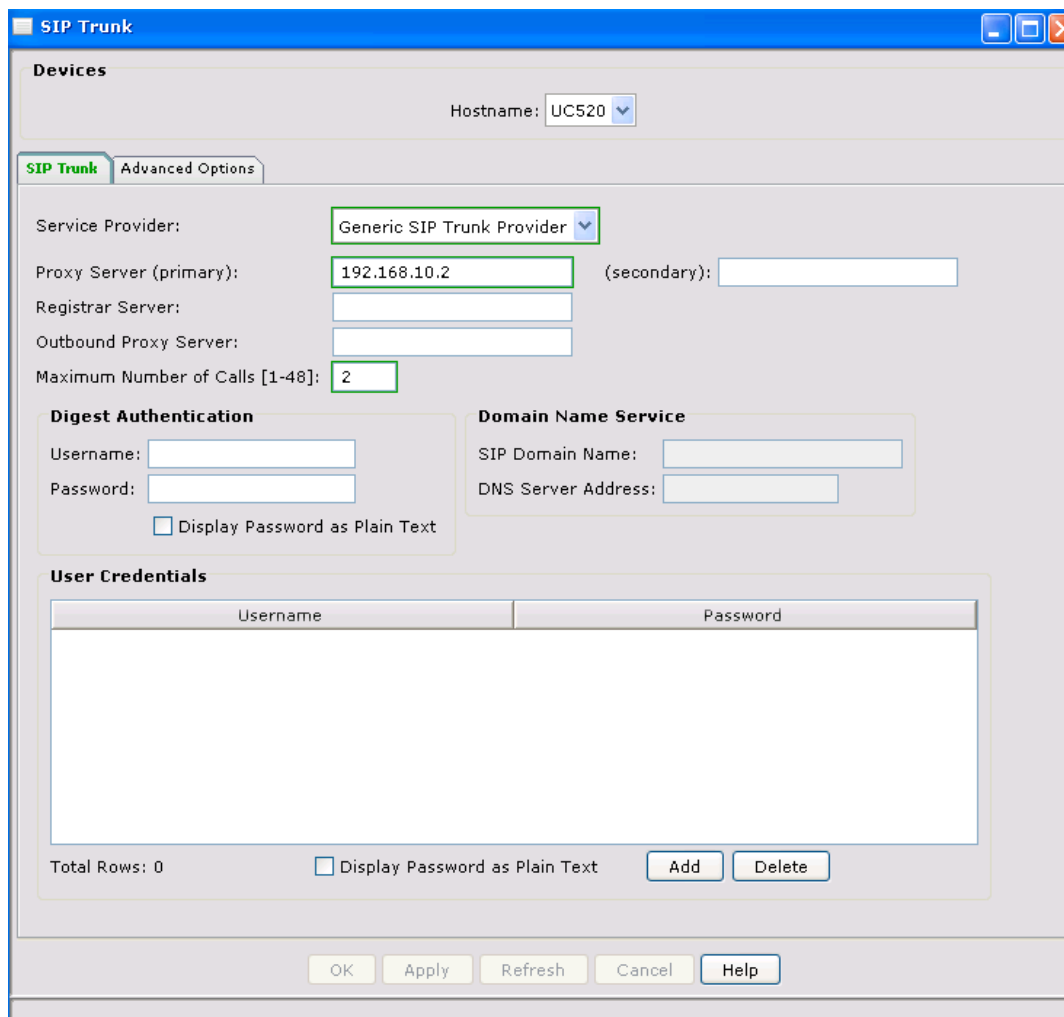
3) Navigate to **Dial Plan >> Outgoing** and load the appropriate dialplan for your region, North America in this example:
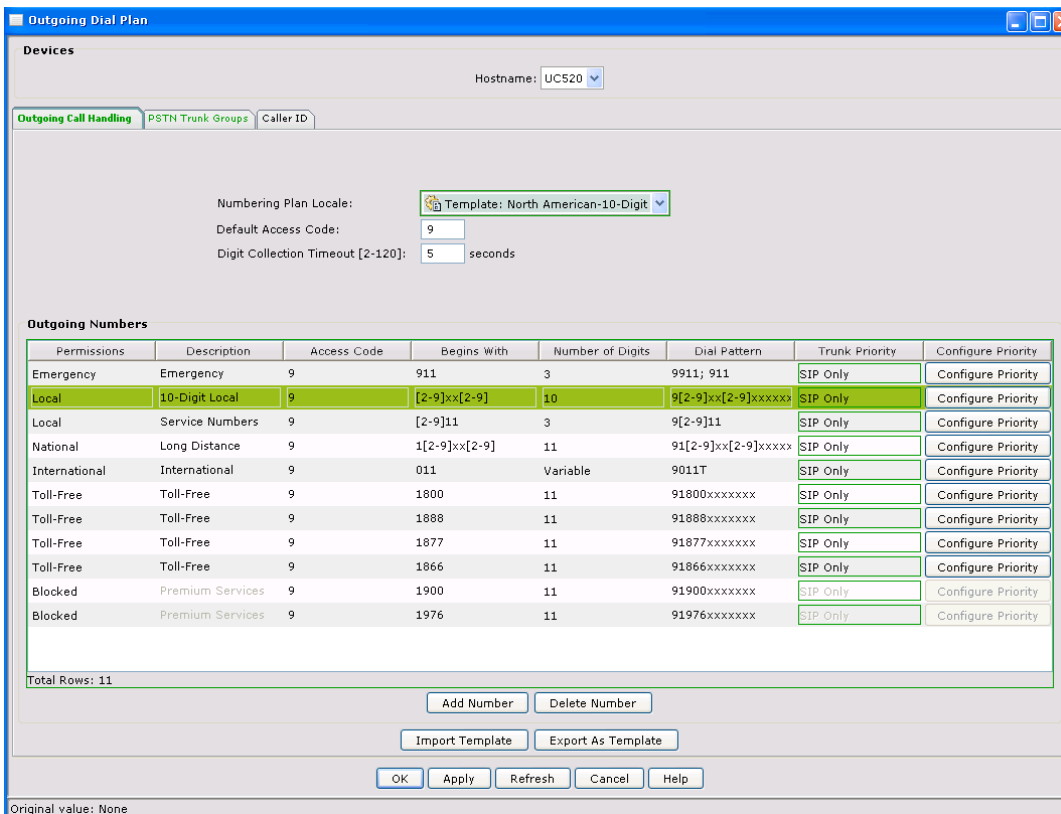
4) Click on **Add Number** to insert the entry for calls to the QuesCom gateway. Ensure that the **Permissions** selection is also correct for the users that will be placing calls through the gateway:
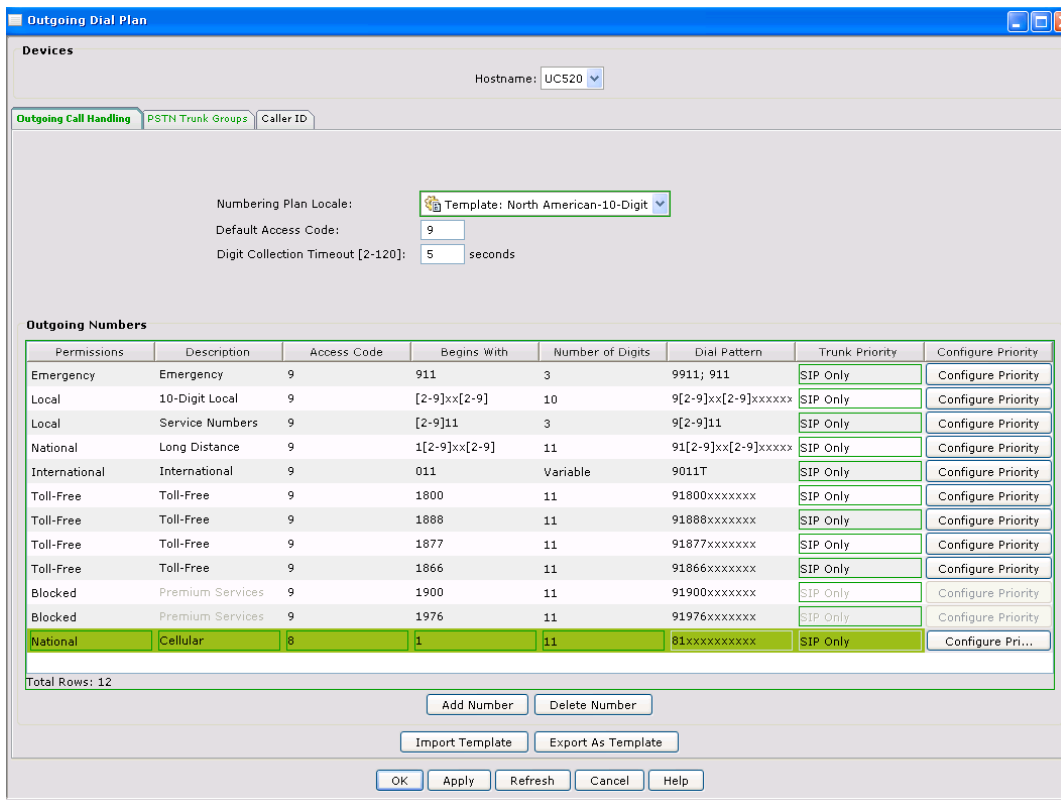
Note: You can change the access code that you will use for calls to the gateway. We are using "8" in this example. Additionally, you will need to change your **Trunk Priority** for all the other **Outgoing Numbers** entries to ensure that other calls are routed to the traditional PSTN via the local UC 500 trunks.

