

# APPLICATION NOTE

## How to use Barix SIP Client with Cisco Unified Call Manager

### **About this document**

This document explains how to make a Barix Device with SIP-Client-Firmware (Version 2.12 or higher) registering and working with the Cisco Unified Call Manager (CUCM). It was tested with CUCM V8.6.2.

# 1. Barix Device Preparation

## 1.1. Installation

Install the Barix device according to its Quick Install Guide so that you can connect to the web user interface.

## 1.2. Firmware check/load

Check if the correct application is loaded by clicking the STATUS button in the top menu line. In the third paragraph you should see the following information:

### BCL application:

Name: sip

Version: V2.12 (26 Apr 2012)

If your version is not at least 2.12 then download the SIP client package from the Barix website and load it into the device. (See readme.txt in the package for further information.)

## 1.3. Device Configuration Basic Settings

- In the WebUI click the CONFIGURATION button in the top menu line. (Image)

The screenshot shows the Barix SIP Client web interface. The top navigation bar includes buttons for HOME, PROFILES, CONFIGURATION, STATUS, DEFAULTS, UPDATE, and REBOOT. The CONFIGURATION page is titled "SIP CLIENT" and features the Barix logo "THE VOICE OF SIMPLICITY". The interface is divided into several sections:

- SIP Phone**: A sidebar menu with "Basic Settings" selected.
- BASIC SETTINGS**: A section containing "SIP PROTOCOL SETTINGS", "OUTBOUND CALL SETTINGS", and "INBOUND CALLS".
- SIP PROTOCOL SETTINGS**: Includes "Peer to Peer" (radio buttons for No and Yes, with "No" selected), "SIP Server (PBX)" (text input: 10.0.0.3), "SIP ID (username)" (text input: 9124), and "SIP Password (secret)" (password field: \*\*\*\*).
- OUTBOUND CALL SETTINGS**: Includes "Call on Device Inputs" (Input 0 Call ID: 9226).
- INBOUND CALLS**: Includes "Phone pickup mode" (dropdown: autohang up after timeout) and "Pick/hang up time" (input: 20 seconds).
- Help**: A sidebar on the right providing detailed instructions for each setting.

- In the "Peer to Peer" field select "No"
- In the "SIP Server (PBX)" field enter the IP-address of the Call Manager (e.g. 10.0.0.3)

- In the "SIP ID (username)" field enter the planned extension number of the device (e.g. 9123) \*
- In the "SIP Password (secret)" field enter the planned password (e.g. Pass123) of the End-User
- In the "Input 0 Call ID" field enter the extension number (e.g. 9226) to be called when input 0 is closed (PS1: Button B is pressed). \*\*
- Click "Apply" to save the settings.

\* Later on when configuring the Call Manager you are going to use this extension number for both the "End User" as well as "Directory Number".

\*\* For further inputs/buttons see paragraph "Advanced Settings/Outbound Calls" below.

## 1.4. Device Configuration Advanced Settings

### a) Configuring more inputs/buttons

These settings are optional and only needed if the Barix device used features more than one input or button.

If not, you can jump right down to the next section.

- Click the "Advanced Settings" button in the left menu column
- Click the "Outbound Calls" button in the left menu column
- If you need to configure further inputs/buttons enter the extension numbers accordingly (e.g. 9719)
- Click "Apply" to save the settings.

### b) Configuring Door Open Code

These settings are optional and only needed if the Barix device used features a relay output wired to a door opener.

If not, you can jump right down to the next section.

- Click the "Advanced Settings" button in the left menu column
- Click the "Inbound Calls" button in the left menu column
- Enter code numbers in the "Door Open Code" field (e.g. 123)
- Click "Apply" to save the settings.

NOTE: This code is triggered from the remote phone supporting DTMF via SIP-Info or RTP-payload. DTMF are passed through the Cisco Unified Call Manager without requiring special settings on the server.

## 2. Registration in Cisco Unified Call Manager

Log in to the CM Administration web interface.

