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Catalyst 1800 Token Ring Switch Release Notes TRX.2.1.11 and FDU.2.1.11

February 3, 1997

This document provides release information and restrictions that apply to Token Ring module software version TRX.2.1.11 and FDDI module software version FDU.2.1.11 for the Catalyst 1800 Token Ring switch. Refer to the System Information menu (Configure...System...Display) from the local user interface to verify the software revision as TRX.2.1.11 or FDU.2.1.11.

Cisco documentation and additional literature are available in a CD-ROM package. The Documentation CD-ROM, a member of the Cisco Connection Family, is updated monthly. Therefore, it might be more up to date than printed documentation. To order copies of the Documentation CD-ROM, contact your local sales representative or call customer service. The CD-ROM package is available as a single package or as an annual subscription. You can also access Cisco documentation on the World Wide Web at <http://www.cisco.com>, <http://www-china.cisco.com>, or <http://www-europe.cisco.com>.

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Cisco Connection Online (CCO) Software Availability

When using CCO (<http://www.cisco.com>) to acquire software upgrades, enter the Workgroup / Catalyst 1800 area to find the latest version of the software for both the Token Ring and FDDI modules. The files can be found in that area, under the following names:

CCO: t1800-tr-serial-boot.2-1-11.bin DOS: citr2111.cof	The 8TR module software image to be used for Xmodem serial port (console connector) download. Specifically the 2.1.11 release.
CCO: t1800-tr-tftp-boot.2-1-11.bin DOS: citr2111.img	The 8TR module software image to be used for TFTP download over one of the LAN (802.5 or FDDI) ports on the Catalyst 1800. Specifically the 2.1.11 release.
CCO: t1800-fd-serial-boot.2-1-11.bin DOS: cifd2111.cof	The 4TR+FDDI module software image to be used for Xmodem serial port (console connector) download. Specifically the 2.1.11 release.
CCO: t1800-fd-tftp-boot.2-1-11.bin DOS: cifd2111.img	The 4TR+FDDI module software image to be used for TFTP download over one of the LAN (802.5 or FDDI) ports on the Catalyst 1800. Specifically the 2.1.11 release.
CCO: t1800-mib.2-1-11.bin DOS: t18m2111.mib	ASCII text file containing the Catalyst 1800 proprietary MIB in ASN.1 format.
CCO: t1800-readme.2-1-11.txt DOS: t18rnote.txt	ASCII text copy of this release note.

Download the appropriate file for each module type and the specific download method you will use (Xmodem-serial or TFTP). To perform the download via the serial port or TFTP, refer to the software download procedures found later in this release note.

Note If you download binary (.bin) files from CCO to a DOS system, you must change the file names to conform to DOS file naming conventions. Use the DOS name for each file given in the table above. (t1800-tr-serial-boot.2-1-11.bin becomes citr2111.cof.)

Example: If you download t1800-tr-serial-boot.2-1-11.bin to a DOS system, the filename may be truncated to t1800-tr.bin. Before downloading another file, rename this file to citr2111.cof. (Type **ren t1800-tr.bin citr2111.cof**, or enter the name citr2111.cof as the DOS target filename for your download utility.) If you download another file without renaming the first file, the second file may overwrite the first one if the first 8 characters of their names are the same.

Cisco recommends that you use the file names listed in the table. If you cannot follow this guideline, note that the string “tr” must occur in the name of every Token Ring software file, and the string “fd” must occur in the name of every FDDI software file. This is required when configuring file names for TFTP download.

