



Release Notes for Cisco MPLS Tunnel Builder Pro Version 2.0

October 3, 2002

This document describes Cisco MPLS Tunnel Builder Pro. Tunnel Builder Pro includes a Backup Route Generator (BRG), which provides Fast ReRoute backup tunnels to protect for single element failures in a network. Tunnel Builder Pro is an enhancement to the Cisco MPLS Tunnel Builder application and incorporates many of its features.

Use these release notes in conjunction with the *Cisco MPLS Tunnel Builder Pro Installation and User Guide*.

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System Requirements

This section describes the following:

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Network Hardware Supported

Tunnel Builder Pro can be used on any hardware platform that supports MPLS Traffic Engineering (TE).

Cisco IOS Releases Supported

The Tunnel Builder Pro application supports devices running Cisco IOS Release 12.0(22)S or later with MPLS TE enabled.

Operating Systems Supported

The Tunnel Builder Pro server can run on Solaris, Version 2.8.

The Tunnel Builder Pro client can run on Microsoft Windows 2000 and Microsoft Windows NT.



Note

A higher version of the operating system is not necessarily supported.

Disk Space Requirements

The installation of Tunnel Builder Pro requires that you have at least 90 MB of free disk space.

Disk space requirements for the operation of Tunnel Builder Pro depend on the network size.

Hardware Requirements

The following are required on the system where the BRG server is to be installed:

- A 1-GHz or faster processor
- At least 1 GB of physical RAM
- At least 10 MB of free disk space

Other Workstation Requirements

To ensure that BRG performs as expected, the target installation workstation(s) must have the directory \$JAVA_HOME/bin in the user's path.

Tunnel Builder Pro 2.0 is a standalone network management application. It is not certified for operation with other network management applications running on the same workstation. In addition, TunnelBuilder Pro 2.0 does not provide direct notification of MPLS configuration changes to other network management applications such as Cisco VPN Solution Center or Cisco element management systems.

Web Browsers Supported

Tunnel Builder Pro requires one of the following web browsers and the Java Plug-in specified below:

- Internet Explorer, Version 5.5 or later
- Netscape Navigator, Version 4.7 or later

Windows 2000 and Windows NT—If you are using Netscape Version 4.7, you need to install the Java Plug-in Version 1.3.1 before running Tunnel Builder Pro.

Licensing

To install Cisco MPLS Tunnel Builder Pro, you must enter two authorized license keys. These license keys are specified on your *Right to Use* document included in your product. The keys authorizes the following:

- A maximum number of TE-enabled routers in the TE topology for any single seed router
- Use of the Backup Route Generator (BRG), which computes the placement of backup tunnels

The application prompts you for these two license keys during setup.

If you exceed the limit of the license, you are notified by a message, like the following:

```
Number of TE routers (xxx) in the 1.2.3.4 network exceeds the number allowed by your
Tunnel Builder license (yyy). Please contact your administrator.
```

Where:

- xxx is the number of TE routers in your network
- 1.2.3.4 is the seed router from which you tried to fetch
- yyy is the upper bound of your license

You can choose to upgrade the maximum number of TE-enabled routers supported for any single seed router in Tunnel Builder Pro. You will need a new *Right to Use* document and a new authorized license key for each level through which you upgrade.

Right to Use documents and authorized license keys are available for the following levels:

- 1 to 25 MPLS TE-enabled routers
- 26 to 50 MPLS TE-enabled routers
- 51 to 75 MPLS TE-enabled routers

- 76 to 100 MPLS TE-enabled routers
- 101 to 150 MPLS TE-enabled routers
- More than 150 MPLS TE-enabled routers

Downloading the Cisco MPLS Tunnel Builder Pro Kit



Note

Before you download the Tunnel Builder Pro kit, make sure you have your licence keys (Tunnel Builder and BRG) and *Right to Use* document from your Cisco representative or product manager.



Note

If you are interested in an evaluation kit, make sure that you have a license key from your Cisco representative or product manager before you download the files.

To download the Tunnel Builder Pro images and readme file, perform the following steps.

Step 1 For the Cisco MPLS Tunnel Builder Pro product kit, enter the following URL:

`http://www.cisco.com/cgi-bin/tablebuild.pl/tb`

For an evaluation kit, enter the following URL:

`http://www.cisco.com/cgi-bin/tablebuild.pl/tb-eval`

If you are a Cisco registered customer, you can get an evaluation kit by entering this URL:

`http://www.cisco.com/cgi-bin/tablebuild.pl/tb-eval`

Step 2 Select a file. On the next screen, read the Software License agreement and download the file.

