



CHAPTER 30

PSTN Connection Settings

Impacted GUIs: Cisco Unified Communications Manager Business Edition 3000 First Time Setup Wizard and Cisco Unified Communications Manager Business Edition 3000 Administrative Interface.

The PSTN Connection Settings page allows you to configure additional PSTN connections, or edit or delete existing connections for the Cisco Unified Communications Manager Business Edition 3000 server. [Table 30-1](#) describes the settings on the PSTN Connections page (**Connections > PSTN Connections**). Click **PSTN Connections** to view the existing PSTN connections for the Cisco Unified Communications Manager Business Edition 3000.

Table 30-1 Settings on the PSTN Connections Page

Setting	Description
Edit	Click the Edit link corresponding to the PSTN connection to edit the configuration settings. Click Show Advanced Settings or Hide Advanced Settings to view or edit the advanced settings for the PSTN connection.
Delete	Click the Delete link corresponding to the PSTN connection to delete the existing connection.
Add PSTN Connection	Click Add PSTN Connection to configure a new PSTN connection.
Add PSTN Connection Information	
Connection Type	Select the required connection type from the dropdown list. Select one of the following: - E1 PRI - T1 PRI - T1 CAS Click Next to go to the next screen.

Table 30-1 Settings on the PSTN Connections Page (continued)

Setting	Description
Device Type	Select the required device type: • CUCMBE3000—Select this option for the MCS7890-C1 internal gateway. The device name is auto-filled with internal gateway. Note This option is not available for Cisco MCS7816-15. • ISR2901—Select this option to configure an ISR2901 gateway.
Device	If you select the device type as CUCMBE3000, the device name field is auto-filled. Select the device for the ISR2901 gateway if available. Select Add Device to add a new device for ISR2901 gateway. In the Add ISR2901 Gateway page: • Hostname—Enter a hostname for the device. • IP Settings—Determine how you want the gateway to obtain its IP address. – If you want the gateway to obtain an IP address through DHCP, click Obtain an IP Address Automatically. – To assign a static IP address to the gateway, click Use the following IP address and enter the IPv4 address, the subnet mask, and the default gateway. The IP address, subnet mask, and default gateway must be in the format ddd.ddd.ddd.ddd where ddd is a value between 0 and 255 (except 0.0.0.0). • To enable DNS for the gateway, check the Enable DNS resolution check box and enter the primary and secondary DNS servers. The IP addresses of primary and secondary DNS servers must be in the format ddd.ddd.ddd.ddd where ddd is a value between 0 and 255 (except 0.0.0.0). Note For DNS, make sure that you map the IPv4 address of the Cisco Unified Communications Manager Business Edition 3000 server to the hostname on the DNS server. Cisco recommends that you update the DNS server before you change the hostname or IP address on the Network page. Click Add to add a device for the gateway. The newly configured device is selected. Click Cancel to cancel the configuration and return to the previous page. Click Next to go to Provider section.

Table 30-1 Settings on the PSTN Connections Page (continued)

Setting	Description
Service Provider	Specifies the service provider who adequately supports Cisco Unified Communications Manager Business Edition 3000 server. The service provider provides a list of attributes for specific connection settings and the default layout for the respective Connection Settings page. The following are the service providers for PRI or CAS: • Cisco Digital Access E1 PRI (if the Connection Type is E1 PRI) • Cisco Digital Access T1 PRI (if the Connection Type is T1 PRI) • Cisco Digital Access T1 CAS (if the Connection Type is T1 CAS) Click Next to go to the Connection Settings page.
Configure Connection Settings > General Information	
Connection Name	Displays the name of the PSTN connection.
Description	Displays the description provided for the PSTN connection. You can enter a new description if required.
Connection Type	Displays the type of PSTN connection.
Device Type	Displays the type of the gateway device.
Device Name	Displays the name of the gateway.
Device Port	Select the required port for the gateway device from the drop down list.
Configure Connection Settings > Connection Settings Information	
Protocol Type	Select the communications protocol type for the PSTN connection. E1 PRI provides two options: • PRI EURO • PRI AUSTRALIAN T1 PRI spans provide several options, depending on the carrier or switch. Determine the switch to which you are connecting and the preferred protocol.

