Release Notes for IP Transfer Point (ITP) 7600 for Cisco IOS Release 12.2(18)IX

12/15/2006
Cisco IOS Release 12.2(18)IXC

These release notes for the ITP 7600 platform describe the enhancements provided in Cisco IOS Release 12.2(18)IXC and later. These release notes are updated as needed.

For a list of the software caveats that apply to Cisco IOS Release 12.2(18)IX, see the "Caveats for Cisco IOS Release 12.2(18)IX" section on page 6.

Contents

These release notes include the following topics:

System Requirements

This section describes the system requirements for Cisco IOS Release 12.2(18)IX and includes the following sections:

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Memory Requirements

Table 1 Images and Memory Recommendations for the ITP 7600 Cisco IOS Release 12.2(18)IXC

Platform	Feature Sets	Image Name	Software Image	Flash Memory Recommended	DRAM Memory Recommended	Runs From
Cisco 7600	IP Transfer Point	IP Transfer Point	s72033-itpk9v-mz	512	512	Flash

Table 2 Images and Memory Recommendations for the ITP 7600 Cisco IOS Release 12.2(18)IXB1

Platform	Feature Sets	Image Name	Software Image	Flash Memory Recommended	DRAM Memory Recommended	Runs From
Cisco 7600	IP Transfer Point	IP Transfer Point	s72033-itpk9v-mz	512	512	Flash

Table 3 Images and Memory Recommendations for the ITP 7600 Cisco IOS Release 12.2(18)IXA

Platform	Feature Sets	Image Name	Software Image	Flash Memory Recommended	DRAM Memory Recommended	Runs From
Cisco 7600	IP Transfer Point	IP Transfer Point	s72033-itpk9v-mz	512	512	Flash

Hardware Supported

Table 4 shows the supported interfaces for the ITP 7600 platform.

Table 4 Supported Interfaces for the Cisco ITP 7600

Interface or Linecard	Introduced In[1]
Cisco 7600 Supervisor Engine 720-3B	12.2(18)IXB1
ATM Port Adapter (PA-A6-0C3)	12.2(18)IXB1
ITP SS7 Q.703 High-speed Port Adapter (PA-MCX-4TE1-Q)	12.2(18)IXB1
Cisco 7600 Supervisor Engine 720-3BXL	12.2(18)IXA
Enhanced FlexWAN module for the Cisco 7600 Series Router (WS-X6582-2PA)	12.2(18)IXA
2 Port FE (PA-2FE-TX)	12.2(18)IXA
ITP SS7 Port Adapter for SS7 low-speed links (PA-MCX-8TE1-M)	12.2(18)IXA
ATM Port Adapter for SS7 high speed links (PA-A3-8E1IMA)	12.2(18)IXA
ATM Port Adapter for SS7 high speed links (PA-A3-8T1IMA)	12.2(18)IXA

1. The number in the "Introduced In" column indicates the Cisco IOS Release in which the interface was introduced on the ITP 7600.

Determining the Software Version

To determine the version of Cisco IOS software running on your Cisco ITP 7600, use the **show version** EXEC command.

New and Changed Information

New Hardware Features in Release 12.2(18)IXC

No new hardware features are supported by the ITP 7600 for Cisco IOS Release 12.2(18)IXC.

New Software Features in Release 12.2(18)IXC

The following new software features are supported by ITP 7600 on Cisco IOS Release 12.2(18)IXC:

- GWS SCCP Error Return
- MLR SCCP Error Return
- Multiple HSL PVCs per Physical ATM interface
- SCCP/MAP Address Modification for SRI-SM Messages.
- C-Link Backup Routing of M3UA/SUA Traffic

MLR SCCP Error Return

Platforms: Cisco 7604, Cisco 7606, Cisco 7609, Cisco 7613

Cisco IOS Release 12.2(18)IXC allows you to configure MLR to return a UDTS to the source of the SCCP packet when the SCCP packet is blocked. You configure this by specifying an optional sccp-error parameter on block results in MLR rules and MLR address tables.

GWS SCCP error return is documented in *IP Transfer Point (ITP) on the Cisco 7600 Platform*.