For the Tunnel Builder Pro product or evaluation kit download the following files, one at a time, where the *x* represents the version build number:

- `tb-2.0.x-kit-sol.tar`
- `tb-2.0.x-readme.txt`
- `tb-2.0.x-setup-sol.sh`



Note

The evaluation kit names start with `tb-2.0.x.y-` where *x* = 1 and *y* = .024.

Now you ready to copy your files to the web server doc directory.

Installing and Starting Cisco MPLS Tunnel Builder Pro

To install and start the Tunnel Builder Pro application on Solaris systems, perform the following steps:



Note

Default values are in brackets.

Step 1 Copy the `tb-*-kit-sol.tar` and `tb-*-setup-sol.sh` files to a directory under your web server doc directory in which you plan to install the application. For example, `/scratch/suitespot/docs/TunnelBuilderPro`.

Step 2 Make sure that you can execute the `tb-*-setup-sol.sh` script:

```
chmod 755 tb-*-setup-sol.sh
```

Step 3 Log in as root.

```
$ su root
password: password
```

Step 4 Run the `./tb-*-setup-sol.sh` file.

```
web-server-doc-dir% ./tb-*-setup-sol.sh
```

The setup file, `tb-*-setup-sol.sh`, runs a script that asks you where you want to locate the Tunnel Builder Pro files. Enter the full path of your web server doc directory.

Where (in what directory) would you like the Tunnel Builder Pro client and server to be installed?

```
/scratch/suitespot/docs/TunnelBuilderPro
```

You will have several configuration options.

Please enter the license key (or hit return if evaluation option).

Please enter (eval) for evaluation version of BRG, (perm) for permanent version of BRG, or (none) for Non-BRG version.

If you entered **eval** or **perm**, one of the following requests appears:

Please enter the license key for evaluation version.
Please enter the license key for permanent version.

What port would you like to use for the Tunnel Builder Pro client and server communication? [7271]

If you entered **eval** or **perm**, the following question appears:

What RMI port would you like to use for the BRG Server? [1098]

Would you like to receive SNMP trap notification of links and tunnels changing status? [no]

If you entered **yes**, the following two questions appear. If you entered **no**, they do not appear.

What port would you like to use for receiving UDP datagrams? [162]



Note

If port 162 conflicts with other network management applications, then enter another port number. Port 162 is the standard port for UDP communication.

What SNMP community string would you like to use? [public]

Would you like to run the Tunnel Builder Pro server in debug mode? [no]

Would you like to enable logging of Tunnel Builder Pro commands and logging of commands sent to the router? [no]

- Step 5** When the installation script is complete, you are asked if you want to run the server automatically. To start the server manually, execute a **startTopoServer** command from your web server doc directory.

```
cd /scratch/suitespot/docs/TunnelBuilderPro/serverkit
web-server-doc-dir% ./startTopoServer
```

- Step 6** To access the Tunnel Builder Pro application, use your web browser to find and select the ServerControl.html file. For example:

```
http://server-host-name/TunnelBuilderPro/clientkit/ServerControl.html
```

To access the Tunnel Builder Pro from your laptop, use your web browser to find and select the ServerControlLaptop.html file. For example:

```
http://server-host-name/TunnelBuilderPro/clientkit/ServerControlLaptop.html
```



Note If you have not previously downloaded and installed the Java Plug-in Version 1.3.1, you may be prompted to do so at this point.

The Tunnel Builder Pro application is displayed in your browser window.

Reinstallation Requirements for Upgrading

You need to reinstall the Cisco MPLS Tunnel Builder software to do any of the following upgrades:

- To Cisco MPLS Tunnel Builder Pro Version 2.0 from Cisco MPLS Tunnel Builder Version 2.0
- To the next license level from your current license level

Shutting Down Cisco MPLS Tunnel Builder Pro

To shut down Tunnel Builder Pro, locate the Tunnel Builder Server process on the machine and kill the process ID.

To locate the process IDs for the Tunnel Builder server, enter the following command:

```
ps -ef | grep serverkit
```

Once the process ID is found, enter this command:

```
kill -9 process-id
```

Stopping and Restarting the BRG Server

You can use the following arguments in the BRG `install.sh` script that is found in the `installation-directory/serverkit/installed/bin` directory:

- `s` starts the RMI Daemon.
- `i` installs the BRG server with a specified port.
- `c` stops the BRG server and cleans out the log and log file for the specified port.
- `k` stops the BRG server.
- `r` stops the RMI Daemon on a specified port, stops the BRG server, clears the log and log file, and restarts the BRG server.
- `D` passes a property setting to Java during the installation procedure. For example, `-D property=value`.
- `p` specifies a new Property file to pass to BRG.
- `h` provides help information.