Supported Features

The following features are supported by the Catalyst 1800 Token Ring switch:

- Single and multi-ring mode operation
- Source Route, Transparent, and Source Route/Transparent frame forwarding
- SNMP access for the following MIBs:
 - MIBII (RFC 1213)
 - Bridge MIB (RFC 1493)
 - 802.5 MIB (RFC 1231)
 - SRT Bridge MIB (RFC 1525)
 - RMON (RFC1757), Token Ring RMON (RFC1513)
 - FDDI MIB (RFC1512)
- Source routing end system support for SNMP
- 802.1d and IBM Spanning-Tree Protocols
- NetBIOS broadcast reduction
- Port prioritization
- Virtual LAN segment configuration
- Port security based on user configuration by hour, day, and week
- Auto insertion of cables
- Dynamic configuration for all parameters except frame-size and serial port configurations
- Dual TIC FEP support permits the same source station to communicate on more than one segment.
- Telnet access to the console interface
- TFTP downloading
- MAC address and protocol type filtering
- Port LLC mirroring
- Enhanced MAC address display
- FDDI SMT 7.3

Known Restrictions and Limitations

General

- All changes made to configuration parameters in the Catalyst 1800 Token Ring switch take effect immediately, EXCEPT changes to:
 - Max Frame Size
 - All Serial Port configuration

Before changes to these parameters can take effect, you must reboot the switch using the System Reboot command.

Known Restrictions and Limitations

- Changes made to any of the physical port parameters (ring speed, active monitor participation, and so on) require that the port affected be disabled and re-enabled for the new settings to take effect.
- Token Ring ports initialize in parallel. At system boot-up each port displays diagnostic messages regarding Ring Status. *Unless you experience problems, disregard these messages.*
- MAC addresses are aged based on the configurable aging timer in the Bridge Configuration menu (Configure...Bridge...MAC Address). Addresses age between one and two times the aging interval. Therefore, if you are using the default interval of 5 minutes, you can expect to see addresses age in between 5 and 10 minutes.
- When adding or removing switch cards, the enclosure must be powered down.
- A Catalyst 1800 8TR or 4TR+FDDI module must occupy the bottom slot in the chassis. Only one 4TR+FDDI module is currently supported in a chassis. An 8TR module may be added in the top slot.
- When changing your hardware configuration by moving or swapping switching cards between slots or between chassis, it is recommended that the configuration database be reset, via the Reset command (System...Reset) and the new configuration entered following the automatic reboot that accompanies the Reset command.
- RMON requires a patch to Traffic Director 3.3. The patch will be made available through CCO.
- When the switch is in a spanning-tree configuration and the FDDI port is both configured for SRTB mode and is the forwarding port in the spanning-tree topology, a transparent session may not open when attempting to converse with a server supporting source routing. If this occurs it is recommended to reconfigure the FDDI port to SRT mode. If that is not possible, load route.com on your client.
- The IP Address table available from MIB-II does not reflect multiple IP addresses set in the switch. The full range of configured IP addresses is available from the proprietary MIB objects in the switch.
- When changing a station from transparent to/from source routed in FDDI environments, it may be necessary to clear the MAC address table (System...Clear...MAC Addresses) after the change to provide connectivity through the switch.
- Max frame size configurations for sizes smaller than 4865 bytes have no effect.
- Only one simultaneous Telnet or console session is permitted in this release. Multiple sessions may be opened; however, the command line input is shared among all active sessions. Note: Quitting a Telnet session does not drop the Telnet connection, rather, it returns you to the password screen.
- The current release uses a default inactivity timer of 5 minutes to end a Telnet session. To reconfigure this timer a temporary command is available in the System Timers menu (System...Internal...Timers), the TCP Inactivity timer. To reconfigure this timer, specify the value in seconds at twice what you would like for the actual timeout value. Example: if you prefer a 1 minute timeout (60 seconds), specify 120 seconds.
- After configuring a SPAN monitoring port, do not reconfigure the ring number of the SPAN or SPAN monitoring ports. If you need to modify the ring number, first turn off SPAN monitoring, reconfigure the SPAN port's ring number, then re-enable the SPAN function for those same ports.
- The translation of BOOTP frames traversing TR to/from FDDI is not handled properly in this release. The 'chaddr' field of the BOOTP frame is not bit-swapped when traversing these media types. This may affect BOOTP operation when TR/FDDI translation is used in the switch.

