



# Troubleshooting

## Getting Started with Troubleshooting

This topic provides links to detailed troubleshooting information for the Cisco BTS 10200 and other solution components.

The [Troubleshooting Resources](#) section provides links to documentation to help you troubleshoot Cisco BLISS for Cable at the component level.

The [Troubleshooting Concepts](#) section contains an overview of troubleshooting concepts for Cisco BLISS for Cable. It provides guidelines for troubleshooting problems on the network, including guidelines for preventing problems before they occur.

## Troubleshooting Resources

This section provides resources for troubleshooting Cisco BLISS for Cable at the component level. See the [Troubleshooting Concepts](#) section for generic troubleshooting information.

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If You Are Troubleshooting . . .	Use This Document
Call Management Server (CMS) or Media Gateway Controller (MGC): <ul style="list-style-type: none"> <li>• Cisco BTS 10200 Softswitch</li> </ul>	<ul style="list-style-type: none"> <li>• <a href="#">Cisco BTS 10200 Troubleshooting Guide Release 4.5</a></li> </ul> <p><b>Note</b> The Cisco BTS 10200 Softswitch user documentation is password protected. See your Cisco representative for access information.</p>
Cisco IP Transfer Point (ITP) signaling gateway (SG): <ul style="list-style-type: none"> <li>• Cisco ITP 7301</li> <li>• Cisco ITP 7507</li> </ul>	<ul style="list-style-type: none"> <li>• <a href="#">Cisco BTS 10200 Softswitch SS7 SIGTRAN Solution Guide</a></li> <li>• <a href="#">Cisco 7500 Series Routers Troubleshooting Documentation Roadmap</a></li> </ul>

If You Are Troubleshooting . . .	Use This Document
CMTS: <ul style="list-style-type: none"> <li>• Cisco uBR7246</li> </ul>	<ul style="list-style-type: none"> <li>• <a href="#">Hardware Troubleshooting the Cisco uBR72xx / uBR7246 VXR Universal Broadband Router</a></li> <li>• <a href="#">Cisco uBR7200 Series Universal Broadband Routers Field Notices</a></li> </ul>
<ul style="list-style-type: none"> <li>• Cisco uBR10012</li> </ul>	<ul style="list-style-type: none"> <li>• <a href="#">Cisco uBR10012 Universal Broadband Router Troubleshooting Guide</a></li> <li>• <a href="#">Cisco uBR10012 Universal Broadband Router Field Notices</a></li> </ul>
Media Gateway (MG): <ul style="list-style-type: none"> <li>• MGX8880               <ul style="list-style-type: none"> <li>– PXM-45</li> <li>– RPM-XF</li> <li>– VXSM</li> </ul> </li> <li>• MGX8850               <ul style="list-style-type: none"> <li>– PXM-1</li> <li>– VISM</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• <a href="#">Cisco MGX 8800 Series Switch System Error Messages</a></li> <li>• <a href="#">MGX Error Messages, Release 5</a></li> <li>• <a href="#">VXSM Troubleshooting</a></li> </ul>
Embedded Multimedia Terminal Adapter (eMTA)	See the appropriate manufacturer's documentation.
Cisco Broadband Access Center for Cable (BACC)	<a href="#">Cisco BACC CLI Reference Guide, Support and Troubleshooting Commands</a> <a href="#">Cisco Broadband Access Center Troubleshooting Tech Notes</a>

## Troubleshooting Concepts

Troubleshooting consists of determining the nature of a problem and then isolating the problem to a particular device or component of a device. When a problem has been isolated and identified, troubleshooting also consists of fixing the problem, usually by replacing the device, some component of the device, or changing a setting or variable in the software.

Cisco telephony solutions include connections to external switches and to internal components such as call agents, signal processors, and trunking gateways. This complex environment involves many connections, links, and signaling protocols. Connectivity and performance problems are very difficult to resolve. The goal of this section is to provide you with a general troubleshooting strategy for isolating and resolving connectivity and performance problems.

The general idea of a troubleshooting model is to systematically reduce a large set of possible causes of trouble to a small set of causes or to a single cause. You can then fix the problem and restore network function. After the problem is resolved, a systematic method of documenting the case helps to capture, preserve, and communicate the troubleshooting experience gained while solving the problem.

