



Cisco BTS 10200 Softswitch Call Park and Directed Call Pickup Features for SIP Endpoints Feature Module

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This document describes several business features for SIP endpoints in Release 6.0.x of the Cisco BTS 10200 Softswitch and explains how to provision them. These features are available to Centrex subscribers only, including subscribers that are members of both a Centrex group and a multiline hunt group (MLHG).

The specific features covered in this document are

- Call Park (CPRK)
- Call Retrieve (CPRK-RET)
- Directed Call Pickup Without Barge-in (DPN)
- Directed Call Pickup with Barge-in (DPU)

These features are similar to the existing support that is provided for network-based call signaling (NCS) and MGCP endpoints as described in [Chapter 3, “Subscriber Features,”](#) of the *Cisco BTS 10200 Softswitch Network and Subscriber Feature Descriptions* document.

For information on CALEA interaction with Centrex and MLHG feature, see the *Cisco BTS 10200 CALEA Interaction with Centrex and MLHG Feature* section of the *Cisco BTS 10200 Softswitch Network and Subscriber Feature Descriptions* document.

Feature Behavior of SIP Endpoints

The feature behavior of SIP endpoints is similar to the behavior of MGCP and NCS-based endpoints, but there can be a difference. The difference in behavior is due to the SIP Media Terminal Adapter (MTA) or phone device used, but it does not affect the performance of Cisco BTS 10200 Softswitch.



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Prerequisites for SIP Endpoints

In order to deliver the CPRK, CPRK-RET, DPN, and DPU features on the Cisco BTS 10200 and SIP endpoints, the following must be met:

- If a subscriber presses the # key and the SIP-based MTA does not send the extension number in a SIP message to the Cisco BTS 10200, the Cisco BTS 10200 does not park the call on the subscriber's extension. If the MTA sends the subscriber's extension number, the Cisco BTS 10200 parks the call on the parking extension (subscriber's extension) number.
- If the parking party tries to park a call on his or her own extension by hanging up, the end point puts the parking party's extension in the SIP message to Cisco BTS 10200.
- If the Cisco BTS 10200 sends a SIP error response to a SIP-based MTA on a request for call park, the MTA is responsible of playing a reorder tone.
- For all of the features listed in this section (CPRK, CPRK-RET, DPN, and DPU)
 - The SIP endpoint must support en-bloc signaling. En-bloc means that the endpoint delivers both the VSC and the dialed directory number (DN) in a single string.

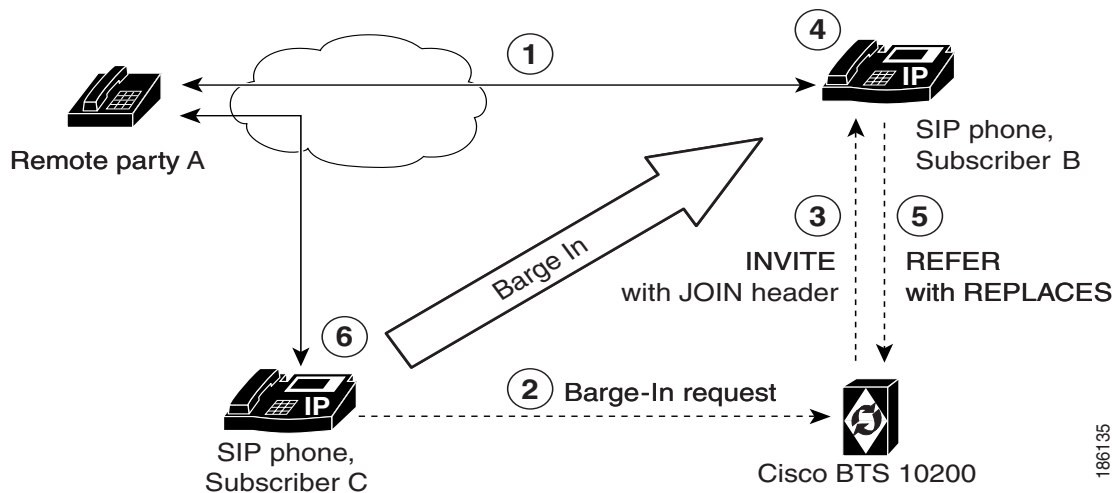


Note

This is different from the case of an MGCP/NCS endpoint. In that case the end user dials the VSC, the system returns a tone, and then the end user dials the DN.

- For these features to work for all of the subscribers in the group, you must provision the [REFER feature](#) for those subscribers.
- If the end user performs an invalid action, for example, the end user dials an invalid extension after the VSC or dials a VSC for a feature that is not assigned the line, the Cisco BTS 10200 sends an error message to the SIP endpoint. It is the responsibility of the SIP endpoint to play the reorder tone to the end user.
- For CPRK
 - A REFER request with VSC must be supported on the SIP endpoint.
 - The SIP endpoint must be capable of playing a confirmation tone.
- For DPU, the following prerequisites apply to the barged-in-upon SIP endpoint (shown as Subscriber B in [Figure 1](#)):
 - For the barged-in-upon SIP endpoint to be able to accept the barge-in request, it must support the JOIN header (based on RFC 3911).
 - The SIP endpoint must be capable of playing a barge-in tone to the users to indicate the call has been barged in to. This tone must be played when the SIP endpoint receives an INVITE message with the JOIN header, and before the SIP endpoint sends the success response back to the Cisco BTS 10200.
 - SIP MTA must be capable of handling REFER failure or REFER reject sent from the Cisco BTS 10200 and must be capable of sending a RE-INVITE to the Cisco BTS 10200 to connect the called and calling parties, prior to the call park attempt is made. For example, if a call is already parked on an extension and an attempt to park another call is made, the REFER request fails and the call made prior to the call park initiation is restored.
 - The SIP endpoint must support the REFER message with REPLACES header. This header is required for establishing a two-way call between the other two parties when the endpoint hangs up during a three-way call. This process is illustrated in [Figure 1](#).

Figure 1 Barge-In Process



Notes for Figure 1

1. Remote party A and Subscriber B are in a stable call.
2. Subscriber C wants to barge in to the call on the Subscriber B side and sends a barge-in request to the Cisco BTS 10200.
3. The Cisco BTS 10200 sends an INVITE message with a JOIN header to Subscriber B.
4. Subscriber B plays a barge-in tone to its own headset and then sets up a three-way call. (The ability to play the tone and the ability to set up the three-way call are both in the SIP phone.)
5. If Subscriber B hangs up, a REFER message with a REPLACES header to the Cisco BTS 10200 is sent.
6. The Cisco BTS 10200 sets up a two-way call between Subscriber A and Subscriber C, just as it would if this were an attended call transfer.



Note

If Subscriber B does *not* hang up, but Subscriber A or Subscriber C hangs up, Subscriber B continues in a two-way call with the remaining party.

Limitation on JOIN Header

As shown in Figure 1, the Cisco BTS 10200 can send the JOIN header in an outbound Invite message. However, the Cisco BTS 10200 does not support the JOIN header on inbound messages.

Provisioning

You provision the CPRK, CPRK-RET, DPU, and DPN features for SIP endpoints as you would if you were provisioning for MGCP/NCS endpoints, as described in the “Feature Provisioning” chapter of the Cisco BTS 10200 Softswitch Provisioning Guide. However, you must also provision the REFER feature for all members of the group.

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