

HP OSI Transport Services/9000 Release Notes

C.12.00 for HP UX 11.23

Edition 1



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HP 9000 Networking

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**HP OSI Transport Services/9000
(C.12.00 for HP UX 11.23)**

Introduction

HP OSI Transport Services/9000 (OTS/9000) is the OSI networking stack of HP-UX. It provides functions of OSI Layers 3 (Network), 4 (Transport), 5 (Session), 6 (Presentation) and ACSE/ROSE over X.25, FDDI and IEEE802.3 LAN interfaces. It also provides RFC1006 that allows users to run OSI Services over TCP connections. Applications can use OTS/9000 via Application Program Interfaces (APIs) to layers 4, 5, 6 and ACSE/ROSE application entities.

Audience

The following information is for version C.12.00 of HP OTS/9000.

If you are considering updating to OTS/9000 version C.12.00 from OTS/9000 version C.09.03 for HP-UX 11.00, please read the release notes for version C.11.00 also.

If you are considering updating to OTS/9000 version C.12.00 from OTS/9000 version C.08.00, please read the release notes for version C.09.03 and the release notes for version C.11.00.

If you are considering updating to OTS/9000 version C.12.00 from OTS/9000 version C.07.00 for HP-UX 10.20, or earlier, you may want to read the release notes for version C.08.00, the release notes for version C.09.03 and the release notes for version C.11.00.

NOTE

The following release notes is also available online when the OTS/9000 product is installed. Please see `/opt/ots/doc/README_C1200` for an ASCII version of the release notes.

What's New In this Version?

What's New In this Version?

HP OSI Transport Services/9000 version C.12.00 contains the following new features and functionalities.

Features

HP OSI version C.12.00 provides the following features:

1. otsshownsaps

When otsshownsaps is executed, it shows the list of NSAP configured on OTS. In addition, the new enhancement shows the following:

- a. State of NSAP, that is whether static or dynamic.
- b. Interface on which NSAP is configured.
- c. NSAP alias.

2. Expedited Data transfer on RFC1006 subnet. This is an enhancement for support of transferring expedited Data on RFC1006 subnet using the XTI API interface. The following are the new features:

- a. Support for sending and receiving of expedited data on RFC1006 subnet, using XTI interface.
- b. Support for sending User Data as a part of Connect Request PDU, using XTI interface.
- c. Support for 64K size Data Transfer PDUs.
- d. Provides means to enable & disable the feature to support expedited data on RFC1006 subnet.

Benefits

Upgrading to HP's OSI version C.12.00 provides the following benefits/support :-

1. otsshownsaps

It is now possible to find the state of NSAP. Information on interface to which the NSAP is configured is also made available. Where possible, the NSAP alias is also shown.

2. Expedited Data transfer on RFC1006 subnet

What's New In this Version?

It is now possible to transfer expedited data on the RFC1006 subnet using the XTI API interface. The enhancement also allows user to send data as part of connect request. Depending on user requirements, this feature can be enabled or disabled.

3. Support for HP-UX version 11.23. If you wish to upgrade to HP-UX version 11.23, you must also upgrade to HP OTS/9000 version C.12.00.
4. Updated documentation set with HP OTS/9000 version C.12.00.

Fixes

Numerous fixes were incorporated into this release of HP OSI Transport Services/9000. See the section "Patches and Fixes in this Version" for more information.

NOTE

The Advanced Communication Controller card (ACC/X.25) is not supported on HP-UX version 11.23. Consequently, the ACC/X.25 card cannot be used with HP OTS/9000 version C.12.00.

Compatibility and Installation Requirements

Software Requirements

- HP-UX 11.23
If you are currently running an older version of HP-UX, you must upgrade to HP-UX 11.23 before installing HP OSI Transport Services/9000 version C.12.00.
- HP 9000 networking link products such as
 - HP LAN/9000
 - HP FDDI/9000
 - HP X.25 products(High-Perfomrance STREAMS-X25)

Hardware Requirements

- HP 9000 Servers
- Installation/Update media hardware such as:
 - DDS tape drive
 - CDROM drive
- Networking link adapter (e.g. HP LAN/9000 card)

Disk Space and Memory Requirements

- 85 MB of disk space

Installation Instructions

The "Installing and Administering HP OTS/9000" manual (HP Part Number 32070-90030) contains complete instructions for installing this product. See that document for detailed instructions.

A reboot is required for installing HP OTS/9000. The reboot is required to rebuild the HP-UX kernel with HP OTS/9000.