- In 12- and 16-port systems, communication between the two switch cards may stop if a frame with a size that exactly matches the configured Max Frame Size of the Catalyst 1800 switch is received and switched to the other card. Perform a power cycle to correct the issue. A work-around is to configure the Max Frame Size just slightly above the Max Frame Size for the network.
- During ring insertion, the FDDI A port may fail in bringing up the connection. Subsequent attempts will succeed.
- The FDDI SMT Link Confidence Test (LCT) tests the validity of the link. This test runs under four different time durations; 50 milliseconds, 500 milliseconds, 5 seconds and 50 seconds. Only the 50 millisecond duration time is currently supported.
- The FDDI port does not send directed beacons. If an upstream neighbor fails, directed beacons are used to inform that station to take itself off the ring.
- FDDI Station Management (SMT) only receives frames with a broadcast destination MAC address. This causes PMF-SET requests to fail within SMT when directed to the MAC address associated with the FDDI port.
- The FDDI SMT trace function provides a recovery mechanism for stuck beacon conditions on the FDDI ring. If the trace function is initiated by another station on the FDDI ring, the Catalyst 1800's FDDI port will take the proper action but will not re-insert into the ring. The switch must be rebooted in order for the FDDI port to be re-inserted into the ring.
- Infrequently, the Catalyst 1800 hangs following a power-up, reboot, or reset. To correct the problem, power cycle the system.

Console Interface

- The initial menu presents a password prompt. The default password is *public*. You can change the password by adding an SNMP community name with R/W (read-write) access. That community name becomes the new password.
- You can configure the local console interface to work with either a graphics ANSI-compatible terminal or a terminal emulator without graphics support. This can be selected from the Configuration menu (Configure...Serial Port...Graphics).
- All ring numbers must be entered in hexadecimal format. Note that both decimal and (hex) are displayed only on the system's monitor (Monitor...System) menu.
- In 12TR+FDDI and 16TR systems, attach the console cable to the bottom board for a full configuration menu. When attached to the top board, the console will only provide general revision/monitoring information. All information is available when the console is attached to the bottom board.
- The ability to enable and disable flow control for the serial port was removed in a previous release.

RMON Information

This version of the software supports RMON RFC 1757(RMON base) and RFC 1513 (Token Ring specific). Traffic Director 3.3 can access the Catalyst 1800 using its standard menu interface, however, a few exceptions are noted in this section.

Enabling Statistics/Ring Information, Etc.

RMON groups are off by default. Per specification, each group on each port can be separately enabled/disabled. To enable or disable RMON groups in the Catalyst 1800, first add a new agent type specifying the interface (physical port) and IP address of the switch. Next, create a domain for that agent by selecting **Domain Manager** from the main screen. From Domain Manager, you need to install the new agent. Select **Install** to enter the Install Domain. In the Install Domain first select the agent, then select **RMON** from the Domain List. Select **Host** from the Enable Groups section if you would like host information (time creation, per host statistics, and so on). Finally, select **OK** and the RMON groups in the switch will be automatically created by Traffic Director.

Enabling Ring Station Groups from Traffic Director

To enable the Ring Station groups of RFC 1513 from Traffic Director, enter the Traffic Director shell. In the shell you need to execute the following command for each agent that you would like to acquire ring-information for:

```
dvtrstn add agent
```

In this command, *agent* is the agent you're adding, for example, P3-CAT1800.

You can then exit the shell window.

Note From CiscoView for the Catalyst 1800, disable and then re-enable the associated interface (physical port) the very first time you configure a ring-station group to immediately obtain ring-station information.

These commands only need to be executed the first time you create a new agent or enable a ring-station group. The switch stores this configuration information for subsequent reboot(s) of the switch.