As more advanced technologies and services are introduced into communication networks, the tasks of designing, managing, and maintaining the resulting networks are also becoming increasingly complex. The use of a systematic troubleshooting model increases the expertise of the organization and reduces the time to solve similar problems in the future. This evolution of improving expertise and collaboration can help mitigate the pressures of supporting crucial, complex networks.

## Interoperability

Cisco BLISS for Cable uses a wide range of network elements (NEs), but there are certain limitations. Some features involve the use of other NEs deployed in the service provider network: for example, gateways, media servers, announcement servers, MTAs, and Session Initiation Protocol (SIP) phones. See [Cisco BLISS for Cable Components](#) for a complete list of hardware and software tested for compatibility in Cisco BLISS for Cable. In addition, see the [Component Interoperability](#) section of the *Cisco BTS 10200 Softswitch Release Notes for Release 4.5* 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 4.5 software.

Earlier or later releases of platform software might be interoperable, and it might be possible to use other functions on these platforms. The 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.

## Symptoms, Problems, and Solutions

The symptoms of a problem can be general (such as being unable to access the SS7 network) or specific (routes are not in a routing table). First, you need to determine the cause of a symptom by using troubleshooting tools and techniques. After identifying the cause, you can correct the problem.

Attempt to reproduce the reported symptoms, if possible. If you cannot reproduce the symptoms, it will be extremely difficult to analyze and solve the problem. If you cannot narrow the troubleshooting scope to a particular subsystem or component, you may not be able to determine how to fix the problem.

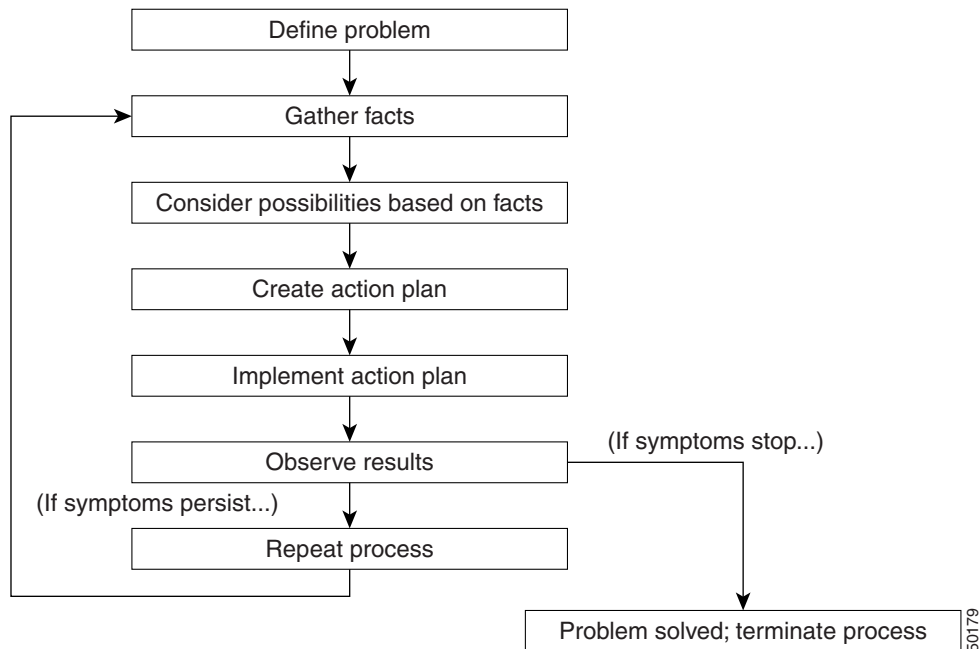
## General Problem-Solving Model

When you are troubleshooting in a telephony environment, a systematic approach always works best. An unsystematic approach to troubleshooting can result in a “quick fix,” but it is usually a waste of valuable time and resources and often makes the situation worse.

A systematic approach employs the following steps:

- Define the specific symptoms
- Identify all potential problems that could be causing the symptoms
- Systematically eliminate each potential problem (from the most likely to the least likely) until the symptoms disappear

The following figure illustrates the process flow for the general problem-solving model. This process flow is not a rigid outline for troubleshooting a network; it is simply a foundation from which you can build a problem-solving process to suit your particular environment.