Table 30-1 Settings on the PSTN Connections Page (continued)

Setting	Description
Show Advanced Settings/Hide Advanced Settings	
Configure Connection Settings > Interface Settings	
Protocol Side	This setting specifies whether the gateway connects to a Network device or to a User device. Make sure that the two ends of the PRI connection use opposite settings. For example, if you connect to a PBX and the PBX uses User as its protocol side, select Network for this device. Typically, use User for this option for central office connections. Note This option is available for E1 PRI and T1 PRI connection types. The option is not available for T1 CAS connection types.
Clock	Select Internal or External for the clock source.
PCM Type	Specify the digital encoding format. Select one of the following formats: - a-law—Use for Europe and other countries, except North America, Hong Kong, Taiwan, and Japan - mu-law—Use for North America, Hong Kong, Taiwan, and Japan
Line Coding For T1 CAS, this option is in Product Specific Configuration Layout section.	Select whether the line coding is: - For Connection type E1 PRI: - High Density Bi-polar 3 (HDB3) - Alternate mark inversion (AMI) - For Connection type T1 PRI: - Binary 8-zero substitution (B8ZS) - Alternate mark inversion (AMI) - For Connection type T1 CAS: - Binary 8-zero substitution (B8ZS) - Alternate mark inversion (AMI)

Table 30-1 Settings on the PSTN Connections Page (continued)

Setting	Description
Framing For T1 CAS, this option is in Product Specific Configuration Layout section.	Select the multiframe format of the span from one of the following: - For Connection type E1 PRI: - Cyclic Redundancy Check 4 (CRC4) - Non Cyclic Redundancy Check 4 - For Connection type T1 PRI: - Extended Superframe Format (ESF) - Superframe Format (SF) - For Connection type T1 CAS: - Extended Superframe Format (ESF) - Superframe Format (SF)
Echo Cancellation For T1 CAS, this option is in Product Specific Configuration Layout section.	Select whether to enable or disable echo cancellation.
Coverage (ms) For T1 CAS, this option is in Product Specific Configuration Layout section.	If an issue occurs with echo cancellation, select a value to address the issue. Choose one of the following values: 24 32 48 64 128 (available with MCS7890-C1 internal gateway only) Note This option is available only if echo cancellation is enabled.
Channel Selection Order	Select the order in which channels or ports are enabled from first (lowest number port) to last (highest number port), or from last to first. Valid entries include TOP DOWN (first to last) or BOTTOM UP (last to first). If you are not sure which port order to use, select TOP DOWN. Note This option is available for E1 PRI and T1 PRI connection types. The option is not available for T1 CAS connection types.

Table 30-1 Settings on the PSTN Connections Page (continued)

Setting	Description
Channel IE Type	Select one of the following values to specify whether channel selection is presented as a channel map or a slot map: • Timeslot Number—B-channel usage always indicates actual time slot map format (such as 1-15 and 17-31 for E1). • Slotmap—B-channel usage always indicates a slot map format. • Use Number When 1B—Channel usage indicates a channel map for one B-channel but indicates a slot map if more than one B-channel exists. • Continuous Number—Configures a continuous range of slot numbers (1-30) as the E1 logical channel number instead of the noncontinuous actual time slot number (1-15 and 17-31). Note This option is available for E1 PRI and T1 PRI connection types. The option is not available for T1 CAS connection types.
Delay for First Restart (Ticks)	Enter the rate at which the spans are brought in service. The delay occurs when many PRI spans are enabled on a system and the Inhibit Restarts at PRI Initialization check box is unchecked. For example, set the first five cards to 0 and set the next five cards to 16. (Wait 2 seconds before bringing them in service.) Note This option is available for E1 PRI and T1 PRI connection types. The option is not available for T1 CAS connection types.
Delay between restarts (ticks)	Enter the time between restarts. The delay occurs when a PRI RESTART is sent if the Inhibit Restarts check box is unchecked. Note This option is available for E1 PRI and T1 PRI connection types. The option is not available for T1 CAS connection types.

Table 30-1 Settings on the PSTN Connections Page (continued)

Setting	Description
Inhibit Restarts at PRI Initialization	This setting allows you to change the amplitude of the voice signal coming into the gateway created by adjusting the decibel level of the signal. You can increase the volume of a signal coming into the gateway by either increasing input gain or decreasing attenuation. You can decrease the volume of the incoming signal by either decreasing the input gain value or increasing the output attenuation. The minimum value is –6, and the maximum value is 14. Note This option is available for E1 PRI and T1 PRI connection types. The option is not available for T1 CAS connection types.
Enable G. Clear	Check this check box to enable G. Clear Codec support. Checking this check box causes echo cancellation and zero suppression for outbound calls to be disabled. Note This option is available for E1 PRI and T1 PRI connection types. The option is not available for T1 CAS connection types.
Transmit UTF-8 for Calling Party Name	If you check the Transmit UTF-8 for Calling Party Name check box, the gateway sends unicode for the calling party name. Note This option is available for E1 PRI and T1 PRI connection types. The option is not available for T1 CAS connection types.