GWS SCCP Error Return

Platforms: Cisco 7604, Cisco 7606, Cisco 7609, Cisco 7613

Cisco IOS Release 12.2(18)IXC allows you to configure GWS to return a UDTS to the source of the SCCP packet when the SCCP packet is dropped. You configure a return UDTS when you define the gateway screening action set in enhanced GWS.

GWS SCCP error return is documented in *IP Transfer Point (ITP) on the Cisco 7600 Platform*.

Multiple HSL PVCs per Physical ATM interface

Platforms: Cisco 7604, Cisco 7606, Cisco 7609, Cisco 7613

Cisco IOS Release 12.2(18)IXC allows multiple HSL PVCs per physical ATM interface. This is done through the support of subinterface configuration on the ATM link. Prior to Cisco IOS Release 12.2(18)IXC, you could only configure the ATM interface not any subinterfaces. The ability to create additional subinterfaces allows for more qssals, since only one qssal is allowed per interface or subinterface.

The multiple HSL PVCs feature is documented in *IP Transfer Point (ITP) on the Cisco 7600 Platform*.

SCCP/MAP Address Modification for SRI-SM Messages

Platforms: Cisco 7604, Cisco 7606, Cisco 7609, Cisco 7613

Cisco IOS Release 12.2(18)IXC permits SCCP and MAP address modification using a MLR **modify-profile**. MLR currently supports modifying only the service center address (orig-smsc) and the calling party address (CgPA) for SRI-SM messages.

With Cisco IOS Release 12.2(18)IXC, the user can also now optionally configure the desired action for failed modifications using the **modify-failure** command within the MLR options submode. A user can also configure the **preserve-opc** function within the global MLR options submode. The **preserve-opc** function retains the original Originating Point Code (OPC). The user may configure MLR to return a UDTS to the source of the SCCP packet when the SCCP packet is blocked by specifying an optional **sccp-error** parameter on block results.

SCCP and MAP address modification is documented in *IP Transfer Point (ITP) on the Cisco 7600 Platform*.

C-Link Backup Routing of M3UA/SUA Traffic

Platforms: Cisco 7604, Cisco 7606, Cisco 7609, Cisco 7613

Cisco IOS Release 12.2(18)IXC supports a C-link Backup Routing feature that provides backup routing to M3UA and SUA ASs. It uses an MTP3/M2PA linkset to a remote SG serving the same ASs over SCTP/IP. This configurable software feature is available to any ITP running a sigtran protocol (M3UA and/or SUA) and offloaded MTP3. The remote SG that is reachable through the C-link may be another ITP, or any SG serving the same ASs.

C-link Backup Routing is documented in *IP Transfer Point (ITP) on the Cisco 7600 Platform*.

New Hardware Features in Release 12.2(18)IXB1

The following new hardware features are supported by ITP 7600 on Cisco IOS Release 12.2(18)IXB1:

Support for the ATM Port Adapter (PA-A6-OC3)

Platforms: Cisco 7604, Cisco 7606, Cisco 7609, Cisco 7613

The ATM Port Adapter (PA-A6-OC3) provides 8K VCs per port adapter and represents a performance improvement over the PA-A3-OC3 Port Adapter. The feature and function of the PA-A6-OC3 is unchanged.

The PA-A6-OC3 Port Adapter is supported in three variants:

- Multimode (PA-A6-OC3MM)
- Single-mode intermediate reach (PA-A6-OC3SMI)
- Single-mode long reach (PA-A6-OC3SML)

Each variant of the PA-A3-OC3 Port Adapter supports 2 physical optical connections for ATM signaling, one transmit and one receive for OC3 or STM-1 direct connectivity.

Support for the Cisco 7600 Supervisor Engine720 with Policy Feature Card 3B (SUP720-3B)

Platforms: Cisco 7604, Cisco 7606, Cisco 7609, Cisco 7613

The Cisco 7600 Supervisor Engine 720-3B (SUP720-3B) is a member of the SUP720 family with a modular PFC3B forwarding engine daughter card.