The following steps detail the problem-solving process outlined in the problem-solving model illustration:

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- Step 1** When analyzing a network problem, make a clear problem statement. You should define the problem in terms of a set of symptoms and potential causes.  
To properly analyze the problem, identify the general symptoms and then ascertain what kinds of problems could cause these symptoms. For example, hosts might not be responding to service requests from clients (a symptom). Possible causes might include a misconfigured host, bad interface cards, or missing router configuration commands.
- Step 2** Gather the facts that you need to help isolate possible causes.  
Ask questions of affected users, network administrators, system managers, and other key people. Collect information from sources such as network management systems, protocol analyzer traces, output from diagnostic commands, or the software release notes.
- Step 3** Consider possible problems based on the facts that you gathered. Using the facts, you can eliminate some of the potential problems from your list.  
Depending on the data, for example, you might be able to eliminate hardware as a problem so that you can focus on software problems. At every opportunity, try to narrow the number of potential problems so that you can create an efficient plan of action.
- Step 4** Create an action plan based on the remaining potential problems. Begin with the most likely problem, and devise a plan in which only one variable is manipulated.  
Changing only one variable at a time enables you to reproduce a given solution to a specific problem. If you alter more than one variable simultaneously, you might solve the problem, but identifying the specific change that eliminated the symptom becomes far more difficult and will not help you solve the same problem if it occurs in the future.  
If a variable change does not resolve the network problem, change the variable back to its initial setting before proceeding. This allows the resolution of the network problem to be traced to a single variable change instead of a combination of variable changes.

- Step 5** Implement the action plan, performing each step carefully while testing to see whether the symptom disappears. Whenever you change a variable, be sure to gather results. Generally, you should use the same method of gathering facts that you used in [Step 2](#) (that is, working with the key people affected, in conjunction with utilizing your diagnostic tools).
- Step 6** Analyze the results to determine whether the problem has been resolved. If it has, then the process is complete.
- Step 7** If the problem has not been resolved, create an action plan based on the next most likely problem in your list. Return to [Step 4](#), change one variable at a time, and repeat the process until the problem is solved.
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**Note**

If you exhaust all the common causes and actions—either those outlined in this section or ones that you have identified for your environment—you should contact your Cisco technical support representative.

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## Resolving Network Problems

It is always easier to recover from a network failure if you are prepared for it ahead of time. Possibly the most important requirement in any network environment is to have current and accurate information about that network available to the network support personnel. Intelligent decisions can be made about network change only with complete information.

To determine whether you are prepared for a network failure, answer the following questions:

- Do you have an accurate physical and logical map of your network?
- Does your organization or department have an up-to-date network map that outlines the physical location of all the devices on the network and how they are connected, as well as a logical map of network addresses, network numbers, subnetworks, and so forth?
- Do you have a list of all network protocols implemented in your network?
- For each of the protocols implemented, do you have a list of the network numbers, subnetworks, zones, areas, and so on that are associated with them?
- Do you know which protocols are being used to route calls?
- For each protocol, do you have correct, up-to-date configuration information?
- Do you know all the points of contact to external networks, including any connections to the Internet, the public switched telephone network (PSTN), or the Signaling System 7 (SS7) network?
- For each external network connection, do you know what protocols are being used?
- Do you have an established baseline for your network?
- Has your organization documented normal network behavior and performance at different times of the day so that you can compare the current problems with a baseline?

If you can answer yes to all of these questions, you will be able to recover from a failure more quickly and easily than if you are not prepared. Lastly, for every problem solved, be sure to document the problems with solutions provided. This way, you will create a problem/answer database that others in your organization can refer to in case similar problems occur later. This will invariably reduce the time to troubleshoot your networks and, consequently, minimize your business impact.

## Resolving System Problems

If the troubleshooting procedures that you follow do not solve the problems, contact your technical support group. If additional support is needed, contact Cisco Technical Assistance Center (TAC) for assistance. See the [Obtaining Technical Assistance](#) section for more information.

When possible, have the following information on hand before calling Cisco TAC for technical support:

- Alarms currently active on the system
- Summary of events that may be related to this problem
- Current status of internal and external components (administrative and operational states)
- Hardware documentation and cabling diagrams, if applicable