General

- The RingStationConfigEntry information from RFC 1513 is not available in the Catalyst1800, and therefore, the associated UpdateStats command using ringStationConfigControlUpdateStats performs no action.
- If you are using an RMON client other than Traffic Director, you'll need to apply the configuration discussion in this section, "RMON Information," to the configuration methods provided by the client you're using. The Catalyst 1800 uses a standards-based generic RMON implementation.
- The Host Graph function in Traffic Director 3.3, which provides statistical graphing of per host statistics, is not accessible in this release of the switch software.

SNMP Information

SNMP

A proprietary MIB is now supported. For the latest version of the MIB, visit Cisco Connection Online (CCO) at <http://www.cisco.com>, or contact Cisco Systems customer support at 1-800-553-2447. CCO and customer support are available 24 hours a day, seven days a week.

SNMP Implementation Notes

The following notes represent the implementation of the standard MIBs in the switch. Logical Segment Configurations are of the most interest when dealing with the Bridge and SR MIB groups. If you are implementing a Network Management Client for this switch or need a more detailed view of the MIB implementation, you may request the Network Management FAQ (Frequently Asked Questions listing) from customer support.

- IpNetToMedia objects have R/O (read-only) access.
- Bridge Group Static is not implemented.
- The dot1dBase group reports information on logical bridge ports, but not physical ports. Therefore, a switch operating in single-ring mode reports zero (0) dot1dbasenumports object.
- The dot1dBasePortCircuit object returns the object identifier (OID) to be used to gain access to the segment (ring) number associated with the logical bridge port. The dot1dBaseIfIndex returns the ifIndex of the first physical (If) port of the logical segment represented by dot1dBasePortNum.
- The dot1dStp group reports information on logical bridge ports, not physical ports.
- The dot1dSr group reports information on physical ports. This includes the dot1dPortPair group. To access a bridge port pair in this group, use the first physical port number of a logical segment for the LowPort and HighPort instances.
- The dot1dTp group reports information on physical ports.
- An SNMP client is not permitted to physically disable an If Interface in the switch that it is conversing over. This applies to both the ifAdminStatus and the dot5Command objects.
- When you assign the dot1dSrPortLargestFrame object a decimal value in the proper range, the next largest valid SNMP frame size is used. For example, if you assign the dot1dSrPortLargestFrame object a value of 1000, the object is actually assigned the value 1112. The console interface also rounds up to the next SNMP-supported value for the maximum frame size.
- In the group of available community names, only one has been assigned a default. There is a read-only community name which is set to a default of *public*. These parameters can be set and modified under the Configuration menu (Configure...SNMP...).

User Documentation

A current set of documentation can be found in the shipping box with the system.

Known issues:

- 1 The Token Ring Physical Ports Statistics screen (Monitor...Physical) now displays Ring State before Ring Status.

- 2 The following new Ring Status values have been added:
 - Inserted
 - Recovery
 - Single Station on Ring
 - Auto Remove Error
 - Transmitting Beacon
 - Soft Error
 - Hard Error
 - Did Not Complete
- 3 The System Overview screens (Monitor...System—both Token Ring and FDDI screens) now display Ring State instead of Ring Status.
- 4 The System Information menu (Configure...System...Display) now displays the part number as PCA-0048-xx instead of MOD-0048-xx.
- 5 In 16-port systems the ports are numbered left to right from one to eight, beginning with the bottom board.
- 6 An example in the Port Security Calendar screen description specifies an access time setting in 30 minute increments. This function of the switch only permits whole hour settings of 0 through 23. The example is incorrect.
- 7 The manual does not discuss the Unknown setting available when configuring ring speed for a port. 4 Mbps, 16 Mbps and Unknown (Auto config) are valid ring speed options. The Unknown option detects the current ring speed and inserts the port at that speed. If the port is the first to insert into a ring, it inserts at the last speed detected, or at 16 Mbps if no speed was previously detected.