Support for Q.703 Annex A High-speed Links (PA-MCX-4TE1-Q)

Platforms: Cisco 7604, Cisco 7606, Cisco 7609, Cisco 7613

Cisco IOS Release 12.2(18)IXB1 provides support for Q.703 Annex A high-speed links on the ITP. The SS7 Q.703 High-speed Port Adapter (PA-MCX-4TE1-Q) supports enhanced Message Transfer Part Level 2 (MTP2) functions and procedures that are suitable for the operation and control of signalling links at data rates o 1.5 and 2.0 Mb. The ITP software for Cisco IOS Release 12.2(18)IXB1 enables configuration of the card type and controller and enables configuration of the interface for SS7 high speed MTP2 encapsulation.

Support for Q.703 Annex A high speed links is documented in *SS7 Q.70 High Speed Port Adapter Installation and Configuration Guide* and in *IP Transfer Point (ITP) on the Cisco 7600 Platform*.

New Software Features in Release 12.2(18)IXB1

The following new software features are supported by ITP 7600 on Cisco IOS Release 12.2(18)IXB1:

Preventive Cyclic Redundancy (PCR) Error Correction

Platforms: Cisco 7604, Cisco 7606, Cisco 7609, Cisco 7613

Cisco IOS Release 12.2(18)IXB1 supports Preventive Cyclic Redundancy (PCR) Error Correction as described in Q.703 and GR-246. PCR is an alternative form of error correction for MTP2 links and is typically used on links that have a long delay (such as satellite links).

The PCR error correction feature is documented in *IP Transfer Point (ITP) on the Cisco 7600 Platform*.

Multi-Layer Routing (MLR) Generic Opcode Support

Platforms: Cisco 7604, Cisco 7606, Cisco 7609, Cisco 7613

Cisco IOS Release 12.2(18)IXB1 extends Mobile Access Part (MAP) operation support to include all GSM-MAP (3GPP TS 29.002 version 5.9.0 Release 5) operations in MLR rules.

MLR Generic Opcode support is documented in *IP Transfer Point (ITP) on the Cisco 7600 Platform*.

Insert Destination Point Code (DPC) in Called Party (CDPA) PC

Platforms: Cisco 7604, Cisco 7606, Cisco 7609, Cisco 7613

Cisco IOS Release 12.2(18)IXB1 provides a global option to insert DPC into the CDPA PC for packets that are MLR-routed.

The Insert DPC in CDPA feature is documented in *IP Transfer Point (ITP) on the Cisco 7600 Platform*.

New Hardware Features in Release 12.2(18)IXA

The initial release of ITP 7600 in Release 12.2(18) IXA includes the following hardware feature set:

- Cisco 7600 Supervisor Engine 720-3BXL
- Enhanced FlexWAN module for the Cisco 7600 Series Router (WS-X6582-2PA)
- 2 Port FE (PA-2FE-TX)
- ITP SS7 Port Adapter for SS7 low-speed links (PA-MCX-8TE1-M)
- ATM Port Adapter for SS7 high speed links (PA-A3-8E1IMA)
- ATM Port Adapter for SS7 high speed links (PA-A3-8T1IMA)

New Software Features in Release 12.2(18)IXA

The ITP 7600 platform provides the following key features:

- Non-Disruptive Upgrade
- Standard STP routing (MTP, GTT) and variant support
- Standard M3UA/SUA Signaling Gateway (Offloaded)
- QoS
- Gateway Screening
- Multiple Instances and Instance Translation
- Multiple Point Codes (primary, secondary, capability) per instance.
- Offloaded Multi-Layer Routing
- Offloaded Enhanced Gateway Screening

Caveats for Cisco IOS Release 12.2(18)IX

Hardware Caveats

None

Open Caveats - Release 12.2(18)IXC

- CSCsd34549

Symptom Unexpected config_state value is seen during reload or switchover.

Conditions This is seen after an IMA card reloads or switches over.

Workaround There is no known workaround. However, there are no known harmful effects.

- CSCsd73254

Symptom On the ITP 7600 platform, if a specific software error on the active RP causes the active RP to fail, the standby SUP may not detect the failure. Instead, the active SUP may reload the ITP to restore ITP manageability.

Conditions This has only been observed in specific lab tests that force a specific software failure on the active RP.

Workaround None

- CSCse11887

Symptom IPCALLOCFAIL occurs during OIR of FlexWAN.