Known Problems and Workarounds

1. When MC/ServiceGuard initiates a local LAN switchover for HP OTS/9000 from one LAN card to another and then switches back to the first LAN card within 120 seconds, some operations to the first LAN card may fail. This is because previous LAN card information is still in the ESH table.

Workaround :

If this happens, wait until after 120 seconds from the first switchover and try the switchover again.

2. With RFC1006 subnet configured in `ots_subnets`, if the subnet record has references to `snet_socket_size` and `snet_tcp_nodelay`, `osiconfchk` would report the following warning:

```
.....
```

```
/etc/opt/ots/conf/ots_subnets
```

```
.....
```

```
Line 28:
```

```
->snet_socket_size          4096
```

```
Warning: Unknown keyword. Line will be ignored. (CHK011)
```

```
NOTE: This line cannot be corrected with osiconf. (CHK080)
```

```
Line 29:
```

```
->snet_tcp_nodelay          0
```

```
Warning: Unknown keyword. Line will be ignored. (CHK011)
```

```
NOTE: This line cannot be corrected with osiconf. (CHK080)
```

Workaround :

These warnings may safely be ignored, without any serious consequences.

3. In C.12.00 version of OTS, if a local LAN switchover occurs when OTS is running and OTS is then stopped, OTS configuration files would still contain a reference to the primary LAN interface. So a restart would cause OTS to come up with the primary LAN interface instead of the switched/secondary LAN interface.

The above problem may also happen if OTS is started subsequent to a local LAN switchover.

Workaround :

A workaround is to verify that the interface configured for use in OTS is currently the functional LAN interface, before restarting OTS.

Fixes in this version

Fixes in this version

HP OTS/9000 version C.12.00 incorporates several fixes as available via patch PHNE_17864 to be applied to OTS/9000 version C.11.00.

The following section describes the new fixes available in PHNE_17864 and the additional fix in this version:

1. CR JAGad91302

Symptom	osidiag dumps core when more than 4 lan entries are configured in the system.
Defect Description	The structure used to hold information about PPAs was limited to hold 4 entries. When more physical lan entries or link aggregates are created through APA software, it causes the structure to overflow. Thus when the structure is accessed by osidiag, it dumps core.
Resolution	The structure size is increased to accommodate as high as the maximum PPAs which can be created on 11.X. i.e. 50 lan entries.

2. CR JAGae12971

Symptom	APLI application aborts connection when it receives data more than 64KB.
Defect Description	APLI gives "incorrect interaction length" error and aborts the connection when it receives data more than 64 Kbytes. When End Of Transfer (EOT) is not set by the sender, the RFC1006 layer accumulates the data. This data size could exceed 64K bytes. But the session layer is limited to handle only 64KB. So the session layer is stripping data whose size is greater than 64KB. The APLI application would receive incorrect data length, resulting in aborting the connection.

Resolution	The RFC1006 layer has been modified to limit data accumulation to less than 64KB, therefore solving the problem.
3. CR JAGae18012	
Symptom	Configuring EMS (Event Monitoring Systems) to monitor OTS X.25 subnet fails.
Defect Description	When configuring EMS software to monitor X.25 Subnet, otsresmond is unable to get IP address. The problem is that call to gethostbyname() fails. This call fails because otsresmond is linked with libpthread library and while linking, libpthread is linked after libc. As per CR JAGad69986, libpthread must be linked before libc.
Resolution	Makefile has been changed such that libpthread is linked before libc.
4. CR JAGae28797	
Symptom	Connection request over ACC-X25 subnets fail with N_REJECT error with reason code 0x1203.
Defect Description	When OTS gets a reset-indication from ACC driver, OTS is not freeing a connection context properly. As OTS gets more reset-indication from ACC, more connection contexts are not freed up. Finally all the available free contexts are exhausted. And thus OTS doesn't allow any further connection requests over any subnet.
Resolution	The code has been changed to free the connection contexts when OTS gets reset-indication from ACC driver.
5. CR JAGae42584	