Upgrading to New Software Releases Using the Console

Release TR.01.4.0 and later supports dual-board 16-port operation. Both 8-port boards must be updated with the new image for proper operation of the switch. Dual board systems are updated by placing the console cable on each board and performing the update procedure that immediately follows. This procedure must be performed on both boards followed by a reboot of the switch.

You must use a terminal emulation program that supports the Xmodem protocol, such as PCPLUS, to download the new image.

- Step 1** Attach the console cable that was originally shipped with the switch from the terminal emulation system to the front console port on the switch. (See the *Catalyst 1800 Cable Kit Guide* for more information on how to connect the console cable.)
- Step 2** Use the software download command (System...Download). This will place you at the monitor prompt (=>). (If unreadable bytes appear on your screen or the prompt does not appear, press **Return** several times so that the monitor can autobaud the serial line). It is recommended that you set your terminal emulation program communication speed to 38400. (At 38400 a download normally takes 4 to 5 minutes.)
- Step 3** At the monitor prompt (=>) type **do** for download. The message “Downloading” appears. The monitor is now ready to accept the Xmodem download file.

- Step 4** Start the Xmodem download procedure. (In PCPLUS, do this by pressing the **Page Up** key, selecting the Xmodem download protocol from the menu (X), and typing in the download image name, for example **citr2111.cof** for the Token Ring card.)
- Step 5** Once the image has been downloaded, a “Download Complete” message and the monitor prompt are displayed.
- Step 6** Type **go**. Messages are displayed to indicate that the image is being stored in Flash for use by subsequent reboots.
- Step 7** To start the new, downloaded image, cycle the system power.

The switch starts running the new code when you power it on. The Password menu appears after boot-up.

Note When updating a board from a software revision prior to TRX/FDU.2.0 to the current revision, it is recommended that the configuration database on the switch be reset (Menu selection System...Reset...Yes). Also, if after update the Token Ring ports on the top card fail to insert for connected ports, reset the configuration database from a console connected to the bottom board.

Note When performing a software download over an asynchronous modem you’ll need to configure the modem for Auto-answer and Disabled result codes. This can be accomplished by executing the following standard modem commands:

- ATS0 Enables auto-answer
 - ATQ1 Disables result codes
-

Upgrading to New Software Releases Using TFTP

TFTP upgrades can be performed while the switch is in operation. Switching will continue with only a three-second pause in operation while the image is being stored in the on-board Flash memory. To configure and initiate a TFTP download, refer to the TFTP menu selection (Configure...TFTP) on the console. Use the files **citr2111.img** and **cifd2111.img** to upgrade using TFTP.

Change History

The TR.2.1.11 release includes the following changes from the previous release:

- 1 With spanning-tree bridging enabled, specifically routed frames (SRFs) were incorrectly dropped if destined for the same ring number as the one the SRFs arrived on. This has been corrected in this release. (DDTs #80477)
- 2 Dynamic configuration of segment numbers (ring#s) could possibly create an incorrect forwarding path through the switch. This would occur if creating more than two new segment numbers among the ports found on the upper module in a 2-module system. This has been corrected in this release. (DDTs #78655)
- 3 Setting the FDDI port to SR or SRT mode via SNMP was not permitted in previous releases. This capability has been added to this release. (DDTs #80481)
- 4 Quitting a Telnet session would not cause the Telnet session to disconnect, but rather returned the user back to the Catalyst 1800 password prompt. This has been changed to cause the Telnet session to terminate if the **quit** command is executed from a Telnet session. (DDTs #74709)

- 5 The dot1dBasePortCircuit SNMP variable would return incorrect segment (ring number) information when more than nine logical segments were configured. This has been corrected in this release. (DDTs #77315)
- 6 The hardware-type field of BOOTP/DHCP traffic was not being translated between Token Ring and FDDI segments. This has been changed so that all BOOTP/DHCP traffic traversing the switch will encode a type 1 hardware-type on FDDI and a type 6 hardware-type on Token Ring. (DDTs #80488)