Conditions The problem occurs intermittently during FlexWAN OIR.

Workaround None

- CSCsf04659

Symptom MSU Rates are reported for non-existent interfaces.

Conditions If a FlexWAN is removed from the system, MSU rates continue to be reported for all interfaces on the affect FlexWAN.

Workaround None

- CSCsf10777

Symptom An ATMPA-3-CMDFAIL may occur when you extract the Flexwan from the chassis.

Conditions Occurs only when the Flexwan contains an E1 IMA PA, and the Flexwan is extracted from the chassis. Once the Flexwan is reinserted no additional symptoms occur.

Workaround No workarounds are known if the Flexwan is extracted.

- CSCsg93892

Symptom An emergency changeover occurs, instead of the expected normal changeover, when the ATM interface is shutdown. This emergency changeover may cause packet loss.

Conditions The cs7 link associated with this ATM interface is available.

Workaround None

Resolved Caveats - Release 12.2(18)IXC

- CSCsd96345

Symptom An ITP with HSL links running at high utilization (near 100% capacity) of the physical underlying T1/E1, after entering congestion, may begin to flap and continue to flap until traffic is suppressed through TFC messages by the originator.

Conditions HSL link is driven into congestion when priority 0 traffic nears a 100% of the physical T1/E1 capacity.

Workaround None

- CSCsf01453

Symptom Disabling triggers during MLR configuration may drop MLR traffic.

Conditions The system sets a timer when you enter MLR configuration mode. When the timer expires all existing configuration is sent to the FlexWANs to update all MLR tables and configurations. This event occurs whether you complete configuration or not. When the configuration is sent to each FlexWAN, MLR is disabled for a short period of time for that FlexWAN. During this time period, MLR processing is not available for that FlexWAN. Also, statistics may incorrectly report for MLR.

Workaround Configure GTT for backup delivery when disabled MLR occurs. It is recommended to configure MLR during maintenance periods of little or no existing traffic.

- CSCsf22759

Symptom XUA packets drop under high traffic with several ASPs.

Conditions Multiple ASPs are sending & receiving M3UA/SUA traffic.

Workaround None

- CSCsf22768

Symptom Active ASPs with zero weight do not use the round robin, as is expected.

Conditions M3UA/SUA traffic routed to a loadshare round robin AS.

Workaround None

- CSCsf29679

Symptom The Instance SLS Shift does not download to FlexWan

Conditions ITU variant, M3UA, or SUA configuration, and cs7 sls-shift, configured to 1, 2, or 3.

Workaround None

- CSCsg01213

Symptom Egress FE interface incorrectly reports total output_drops

Conditions This bug is present in 76xx platforms running 12.2(18)IXA and 12.2(18)IXB and 12.2(18)IXB1.

Workaround None

- CSCsg09620

Symptom The beat message is processed by SG between ASPUP and ASPAC.

Conditions This occurs in a timing window where the beat messages are sent by the ASP, immediately after receiving ASP Up Ack from the ITP.

Workaround None

- CSCsg27544

Symptom While processing retrieved paks for M3UA, the SUP encounters a CPUHOG and reloads.

Conditions The CPUHOG and reload happen when the SUP is trying to process a retrieved pak.

Workaround None

- CSCsg40048

Symptom While processing an unexpected message, the SUP reloads in XUA Offload Inbound

Conditions All 7600-based ITPs running m3ua and/or sua.

Workaround None

- CSCsg42706

Symptom SUP shows CS7 XUA ERROR: binding already exists

Conditions None

Workaround None

- CSCsg72008

Symptom A reload occurs after deleting ASP from the AS submode when bindings are available.

Conditions This occurs when routing m3ua/sua traffic for a loadshare bindings AS.

Workaround None. The problem is only cosmetic.

- CSCsg87626

Symptom Updating the AS from dwn-re --> down state on FlexWAN fails.

Conditions This occurs when you are routing m3ua/sua traffic with SGMP enabled, the SGMP association goes down, or the ASP goes inactive on mate.

Workaround None

Open Caveats - Release 12.2(18)IXB1

- CSCsd34549

Symptom Unexpected config_state value is seen during reload or switchover.

Conditions Error seen with IMA card after a reload or switchover.

