



Cisco BTS 10200 Softswitch Site Preparation and Network Communications Requirements

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This document explains the requirements for site preparation and network communications. Use this document when you are preparing to install the hardware and network connections for the Cisco BTS 10200 Softswitch at your central office. Before you install your Cisco BTS 10200 Softswitch, verify that you have met all of these requirements. If you have any questions, contact your Cisco account team.

Feature History

Release	Modification
Release 5.0	This document contains all of the information that was in the Release 4.5.x version. It includes a reference to the internal secondary authoritative DNS server (ISADS), which was introduced in Release 4.5.1.

This document includes the following sections:

- [Safety and Compliance, page 1](#)
- [Site Preparation, page 2](#)
- [Network Communication Reliability Requirements, page 3](#)
- [Demarcation Points, page 5](#)

Safety and Compliance

The Cisco BTS 10200 Softswitch software runs on Cisco approved Sun Microsystems servers. For applicable safety and compliance information, go to www.sun.com and navigate to the server documentation for your specific server. Carefully review all safety and compliance information, and also follow all safety and compliance requirements that have been established at your specific site.

For the Catalyst Fast Ethernet Switches that are part of the system hardware, use the safety and compliance information available at www.cisco.com.



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**Note**

The list of Cisco approved hardware is provided in the *Cisco BTS 10200 Softswitch Release Notes* applicable to the release of software you are ordering from Cisco.

If you need any assistance in locating this information, contact your Cisco account team.

Site Preparation

This section describes the installation site requirements for the Cisco BTS 10200 Softswitch. (The installation procedures are provided separately.) This section includes the following topics:

- [Required Facilities and Interoperability Planning, page 2](#)
- [Site Environmental and Power Requirements, page 2](#)
- [Cabling Procedures, page 3](#)
- [Network Data Definition, page 3](#)

Required Facilities and Interoperability Planning

The Cisco BTS 10200 Softswitch interfaces with a variety of network elements (NEs) using various protocols. The facilities connecting the Cisco BTS 10200 Softswitch to these NEs are customer supplied.

The Cisco BTS 10200 Softswitch interworks with a wide range of NEs, but there are certain limitations. We recommend that you keep the following caution in mind as you prepare to purchase and use NEs for your network.

**Caution**

Some Cisco BTS 10200 Softswitch features involve the use of other NEs deployed in the service provider network, for example, gateways, media servers, announcement servers, embedded multimedia terminal adapters (eMTAs), H.323 end points, and SIP phones. See the “[Component Interoperability](#)” section of the *Release Notes* document for a complete list of the specific peripheral platforms, functions, and software loads that have been used in system testing for interoperability with the Cisco BTS 10200 Softswitch Release 5.0 software. Earlier or later releases of platform software might be interoperable and it might be possible to use other functions on these platforms. That list certifies only that the required interoperation of these platforms, the functions listed, and the protocols listed have been successfully tested with the Cisco BTS 10200 Softswitch.

Site Environmental and Power Requirements

The environmental and power requirements for installation of the Cisco BTS 10200 Softswitch are documented in the *Cisco BTS 10200 Softswitch Building Environment and Power Site Survey* document, available from your Cisco account team.

The environmental and power specifications for the Cisco-approved Sun Microsystems servers are provided directly by Sun Microsystems. For applicable specifications, as well as safety and compliance information, see the Sun documentation supplied with your equipment, or go to www.sun.com and navigate to the server documentation for your server. For specifications applicable to the Catalyst Fast Ethernet Switches, see the specifications available at www.cisco.com.

**Caution**

We strongly recommend that you use uninterruptible power for both AC and DC systems. The uninterruptible supply should be engineered to support system operation through any possible power interruption.

**Caution**

For DC-powered installations, the power must come from two separate dedicated DC branches (redundant A and B feeds) for each DC-powered Cisco BTS 10200 Softswitch. For AC-powered installations, two separate (redundant) circuits are required. The AC circuits must be sourced from separate transformer phases on separate breakers so that a single breaker trip does not disable both.

Cabling Procedures

The procedures for installing the intershelf cables (those that connect the various host machines and Ethernet switches within the Cisco BTS 10200 Softswitch) are documented in *Cisco BTS 10200 Softswitch Cabling and IRDP Procedures*. If you purchased your hardware as part of a complete integrated and tested system from Cisco Systems, the intershelf cables are included with your order.

Cables for connections to external NEs are not included with the Cisco BTS 10200 Softswitch order, and are customer supplied.