### a) Creating your extension number (called "Directory Number" (DN) in CUCM)

- Under "Call Routing" > "Directory Number" click "Add New".
- In the field "Directory Number" type in your extension number (e.g. 9123) as configured in the device.
- Put it into the same "Route Partition" as your other devices.
- Click "Save"

### b) Creating your user (called "End User" in CUCM)

- Under "User Management" > "End User" click "Add New".
- For the "User ID" type in your extension number (e.g. 9123) as configured in the device. (Image)

The screenshot shows the Cisco Unified CM Administration web interface. The page title is "End User Configuration". The navigation menu includes "System", "Call Routing", "Media Resources", "Advanced Features", "Device", "Application", "User Management", "Bulk Administration", and "Help". The "User Information" section contains the following fields:

User ID*	9123
Password	*****
Confirm Password	*****
PIN	
Confirm PIN	
Last name*	End user Barix device
Middle name	
First name	

- Enter the same password as configured in the device (e.g. Pass123) and retype it in the confirmation field.
- Click "Save"

### c) Adding "End User" to the permission group

- Go down on the just saved "End User" page to "Permissions Information".
- Click "Add to The User Group". A popup window opens.
- Click "Find" and choose "Standard CCM End Users" and click "Add Selected".
- Click "Save"

**d) Creating your device at the server**

- Under "Device" > "Phones" click the "Add new" button
- Choose within the "Phone Type" list "Third Party SIP Device (Basic)"
- Click "Next"
- Look up the MAC-address of your Barix device. (It is written at a sticker on your device; for example: MAC: 00-08-E1-02-8B-EE)
- Type in only the numbers and letters from this label to the field "MAC Address"; (e.g. 0008E1028BEE)
- In "Phone Button Template" select "Third-party SIP Device (Basic)".
- In "SIP Profile" select the "Standard SIP Profile".
- In the section "Protocol Specific Information" at "Device Security Profile" choose "Third Party Device SIP Basic - Standard SIP Non-Secure Profile". (Image)

The screenshot shows the Cisco Unified CM Administration interface. The main content area is titled "Protocol Specific Information" and contains the following fields and options:

- Presence Group\*: Standard Presence group
- MTP Preferred Originating Codec\*: 711ulaw
- Device Security Profile\*: Third-party SIP Device Basic - Standard SIP Non-S
- Rerouting Calling Search Space: < None >
- SUBSCRIBE Calling Search Space: < None >
- SIP Profile\*: < None >
- Digest User: 9123
- Media Termination Point Required
- Unattended Port
- Require DTMF Reception

At the bottom of the form, there is a section for "MLPP Information".

- In the same section tick the box "Media Termination Point Required" \*
- Under "Digest User" set it to your "End User" created before (e.g. 9123).
- Click "Save"
- Click "Apply Config"

\* This setting forces the server to provide the SDP (Session Description Protocol) in the first INVITE (early offer) as required by the Barix device. In this case the audio is always routed via the server.

**e) Associating your device with your extension and user**

- In the left corner of the just saved page appears a canvas "Associate Information". Click the link inside "Line [1] - Add a new DN"

- In the field "Directory Number" type in your extension number (e.g. 9123) and go to the next field with the 'Tab'-key of your keyboard.
- The server recognizes the existing number and the data of your extension are going to appear.
- At the end of the page click the button "Associate End Users". A pop-up window appears.
- Click "Find"
- Make a tick to your created user (e.g. 9123).
- Click "Add Selected"
- Click "Close"
- At the End of the page you can check, if your user is associated all right.
- Click "Save"

Now the Barix device should register with the CUCM. It takes a few seconds (up to 120) until the registration is done.

#### **f) Checking the registration**

Checking:

- at the WebUI of the Barix Device: At HOME the registration status is shown in green at the "Time till next Registration", if the device is registered all right.
- At CUCM you can see the "Status" under "Device" > "Phone" clicking "Find". (For example it is: "Registered with 10.0.0.3".)