Workaround There is no known workaround. However, there are no known harmful effects.

- CSCsd73254

Symptom On the ITP 7600 platform, if a specific software error on the active RP causes the active RP to fail, the standby SUP may not detect the failure, but instead the active SUP may reload the ITP to restore ITP manageability.

Conditions This has only been observed in specific lab tests that force a specific software failure on the active RP.

Workaround None

- CSCsd96345

Symptom An ITP with HSL links running at high utilization near 100% capacity of the physical underlying T1/E1, after entering congestion may begin to flap and continue to flap until traffic is suppressed via TFC messages by the originator.

Conditions HSL link is driven into congestion with priority 0 traffic at near 100% of the physical T1/E1.

Workaround None

- CSCse11887

Symptom IPCALLOCFAIL occurs during OIR of FlexWAN.

Conditions Problem intermittently occurs during FlexWAN OIR.

Workaround None

- CSCsf01453

Symptom MLR traffic may be dropped when triggers are disabled during MLR configuration.

Conditions The system sets a timer when you enter MLR configuration mode. When the timer expires all existing configuration is sent to the FlexWANs to update all MLR tables and configurations. This event occurs whether you complete configuration or not. When the configuration is sent to each FlexWAN, MLR is disabled for a short period of time for that FlexWAN. During this time period, MLR processing is not available for that FlexWAN. Also, statistics may incorrectly report for MLR.

Workaround Configure GTT for backup delivery during occurrences where MLR is disabled. Configure MLR during maintenance periods where traffic may be low or non-existent.

- CSCsf03311

Symptom SUP and FlexWAN ASP configuration becomes mismatched.

Conditions If user modifies the configuration of an existing ASP, the configuration is saved on SUP but never relayed to the FlexWAN. Thus, the FlexWAN continues to use the original configuration parameters, use (for example, src and destination ports).

Workaround ASPs must be deleted completely then reconfigured with new parameter data.

- CSCsf04659

Symptom MSU Rates are reported for non-existent interfaces.

Conditions If a FlexWAN is removed from the system, MSU rates continue to be reported for all interfaces on the affect FlexWAN.

Workaround None

Resolved Caveats - Release 12.2(18)IXB

- CSCek38607

Symptom ITP running on the Cisco 7600 platform may experience error messages and global title translation table errors if a switchover from the active RP to the standby RP happens after the system reaches ITP NSO mode, but before GTT table download to the line cards is complete.

Conditions The switchover must happen between the system reaching NSO state (indicated by console message) and GTT table download complete (also indicated via console log message).

Workaround Avoid issuing a redundancy force-switchover until after the system has reached NSO mode and the GTT download complete message has been displayed on the console or in system logs.

- CSCek38702

Symptom An ITP running on Cisco 7600 platform when switching from active RP to standby RP due to a failure on the active RP due to certain software errors may encounter a switchover delay. Normally this delay is expected to be 2 to 4 seconds, but in this failure mode, the delay may be longer. Depending on the traffic load and the length of switchovers, some links may be taken out of service temporarily due to local or remote protocol errors. If the duration of the switchover is long enough, some FlexWANs may be reloaded by the new active to clear the condition.

Conditions This has only been observed in specific lab tests using internal debug commands that force software failures on the active RP. This issue only happens a small percentage of the times this specific test is executed.

Workaround None

- CSCsd83706

Symptom Unexpected FlexWAN reload upon update and save of MLR configuration.

Conditions This is a timing related bug and it does not happen every time. When an update of MLR trigger or route table configuration is done, followed by a save configuration, some FlexWANs might unexpectedly reload.

Workaround None

- CSCsd91506

Symptom Under rare circumstances, packets may be lost during rerouting of packets destined for a failed ASP to an active ASP in an AS.

Conditions The problem may occur when there are two or more active ASPs in an AS, and one of the active ASP's SCTP association fails.

Workaround None

- CSCsd92741

Symptom Under rare circumstances, a spurious memory access may occur at bootup on a FlexWAN with M2PA links.

Workaround None

- CSCsd94495

Symptom All FlexWANs reload.

Conditions Occurs when user deletes an MLR secondary trigger directly.