Network Data Definition

Certain network data needs to be provided to Cisco so that each Cisco BTS 10200 Softswitch node can be given the appropriate initial software configuration. This configuration ensures that the Cisco BTS 10200 Softswitch can communicate with the service provider network. Contact your Cisco account team to receive a *Network Site Survey* applicable to your system when preparing this information. Your Cisco account team uses the information you provide in the *Network Site Survey* to set up the initial software configuration for your system. The account team provides you with a record of this data in a *Network Information Data Sheet*. We recommend that you retain your *Network Information Data Sheet* in a secure location for future reference.

Network Communication Reliability Requirements

This section describes requirements applicable to the reliability of communications between the Cisco BTS 10200 Softswitch and remote network NEs and services. It is essential to ensure that no single point of failure in the network be able to cause a traffic interruption.

The Cisco BTS 10200 Softswitch relies on ICMP Router Discovery Protocol (IRDP) for dynamic updating of router tables. The routers used for external communication between the Cisco BTS 10200 Softswitch and the service provider network are assumed to be IRDP capable, and the service provider network is assumed to be IRDP capable. (If either of these assumptions is inaccurate, contact Cisco for a review of your configuration options.) During installation, the service provider should turn on IRDP in these routers.

**Note**

IRDP is an extension to Internet Control Message Protocol (ICMP), which provides a mechanism for routers to advertise useful default routes.

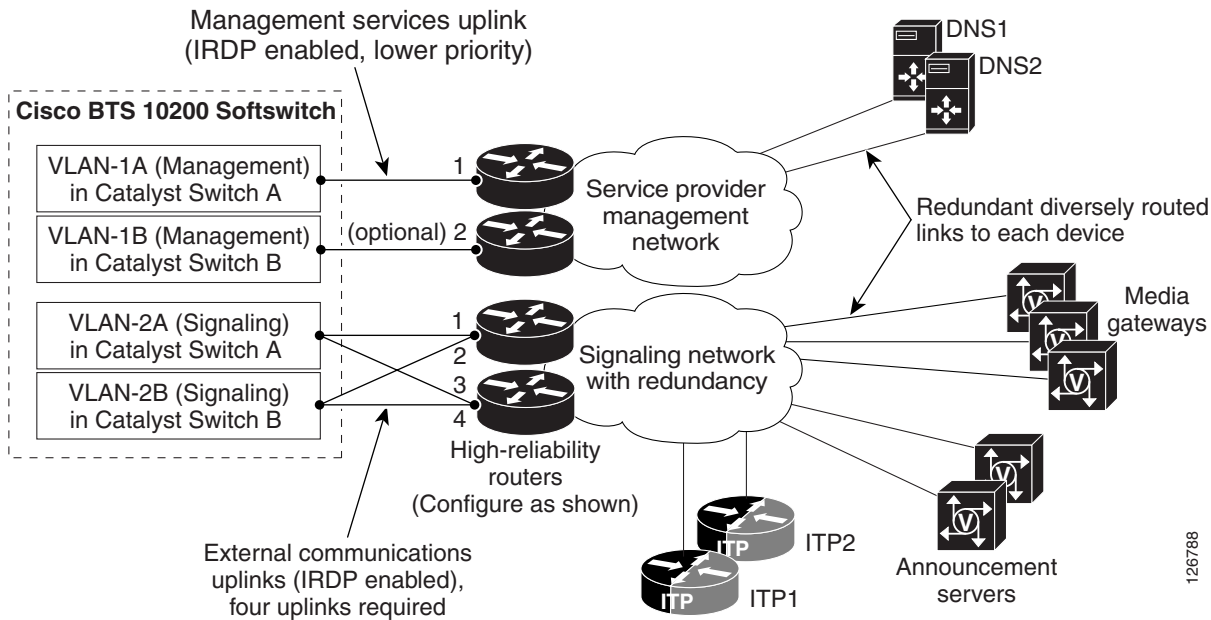
Figure 1 shows an example of communication paths between the Cisco BTS 10200 Softswitch and NEs in the managed network. The initial software configuration of the Cisco BTS 10200 Softswitch enables it to communicate with external NEs.



Caution

To ensure proper functioning of the network, configure it with at least the level of redundancy, diverse routing, and IRDP functionality shown in this drawing. Otherwise, a single point of failure could cause a traffic interruption.

Figure 1 Uplinks and Communications Paths to NEs in the Managed Network



Notes for Figure 1

1. IRDP on the management network routers must be set at a lower priority than the IRDP level on the signaling network.
2. The uplinks are used as follows:
 - a. Uplinks for management services (through connection modes such as SSH and SFTP), DNS services, and outbound billing (through FTP and SFTP). The first management uplink is required; the second uplink is optional.
 - b. Four uplinks for external communications for VoIP signaling based on protocols such as MGCP, SIP, H.323, COPS, SIGTRAN, and so forth.