Fixes in this version

Symptom	The ftam responder application dies regularly under very heavy load because of call to ap_bind() fails.
Defect Description	With MP-safe OTS, APLI application fails in ap_bind(). Because of call to ap_bind() fails, the FTAM responder dies. This defect is same as JAGad29070. Since the fix is not properly incorporated in OTS C.09.03 version as the fix migrated from OTS C.11.00 version, the defect is re-occurring.
Resolution	The code has been modified to avoid ap_bind() failure as mentioned in JAGad29070.
6. CR JAGad43676	
Symptom	OTS session applications fail in ses_connect_rs() on MP system with MP-safe OTS installed.
Defect Description	Session applications fail in ses_connect_rs(). The problem was, session library was not handling the EAGAIN error returned by getmsg() properly.
Resolution	The session library code has been modified to handle EAGAIN error returned by getmsg().
7. CR JAGad43746	
Symptom	OTS XAP applications fail in ap_bind() on MP system with MP-safe OTS installed.
Defect Description	The XAP library used to set the error value to AP_INTERNAL if it encountered an EAGAIN error during an ap_bind() call. Hence applications used to fail, since AP_INTERNAL is considered as an unrecoverable error.

Resolution	The XAP library code has been modified to set the error value to AP_AGAIN ,if ap_bind() returns EAGAIN . Since AP_AGAIN is treated as a recoverable error ,applications will retry the ap_bind() call.
8. CR JAGab70710	
Symptom	64 bit OTS libraries libapli,librose and libxap dump core in multi threaded environment.
Defect Description	64 bit OTS libraries libapli,librose and libxap dump core in multi threaded environment.This was because OTS libraries were not compiled with _PROTOTYPES preprocessor directive..
Resolution	<p>OTS libraries are now compiled with _PROTOTYPES preprocessor directive.</p> <p>Makefile_64 is added into these directories /opt/ots/apli/demo/threads_demo /opt/ots/rose/demo/threads_demo /opt/ots/xap/demo/threads_demo</p> <p>This makefile is required for building the 64-bit threads demos.</p>
9. CR JAGad36474	
Symptom	OTS leaks memory in the STREAMS arenas ALLOCB_MBLK_SM, ALLOCB_MBLK_MH, ALLOCB_MBLK_DA and ALLOCB_MBLK_LM when OTS is stopped.
Defect Description	Memory allocated at OTS startup was not being freed when OTS is stopped.

Fixes in this version

Resolution	Code has been added to free the memory allocated at OTS startup, when OTS is stopped.
10. CR JAGad32322	
Symptom	Unnecessary debug print statements in rose API logs.
Defect Description	The rose library had some debug print statements, which were appearing in the log files when ROSE API TRACING is enabled.
Resolution	Unnecessary debug print statements have been removed.
11. CR JAGad69661	
Symptom	TCP bind request fails with Session applications running over RFC1006.
Defect Description	<p>OTS session applications used to fail with TCP bind request. Following the bind failure, the local session application gets a Provider abort and initiates a User abort to the remote. So, the remote session application also used to fail with a Ses-UAB-ID(Session-User Abort-Indication).</p> <p>If the application is binding on a wild card IP address, the code was not checking the length field to determine the length of the RFC header + IP address field .</p> <p>In OTS 11.11 , there are some uninitialized values in these fields. Since length field was not checked , the function was succeeding and returning an invalid IP address value . A bind on this address would fail.</p>
Resolution	Code has been modified to check the length value of the RFC header + IP address field.

12. CR JAGad71962

Symptom	Executing lsof command after OTS is started results in system panic.
Defect Description	OTS sets the write side qi_minfo to null for the ositmr device. Any kernel routine that attempts to dereference the fields of qi_minfo structure could crash the system.
Resolution	The "qi_minfo" field of the write side queue for the timer device is initialized with a valid structure.

13. CR JAGad74372

Symptom	Running osidiag test , returns the error message "Unable to open file '/var/opt/ots/osa01172.TRC0'." , when nettl tracing and logging is ON.
Defect Description	osidiag returns error message, for tracing and logging on 11.11 system because the hard coded extension of ".LOG00" and ".TRC00" is being added to osidiag's log and trace file respectively, by osidiag. These files are given to netfmt for formatting. But in 11.11, nettl formatter expect log and trace file names to end with ".LOG000" and ".TRC000" instead of ".LOG00" and ".TRC00". So as a result the netfmt reports error of missing file.
Resolution	File extensions of osidiag's log and trace file are changed to ".LOG000" and ".TRC000"

14. CR JAGad71074

Symptom	System panics when OTS start/stop tests are run with OTS under heavy load and vmtrace corruption log ON.
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Fixes in this version