Workaround If it is necessary to remove a secondary trigger, delete the primary trigger and then add the primary back. The secondary trigger will be deleted and no reload on FlexWANs will occur.

- CSCsd94659

Symptom MLR continues to route data based on an address which was deleted from an existing MLR address-table. The deleted address does not appear in the MLR address-table configuration, and it is not displayed via the **show cs7 mlr address-table** on the RP.

Conditions This problem only occurs when the user configures multiple address-table names that are unique only in the use of upper/lower case (for example, TABLENAME and TableName).

Workaround Define unique MLR address-table names, regardless of the use of upper/lower case. Do not configure an address-table name which consists of the same characters in a different case.

Open Caveats - Release 12.2(18)IXA

- CSCek38607

Symptom ITP running on the Cisco 7600 platform may experience error messages and global title translation table errors if a switchover from the active RP to the standby RP happens after the system reaches ITP NSO mode, but before GTT table download to the line cards is complete.

Conditions The switchover must happen between the system reaching NSO state (indicated by console message) and GTT table download complete (also indicated via console log message).

Workaround Avoid issuing a redundancy force-switchover until after the system has reached NSO mode and the GTT download complete message has been displayed on the console or in system logs.

- CSCek38702

Symptom An ITP running on Cisco 7600 platform when switching from active RP to standby RP due to a failure on the active RP due to certain software errors may encounter a switchover delay. Normally this delay is expected to be 2 to 4 seconds, but in this failure mode, the delay may be longer. Depending on

the traffic load and the length of switchovers, some links may be taken out of service temporarily due to local or remote protocol errors. If the duration of the switchover is long enough, someFlexWANs may be reloaded by the new active to clear the condition.

Conditions This has only been observed in specific lab tests using internal debug commands that force software failures on the active RP. This issue only happens a small percentage of the times this specific test is executed.

Workaround None

- CSCsd34549

Symptom Unexpected config_state value is seen during reload or switchover.

Conditions Error seen with IMA card after a reload or switchover.

Workaround There is no known workaround. However, there are no known harmful effects.

- CSCsd73254

Symptom On the ITP 7600 platform, if a specific software error on the active RP causes the active RP to fail, the standby SUP may not detect the failure, but instead the active SUP may reload the ITP to restore ITP manageability.

Conditions This has only been observed in specific lab tests that force a specific software failure on the active RP.

Workaround None

- CSCsd83706

Symptom Unexpected FlexWAN reload upon update and save of MLR configuration.

Conditions This is a timing related bug and it does not happen every time. When an update of MLR trigger or route table configuration is done, followed by a save configuration, some FlexWANs might unexpectedly reload.

Workaround None

- CSCsd91506

Symptom Under rare circumstances, packets may be lost during rerouting of packets destined for a failed ASP to an active ASP in an AS.

Conditions The problem may occur when there are two or more active ASPs in an AS, and one of the active ASP's SCTP association fails.

Workaround None

- CSCsd92741

Symptom Under rare circumstances, a spurious memory access may occur at bootup on a FlexWAN with M2PA links.

Workaround None

- CSCsd94495

Symptom All FlexWANs reload.

Conditions Occurs when user deletes an MLR secondary trigger directly.

Workaround If it is necessary to remove a secondary trigger, delete the primary trigger and then add the primary back. The secondary trigger will be deleted and no reload on FlexWANs will occur.

- CSCsd94659

Symptom MLR continues to route data based on an address which was deleted from an existing MLR address-table. The deleted address does not appear in the MLR address-table configuration, and it is not displayed via the **show cs7 mlr address-table** on the RP.

Conditions This problem only occurs when the user configures multiple address-table names that are unique only in the use of upper/lower case (for example, TABLENAME and TableName).

Workaround Define unique MLR address-table names, regardless of the use of upper/lower case. Do not configure an address-table name which consists of the same characters in a different case.

- CSCsd96345

Symptom An ITP with HSL links running at high utilization near 100% capacity of the physical underlying T1/E1, after entering congestion may begin to flap and continue to flap until traffic is suppressed via TFC messages by the originator.

Conditions HSL link is driven into congestion with priority 0 traffic at near 100% of the physical T1/E1.

Workaround None