Configure Connection Settings > PRI-Specific Settings

Note This information is applicable for E1 PRI and T1 PRI connection types only.
The option is not available for T1 CAS connection types.

Display IE Delivery	Check the check box to enable delivery of the display information element (IE) in SETUP and NOTIFY messages (for DMS protocol) for the calling and connected party name delivery service.
Redirecting Number IE Delivery–Inbound	Check this check box to indicate the first redirecting number and the redirecting reason of the call when the call is forwarded. (The UUIE part of the outgoing SETUP message from the Cisco Unified Communications Manager Business Edition 3000 includes the Redirecting Number IE.) Uncheck the check box to exclude the first redirecting number and the redirecting reason. You use Redirecting Number IE for voice-messaging integration only. If your configured voice-messaging system supports Redirecting Number IE, check the check box.

Table 30-1 Settings on the PSTN Connections Page (continued)

Setting	Description
Redirecting Number IE Delivery–Outbound	Check this check box to accept the Redirecting Number IE in the incoming SETUP message to the Cisco Unified Communications Manager Business Edition 3000. (The UUIE part of the SETUP message includes the Redirecting Number IE.) Uncheck the check box to exclude the Redirecting Number IE. You use Redirecting Number IE for voice-messaging integration only. If your configured voice-messaging system supports Redirecting Number IE, you should check the check box.
Setup non-ISDN Progress Indicator IE Enable	Check this check box only if users are not receiving ringback tones on outbound calls. When this check box is checked, the Cisco Unified Communications Manager Business Edition 3000 sends Q.931 Setup messages out digital (that is, non-H.323) gateways with the Progress Indicator field set to non-ISDN. This message notifies the destination device that the gateway is non-ISDN and that the destination device should play in-band ringback. This problem usually associates with a Cisco Unified Communications Manager Business Edition 3000 that connect to PBXs through digital gateways.
Configure Connection Settings > Outbound Call Routing Information	
Note This information is available for E1 PRI and T1 PRI connection types. The option is not available for T1 CAS connection types.	
Calling Party Presentation	Select whether you want the Cisco Unified Communications Manager Business Edition 3000 to allow or restrict the display of the calling party phone number. • Default—If you do not want to change the calling line ID presentation • Allowed—To indicate that the “Calling Line ID is Allowed” on outbound calls • Restricted—To indicate that “Calling Line ID is Restricted” on outbound calls

Table 30-1 Settings on the PSTN Connections Page (continued)

Setting	Description
Calling Party Selection	Any outbound call on a gateway can send directory number information. Select which directory number is sent. Select one of the following options: • Originator—Send the directory number of the calling device. • First Redirect Number—Send the directory number of the redirecting device. • Last Redirect Number—Send the directory number of the last device to redirect the call. • First Redirect Number (External)—Send the directory number of the first redirecting device with the external phone mask applied. • Last Redirect Number (External)—Send the directory number of the last redirecting device with the external phone mask applied.
Called Party IE Type Unknown	Select the format for the number type in called party directory numbers. Cisco Unified Communications Manager Business Edition 3000 sets the called directory number (DN) type. Cisco recommends that you do not change the default value unless you have advanced experience with dialing plans such as NANP or the European dialing plan. You may need to change the default in Europe because Cisco Unified Communications Manager Business Edition 3000 does not recognize European national dialing patterns. You can also change this setting when you are connecting to a PBX that expects the called directory number to be encoded to a non-national type numbering plan. Select one of the following options: • Cisco Unified Communications Manager—Use when the Cisco Unified Communications Manager Business Edition 3000 sets the directory number type. • Unknown—Use when the dialing plan is unknown. • National—Use when you are dialing within the dialing plan for your country. • International—Use when you are dialing outside the dialing plan for your country. • Subscriber—Use when you are dialing a subscriber by using a shortened subscriber number.

Table 30-1 **Settings on the PSTN Connections Page (continued)**

Setting	Description
Calling Party IE Type Unknown	Select the format for the number type in calling party directory numbers. Cisco Unified Communications Manager Business Edition 3000 sets the calling directory number (DN) type. Cisco recommends that you do not change the default value unless you have advanced experience with dialing plans such as NANP or the European dialing plan. You may need to change the default in Europe because Cisco Unified Communications Manager Business Edition 3000 does not recognize European national dialing patterns. You can also change this setting when you are connecting to a PBX that expects the calling directory number to be encoded to a non-national type numbering plan. Select one of the following options: • Cisco Unified Communications Manager—Use when the Cisco Unified Communications Manager Business Edition 3000 sets the directory number type. • Unknown—Use when the dialing plan is unknown. • National—Use when you are dialing within the dialing plan for your country. • International—Use when you are dialing outside the dialing plan for your country. • Subscriber—Use when you are dialing a subscriber by using a shortened subscriber number.