When invoked without options, `install.sh` assumes the “`r`” argument; that is, it stops the server, clears the log file, and then restarts the server.

The instructions for manually shutting down and restarting the server follow.

Stopping the RMI Daemon and the BRG Server

In its default state, the `install` script cleans the contents of any existing log directory.

The directory log contains the configuration of the RMI Daemon that is persistent from one start of the daemon to another. If the port is changed, remove the log directory.

To stop the RMI Daemon and the BRG server without starting a new installation, do the following from the `serverkit/installed` subdirectory of the installation directory:

- If the default port number 1098 is being used, enter the **`install`** command as follows:

```
./bin/install.sh -k
```

- If the default port is not being used, enter the following command:

```
./bin/install.sh -k ABCD
```

where *ABCD* is the port number.

Restarting the RMI Daemon and the BRG Server

The Tunnel Builder Pro installation process automatically starts the BRG server if you have the appropriate license. Restarting the BRG server is usually unnecessary, but after an incident such as a machine reboot you need to restart it.

To start the RMI Daemon and the BRG server run the script `install.sh` as follows:

```
$ su root
password: password

$ cd installation-directory/serverkit/installed

$ ./bin/install.sh -p data/system.properties -Djava.security.policy=data/server.policy
ABCD
```

where *installation-directory* is the directory in which Tunnel Builder Pro was installed and *ABCD* is the RMI port chosen at installation time. It must match the RMI port specified in the `serverkit/TBconfig.txt` file.

Features of Cisco MPLS Tunnel Builder Pro

Cisco MPLS Tunnel Builder Pro includes the following features:

- Manages traffic engineering nodes, links, and tunnels
 - Configures MPLS TE tunnels
 - Configures MPLS TE parameters on TE-enabled links and nodes
 - Configures primary tunnels as fast reroutable
 - Configures static routes on TE-enabled nodes
 - Configures fast reroutable backup tunnels
- Determines what parts of a network are not currently protected by backup tunnels, and creates detailed reports of why the elements are not protected.
- Provides the ability to define bandwidth protection levels by specifying over- or under-booking levels (utilization factors) in the event of network element failures.
- Supports specification of Shared Risk Link Groups (SRLGs), where a particular link can belong to only one SRLG.
- Recommends backup tunnels that will protect against failure of the following elements:
 - Nodes—Routers in the network. In the context of Tunnel Builder Pro, nodes are routers that can be protected by next-next-hop (NNHOP) backup tunnels.
 - Links—Point-to-point connections between adjacent nodes. In the context of Tunnel Builder Pro, links are protected by next-hop (NHOP) backup tunnels.

Caveats

Caveats describe unexpected behavior in Cisco MPLS Tunnel Builder Pro software releases. Severity 1 caveats are the most serious; severity 2 caveats are less serious. Severity 3 caveats are moderate caveats, and only selected severity 3 caveats are included in caveats documentation.

Open Caveats—Cisco MPLS Tunnel Builder Pro

This section describes possible unexpected behavior by Cisco MPLS Tunnel Builder Pro. This section describes only severity 1, severity 2, and selected severity 3 caveats. This release contains no severity 1, or severity 2 caveats.

- **CSCdv05063—Overwriting SeedRouters.txt during an installation upgrade**

The ../serverkit/SeedRouters.txt file is overwritten during an upgrade of an existing TunnelVision installation.

Workaround: Back up the existing SeedRouters.txt file and copy it back into the ../serverkit directory after an installation upgrade is performed.

- **CSCdy04200—Unable to deselect a single link in the topo map**

All the links and or nodes selected in the topology map that is every element is green and red. If you click a link or node and try to deselect it, the node or link stays or becomes selected and the original selected links or nodes are greyed out.

Workaround: There is no workaround.

- **CSCdy43879—Setting max reservable to zero on a link fails**

In the Links tab of Tunnel Builder Pro, the user can enter a value of 0 for **max global reservable** and **max subpool reservable**. However, when you click the Modify button, the link is not changed so that no bandwidth is reserved by RSVP.

This is because the **ip rsvp bandwidth 0 0 sub 0** command is sent to Cisco IOS. Cisco IOS rejects this as invalid. The **no ip rsvp bandwidth** command in Cisco IOS would cause the link to not allow any bandwidth to be reserved. Tunnel Builder Pro does not generate this command.

Workaround: Manually enter the **no ip rsvp bandwidth** command on the router.