5) Click on the **Configure Priority** button and make sure that the access code is being stripped off the dialed number:
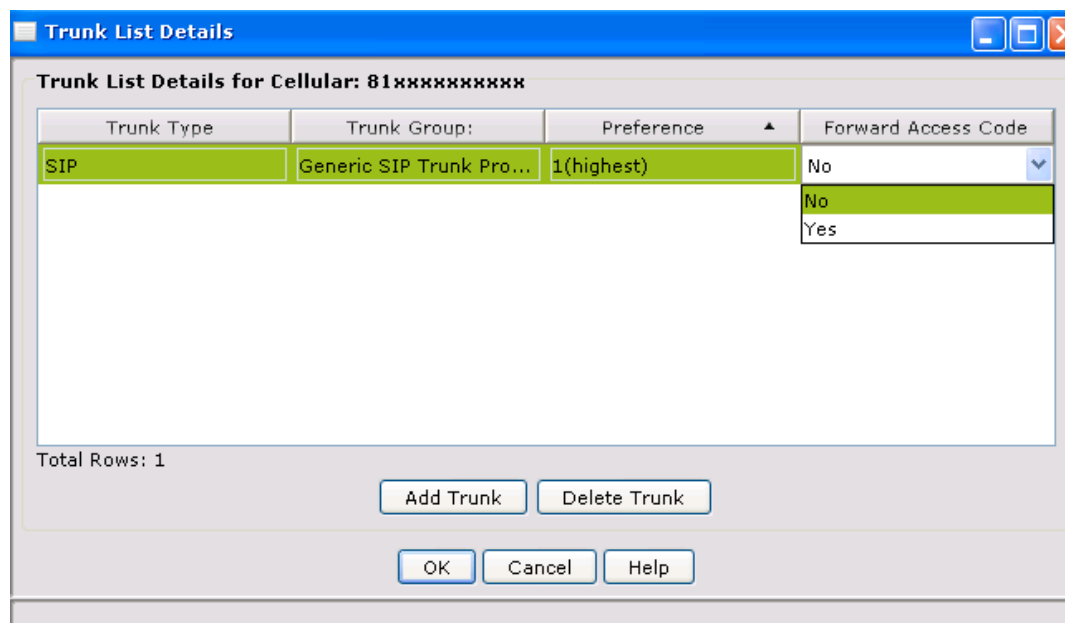
6) Click **OK** and then **OK** again to apply the changes.