Table 30-1 **Settings on the PSTN Connections Page (continued)**

Setting	Description
Called Numbering Plan	Select the format for the numbering plan in called party directory numbers. Cisco Unified Communications Manager Business Edition 3000 sets the called DN numbering plan. Cisco recommends that you do not change the default value unless you have advanced experience with dialing plans such as NANP or the European dialing plan. You may need to change the default in Europe because Cisco Unified Communications Manager Business Edition 3000 does not recognize European national dialing patterns. You can also change this setting when you are connecting to PBXs by using routing as a non-national type number. Select one of the following options: • Cisco Unified Communications Manager—Use when the Cisco Unified Communications Manager Business Edition 3000 sets the Numbering Plan in the directory number. • ISDN—Use when you are dialing outside the dialing plan for your country. • National Standard—Use when you are dialing within the dialing plan for your country. • Private—Use when you are dialing within a private network. • Unknown—Use when the dialing plan is unknown.

Table 30-1 Settings on the PSTN Connections Page (continued)

Setting	Description
Calling Numbering Plan	Select the format for the numbering plan in calling party directory numbers. Cisco Unified Communications Manager Business Edition 3000 sets the calling DN numbering plan. Cisco recommends that you do not change the default value unless you have advanced experience with dialing plans such as NANP or the European dialing plan. You may need to change the default in Europe because Cisco Unified Communications Manager Business Edition 3000 does not recognize European national dialing patterns. You can also change this setting when you are connecting to PBXs by using routing as a non-national type number. Select one of the following options: • Cisco Unified Communications Manager—Use when the Cisco Unified Communications Manager Business Edition 3000 sets the Numbering Plan in the directory number. • ISDN—Use when you are dialing outside the dialing plan for your country. • National Standard—Use when you are dialing within the dialing plan for your country. • Private—Use when you are dialing within a private network. • Unknown—Use when the dialing plan is unknown.
Configure Connection Settings > Sound Settings	
Input Gain (dB) Note For T1 CAS, this option is in Product Specific Configuration Layout section.	This allows you to change the amplitude of the voice signal coming into the gateway created by adjusting the decibel (dB) level of the signal. You can increase the volume of a signal coming into the gateway by either increasing input gain or decreasing attenuation. You can decrease the volume of the incoming signal by either decreasing the input gain value or increasing the output attenuation. The minimum value is –6, and the maximum value is 14.
Output Attenuation (dB) Note For T1 CAS, this option is in Product Specific Configuration Layout section.	Attenuation is measured in decibels, and the lower the number, the better the voice quality. Adjust the attenuation and input gain values to achieve maximum voice quality. The minimum value is –6, and the maximum value is 14.
Output Level (dB) Note This option is available only for T1 PRI and T1 CAS connections.	This option sets the attenuation of the signal before it enters the line. To reduce the line loss set the output level to 0, –7.5, or –15 dB.

Table 30-1 Settings on the PSTN Connections Page (continued)

Setting	Description
DTMF for 2833 Note This option is available only for T1 PRI and T1 CAS connections.	Note This feature is available for MCS7890-C1 internal gateway only.
Configure Connection Settings > PRI Channels Information (for E1 PRI and T1 PRI connections only)	
Enable All Channels	If you leased the entire PRI span from your service provider, check this check box. For E1 PRI connection type, the channel range available is from 1 to 32 lines. For T1 PRI and T1 CAS connection types, the channel range is from 1 to 24 lines.
Enable Channel Ranges	If you did not lease the entire PRI span from your service provide, enter the partial channel range that is available for use. Enter commas to separate the ranges; for example, 6-8, 10-12. Note You can use up to five partial PRI channel ranges, beyond which you will have to lease the entire channel range.
Configure Connection Settings > Channel Configuration Information (for T1 CAS connections only)	
Channel Range	Specifies the channel range available for TI CAS connection type. Enter channels with dashes to specify ranges and commas to separate values, for example, 1-5,7,12. A maximum of 24 channels can be configured.
Expected Digits	Specifies the number of digits the user dials to place a call through the PSTN connection. The Cisco Unified Communications Manager Business Edition 3000 communicates this number to the Cisco Unified Communications Manager. This field works in tandem with the Extension Length field on the Dial Plan settings, which tells the Cisco Unified Communications Manager how many of the expected digits are significant.
Signaling type	Select one of the following: - Wink Start - Delay Dial

Click **Finish** to complete adding a PSTN connection to Cisco Unified Communications Manager Business Edition 3000 server.