Defect Description	The problem is because the code was dereferencing a pointer which is freed.
Resolution	Code has been modified to NULL out the freed pointer when memory is freed and checks have been added for subsequent dereference of the pointer.
15. CR JAGad72644	
Symptom	With vmtrace corruption log ON,system panics in OsiFreeSeg() if LAN initialization fails.
Defect Description	The problem is due to dereferencing a stale pointer.
Resolution	The code has been modified to avoid access of stale pointer.
16. CR JAGad72641	
Symptom	With vmtrace corruption log ON,system panics in ltostr_close() if LAN initialization fails when non-dlpi lan configuration is specified.
Defect Description	With vmtrace corruption log enabled on the system, if lan LAM initialization fails, the system panics in ltostr_close() when trying to access the elements of the data structure stored in the 'q_ptr' field of the streams queue. This was because the pointer stored in the 'q_ptr' field would get freed before the call to ltostr_close() in case of a failure in the lan LAM initialization, and the subsequent access would be dereferencing a stale pointer.
Resolution	The code has been modified to remove pointer references once the addresses are freed, and subsequent accesses to these pointers have a check for null pointers before dereferencing the same.
17. CR JAGad74364	

Fixes in this version

Symptom	Applications linked with HP-UX 11.11 64bit OTS shared libraries libapli,librose and libxap dump core.
Defect Description	Any HP-UX 11.11 ots application, which are linked to 64-bit shared library, dumps core.It is because,the 64-bit shared library internal name does not have a valid library path.
Resolution	The file that sources environment variables has been updated to create libraries with the proper internal name.
18. CR JAGad41294	
Symptom	otsstat behaviour inconsistent between STREAMS/X.25 and ACC/X.25.
Defect Description	With the High-Performance STREAMS/X.25 product, otsstat displays "DOWN" if the port is not initialized, and "NOT RUNNING" if the cable is disconnected (X.25 Level 2 is down), while in case of ACC/X.25, otsstat reports "NOT RUNNING" on uninitialized ports, and "DOWN" on ports where X.25 Level 2 is down.The behaviour with ACC/X.25 is the correct behaviour.
Resolution	otsstat has been modified to have consistent behaviour with both High-Performance STREAMS/X.25 and ACC/X.25.
19. CR JAGab12536	
Symptom	When an application sends CN-SPDU with the user session requirements proposed,it receives an AB-SPDU and fails.
Defect Description	When the user session requirements parameter is proposed in an incoming connection,the way OTS passes up the session version to user application is

Fixes in this version

	<p>incorrect, resulting in the application seeing a different session version than what was proposed. When the application confirms the connection with this version, it does not match with what the kernel has in its structure. This causes an abort to be sent to the initiator of the connection.</p>
Resolution	<p>Code has been modified so that the kernel passes the correct session version to the user application.</p>
20. CR JAGad80070	
Symptom	<p>Kernel stack overflow when OTS is used with mbuf based lan drivers.</p>
Defect Description	<p>The stack overflow occurs in the following situations.</p> <ul style="list-style-type: none">i) If a dynamic NSAP is deleted when applications are registered on that NSAP and are in data transfer state over the associated connections.ii) Due to a bad OTS configuration, where the machine has been configured as a default IS. This would be a bad configuration since OTS cannot be configured as an IS. <p>In both the cases, the incoming CLNP PDU would get locked up between the DLPI layer and OTS CLNP layer.</p> <p>When the PDU was finally freed, it resulted in the kernel stack overflow, due to the chain of streams buffers and mbufs that had to be freed.</p>
Resolution	<p>i) For the first case, when deleting dynamic NSAP, code is modified to remove the routing information entry for that NSAP, so that forwarding the PDU to the local system is avoided.</p>

ii)For the second case, code is modified to ensure that the PDU is not forwarded when the destination physical address points to the local system.

21. CR JAGad76367

Symptom

On running 'osiconfchk', after changing values for parameters in 'ots_subnets' file which requires reboot, the following message is returned "Parameters in this file have been changed OTS is not in an updatable state. The OTS stack on this node must be rebooted to apply the new configuration."

Defect Description

The message displayed is not appropriate , since OTS 11.11 has 'otsstop' feature .

Resolution

Message has been modified appropriately .

22. CR JAGad82794

Symptom

Dequeue of RIB Timer is not proper.

Defect Description

OTS stores the timer element information in a chain of doubly link list,whose size grows, as and when there is need to store more element's information.

This list,once get allocated, becomes part of a timer element's pool and OTS does not deallocate anything from this pool during it's life time.