- **CSCdy55650—Autoroute announce field is edit-able in tunnels pane**

The **autoroute** announce field in the Tunnels panel front pane is editable (whether it is checked or not). The **autoroute** announce field should be read only.

Workaround: There is no workaround. The field has no impact whether you check it or not from this pane.

- **CSCdy62410—Time out status returned early**

Occasionally, BRG returns a time out status before the time-out duration is reached when you perform a “Create Backups” on a set of routers in a network.

Workaround: Run “Create Backups” on the affected routers separately and the problem should not occur.

Related Documentation

The documentation for Tunnel Builder Pro contains both online help and a user manual, the *Cisco MPLS Tunnel Builder Pro Installation and User Guide*.

Obtaining Documentation

These sections explain how to obtain documentation from Cisco Systems.

World Wide Web

You can access the most current Cisco documentation on the World Wide Web at this URL:

<http://www.cisco.com>

Translated documentation is available at this URL:

http://www.cisco.com/public/countries_languages.shtml

Documentation CD-ROM

Cisco documentation and additional literature are available in a Cisco Documentation CD-ROM package. The Documentation CD-ROM is updated monthly and may be more current than printed documentation. The CD-ROM package is available as a single unit or through an annual subscription.

Ordering Documentation

You can order Cisco documentation in these ways:

- Registered Cisco.com users (Cisco direct customers) can order Cisco product documentation from the Networking Products MarketPlace:
http://www.cisco.com/cgi-bin/order/order_root.pl
- Registered Cisco.com users can order the Documentation CD-ROM through the online Subscription Store:
<http://www.cisco.com/go/subscription>
- Nonregistered Cisco.com users can order documentation through a local account representative by calling Cisco Systems Corporate Headquarters (California, U.S.A.) at 408 526-7208 or, elsewhere in North America, by calling 800 553-NETS (6387).

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Attn: Document Resource Connection
170 West Tasman Drive
San Jose, CA 95134-9883

We appreciate your comments.

Obtaining Technical Assistance

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<http://www.cisco.com>

Technical Assistance Center

The Cisco Technical Assistance Center (TAC) is available to all customers who need technical assistance with a Cisco product, technology, or solution. Two levels of support are available: the Cisco TAC Web Site and the Cisco TAC Escalation Center.

Cisco TAC inquiries are categorized according to the urgency of the issue:

- Priority level 4 (P4)—You need information or assistance concerning Cisco product capabilities, product installation, or basic product configuration.
- Priority level 3 (P3)—Your network performance is degraded. Network functionality is noticeably impaired, but most business operations continue.
- Priority level 2 (P2)—Your production network is severely degraded, affecting significant aspects of business operations. No workaround is available.

- Priority level 1 (P1)—Your production network is down, and a critical impact to business operations will occur if service is not restored quickly. No workaround is available.

The Cisco TAC resource that you choose is based on the priority of the problem and the conditions of service contracts, when applicable.

Cisco TAC Web Site

You can use the Cisco TAC Web Site to resolve P3 and P4 issues yourself, saving both cost and time. The site provides around-the-clock access to online tools, knowledge bases, and software. To access the Cisco TAC Web Site, go to this URL:

<http://www.cisco.com/tac>

All customers, partners, and resellers who have a valid Cisco service contract have complete access to the technical support resources on the Cisco TAC Web Site. The Cisco TAC Web Site requires a Cisco.com login ID and password. If you have a valid service contract but do not have a login ID or password, go to this URL to register:

<http://www.cisco.com/register/>

If you are a Cisco.com registered user, and you cannot resolve your technical issues by using the Cisco TAC Web Site, you can open a case online by using the TAC Case Open tool at this URL:

<http://www.cisco.com/tac/caseopen>

If you have Internet access, we recommend that you open P3 and P4 cases through the Cisco TAC Web Site.

Cisco TAC Escalation Center

The Cisco TAC Escalation Center addresses priority level 1 or priority level 2 issues. These classifications are assigned when severe network degradation significantly impacts business operations. When you contact the TAC Escalation Center with a P1 or P2 problem, a Cisco TAC engineer automatically opens a case.

To obtain a directory of toll-free Cisco TAC telephone numbers for your country, go to this URL:

<http://www.cisco.com/warp/public/687/Directory/DirTAC.shtml>

Before calling, please check with your network operations center to determine the level of Cisco support services to which your company is entitled: for example, SMARTnet, SMARTnet Onsite, or Network Supported Accounts (NSA). When you call the center, please have available your service agreement number and your product serial number.

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