Note

The four signaling uplinks must be connected to the appropriate internal VLANs of the Cisco BTS 10200 Softswitch as shown in Figure 1.

3. To support full system redundancy, you must connect the six external uplinks to four separate routers, as shown in Figure 1. Furthermore, you must also connect the routers to separate networks with diverse routing paths to the applicable external NEs and services (such as DNSs, ITPs, media gateways, and announcement servers).

**Caution**

If each of the external uplinks is not connected as described in [Note 3](#), a single point of failure could cause a traffic interruption.

4. The Cisco BTS 10200 Softswitch does not store or use absolute IP addresses. Instead, it locates network connections by looking up domain names on the service provider domain name server (DNS). The service provider DNS translates the domain names into IP addresses. During software installation, the Cisco BTS 10200 Softswitch is configured with the data it needs to communicate with the service provider DNS. This configuration data is stored in the `optcall.cfg` file, and some critical domain names are also populated in the `etc/hosts` file in each host machine. To ensure redundancy of the DNS lookup function in the event of a network outage, we recommend that two (redundant) DNS units be deployed in the service provider network, and that the two DNSs be reachable via separate networks with diverse routing paths. We also recommend that you place the DNSs behind a load balancer, so that a single IP address is exported to clients such as the Cisco BTS 10200 Softswitch.

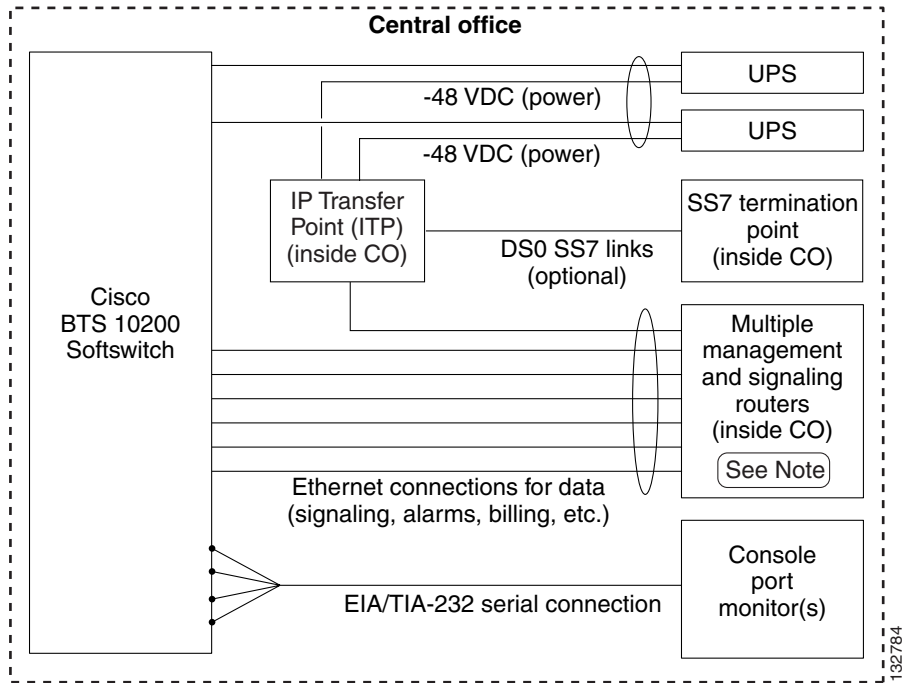
**Note**

The system provides additional support for DNS availability through the internal DNS functionality. See the “[Internal Secondary Authoritative DNS Server \(ISADS\)](#)” section in the *Cisco BTS 10200 Softswitch System Description*.

Demarcation Points

The Code of Federal Regulations Title 47 (CFR 47) Part 68, *Connection of terminal equipment to the telephone network*, does not apply to this product. Each of the points of demarcation is located at the first physical connection external to the Cisco BTS 10200 Softswitch frame. Each of these physical connections is on customer-provided equipment internal to the central office (CO). See [Figure 2](#) for a block diagram.

Figure 2 Cisco BTS 10200 Softswitch Connection to Internal CO Equipment



Notes for Figure 2

1. UPS = Uninterruptible power supply.
2. For details on the Ethernet connections to the routers, see [Figure 1](#).


Caution

It is extremely important to have the routers connected as detailed in [Figure 1](#). Otherwise, a single point of failure could cause a traffic interruption.