When some entry gets dequeued from the pool, that entry becomes part of the free list and can be reused, when required.So when any ES/IS element is dequeued, the corresponding timer entry is also dequeued. So as part of timer element dequeue, the element

Fixes in this version

Resolution	from the pool list is also removed, but this entry is not re-initialized again. This can result in bad usage of timer element. Code has been modified for re-initializing the timer element again.
23. CR JAGae04819	
Symptom	PATH and MANPATH environment variables are not set for OTS product when OTS C.11.00 is installed.
Defect Description	On installing the OTS C.11.00 product, the control scripts do not add the following paths to the environment variables : /opt/ots/bin and /opt/ots/lbin to PATH /opt/ots/man to MANPATH .
Resolution	The configure script has been modified to add /opt/ots/bin and /opt/ots/lbin to PATH /opt/ots/man to MANPATH .
24. CR JAGae25619	
Symptom	If snet_tpdu_size configuration parameter is removed or reset to any other value from 65536, RFC1006 connection request fails.
Defect Description	In ots_subnets configuration file, if "snet_tpdu_size 65536" line is added for RFC1006 subnet, all RFC1006 connection request goes through without any problems. But, if the line "snet_tpdu_size 65536" is removed or reset to some other value and OTS stack is restarted, RFC1006 connection request fails. The variable holding the value of "snet_tpdu_size" is static data type. So when the "snet_tpdu_size"

	value is reset and the stack is re-started, the variable was not getting the updated value
Resolution	The code has been modified to reinitialize the variable after every connection request.
25. CR JAGae42578	
Symptom	otsexpdata doesn't disable the support of expedited data transfer over RFC1006 subnet feature.
Defect Description	When otsexpdata is executed to enable the expedited data transfer over RFC1006 subnet, it enables the feature properly. Later if otsexpdata is executed to disable the feature, it shows that the feature has been disabled but OTS stack still allows the expedited data transfer. The bit used to enable/disable the expedited data transfer was not set/reset properly.
Resolution	The code has been changed to set/reset the bit correctly which is used to enable/disable the expedited data transfer feature.
26. CR JAGae57870	
Symptom	Expedited data transfer is not supported in RFC1006 subnet if "snet_tpdu_size" is configured to 65536 on both sides.
Defect Description	When snet_tpdu_size is configured to 65536 on RFC1006 subnet, the connection request from sending side appears to be properly encoded with correct negotiating TPDU size and expedited data enabled for data transfer. On receiving side, when TPDU size is configured to 65536, the encoding of connection confirmation PDU for the

Fixes in this version

Resolution	connection request is incorrect. It disables the expedited data transfer option. Due to this improper encoding of the connection confirmation PDU, the expedited data transfer is not supported in RFC1006 subnet. The code has been changed such that the encoding of the connection confirmation PDU is correct.
27. CR JAGae51098	
Symptom	When more than two 4-port J3526A cards are installed on the system, otsstart, otsupdate, osiconfchk dumps core.
Defect Description	When the system has more than two 4-port J3526A cards, the structure to hold the X25_ARGS field information in /etc/rc.config.d/x25 file exceeds more than 500 characters. This causes osiconfchk to dump core. However, OTS stack works correctly in spite of the core dump.
Resolution	The buffer to hold X.25 card details has now been increased substantially to avoid core dump.
28. CR JAGae47160	
Symptom	OTS/9000 panics when an IS would be disconnected from the system.
Defect Description	Information regarding the IS (its NSAP and MAC) would be stored in the ISI table of the corresponding subnet until its holding timer expires. When this happens, the IS entry was not getting removed, but its corresponding element was getting removed. This information would never get updated again since the IS is disconnected. When there is a transmission through this IS, it would

Fixes in this version

get the IS info, but will panic when getting element information as it is NULL.

The stack trace of panic is given below:

```
panic+0x14
report_trap_or_int_and_panic+0x4c
trap+0xebc
$RDB_trap_patch+0x38
Eselect+0x4 <---- Trap
type 15 in KERNEL mode at
0x52ce3c
ERoMulti+0x94
ERoRl+0x6c0
ip_route+0x124
ip_send+0x3f4
t4sndak+0x284
ttowin+0x78
ositime+0x138
TickOsiam+0x48
sq_wrapper+0x90
str_sched_up_daemon+0x144
str_sched_daemon+0x18c
main+0x360
$vstart+0x34
$locore+0x90
```

Resolution

The code has been modified to NULL out the IS entry also when its element is removed. A route through that IS will fail, without system panic.

Fixes in this version