At this point, the integration is complete and you can test outgoing calls from an IP phone by dialing 8 followed by the cell phone number, 12223334444 for example.

Caveats and Limitations

The following is a list of known limitations and special considerations for this integration:

- Only one (1) QuesCom Gateway is supported per UC 500 site. This is because CCA currently can only configure one SIP trunk on the UC 500 device.

- Other SIP providers cannot be provisioned on the system if the QuesCom gateway is defined as a SIP Generic Trunk.

- Additional configuration might be needed on the QuesCom gateway in order to adjust parameters such as caller ID, calling name, time of day call routing and load balancing between different mobile operators. Please refer to the QuesCom configuration guides available with your QuesCom gateway.

- Additional configuration is needed to define inbound call routing, i.e. calls made from the mobile network into the QuesCom gateway and then to the UC 500 via the SIP trunk. The deployment guidelines in this document are for outbound calls only, which is the most typical application for which this integration would be used.

Support Information

For more information, visit the SBCS Small Business Support Community at the following URL:

http://www.myciscocommunity.com/community/smallbizsupport

For **Cisco Technical Support information**, please contact the **Small Business Support Center (SBSC)** at

http://www.cisco.com/en/US/support/tsd_cisco_small_business_support_center_contacts.html

For **QuesCom Technical Support**, please contact

http://support.quescom.com/QSupport_GlobalLogin.php