The TR.2.1.10 release included the following changes from the previous release:

- 1 RMON alarms are now sent with an enterprise OID of “RMON”. Previously, some RMON clients may not have accepted Catalyst 1800-generated RMON alarm traps. (DDTs #74642).
- 2 BPDU frames were not being sent on all ports participating in spanning tree. This has been corrected in this release. (DDTs #74754, #74713)
- 3 SNMP access to large MAC and NetBIOS databases would time out. This has been corrected in this release (DDTs #74715, # 74732).
- 4 Client to server connections were sometimes blocked when running Token Ring and FDDI redundant configurations. This has been corrected in this release (DDTs #74778).
- 5 Ports configured to participate as SPAN ports would not take effect if the output SPAN port was located in the upper module of a 2-module system (12-port, 16-port configurations). This has been corrected in this release (DDTs #74718).
- 6 NetBIOS names were defined as octet strings via the Catalyst 1800 proprietary MIB. These have been changed to display strings for friendlier viewing of those names. (DDTs #74727).
- 7 IP ARPs were being incorrectly flooded to multiple ports with spanning tree enabled. This has been corrected in this release. (DDTs #74760).
- 8 Removing a cable from ports 6, 7, or 8 in a 12-port configuration under heavy load would sometimes cause the top card in the switch to stop forwarding frames. This has been corrected in this release (DDTs #76365).
- 9 Telnet sessions were being refused following a series of network reconfigurations (due to Spanning Tree changes or cable moves/adds/changes). Telnet now supports a default 5 minute timeout to recover from such events (DDTs #77138).
- 10 Changing the ring number of a port with spanning tree enabled left all ports on the top card of a two-card switch in Learning state in which forwarding of frames is blocked. This has been corrected in this release (DDTs #77142).

Cisco Connection Online

Cisco Connection Online (CCO) is Cisco Systems’ primary, real-time support channel. Maintenance customers and partners can self-register on CCO to obtain additional information and services.

Available 24 hours a day, 7 days a week, CCO provides a wealth of standard and value-added services to Cisco’s customers and business partners. CCO services include product information, user documentation, software updates, release notes, technical tips, the Bug Navigator, configuration notes, brochures, descriptions of service offerings, and download access to public and authorized files.

CCO serves a wide variety of users through two interfaces that are updated and enhanced simultaneously: a character-based version and a multimedia version that resides on the World Wide Web (WWW). The character-based CCO supports Zmodem, Kermit, Xmodem, FTP, and Internet

e-mail, and it is excellent for quick access to information over lower bandwidths. The WWW version of CCO provides richly formatted documents with photographs, figures, graphics, and video, as well as hyperlinks to related information.

You can access CCO in the following ways:

- WWW: <http://www.cisco.com>
- WWW: <http://www-europe.cisco.com>
- WWW: <http://www-china.cisco.com>
- Telnet: cco.cisco.com
- Modem: From North America, 408 526-8070; from Europe, 33 1 64 46 40 82. Use the following terminal settings: VT100 emulation; databits: 8; parity: none; stop bits: 1; and connection rates up to 28.8 kbps.

For a copy of CCO's Frequently Asked Questions (FAQ), contact cco-help@cisco.com. For additional information, contact cco-team@cisco.com.

Note If you are a network administrator and need personal technical assistance with a Cisco product that is under warranty or covered by a maintenance contract, contact Cisco's Technical Assistance Center (TAC) at 800 553-2447, 408 526-7209, or tac@cisco.com. To obtain general information about Cisco Systems, Cisco products, or upgrades, contact 800 553-6387, 408 526-7208, or cs-rep@cisco.com.

This document is to be used in conjunction with the *Catalyst 1800 Token Ring Switch User Guide* publication.

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