HP OSI Transport Services/9000 Release Notes

Edition 1

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Manual updates may be issued between editions to correct errors or document product changes. To ensure that you receive the updated or new editions, you should subscribe to the appropriate product support service. See your HP sales representative for details.

First Edition: November 1997 (HP-UX Release 11.0)

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Who should read this Release Notes

This edition of the HP OSI Transport Services/9000 Release Notes contains the current release notes for version C.11.00 for HP-UX 11.11.

If you are considering updating to OTS/9000 version C.11.00 from OTS/9000 version C.08.00, read the release notes for version C.09.02 also.

If you are considering updating to OTS/9000 version C.11.00 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 and the release notes for version C.09.02 also.

NOTE

NOTE: The following release notes is also available online when the OTS/9000 product is installed. Please see /opt/ots/doc/README_C1100 for an ASCII version of the release notes.

Announcements

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.

What's new In this Version?

HP OSI Transport Services/9000 version C.11.00 contains several new features and functionalities.

Features

HP OTS/9000 version C.11.00 provides the following features:

•Dynamic restart

OTS stack can now be stopped and started again, thus allowing the modifications of all the OTS configuration parameters.

Use the command 'otsstop' to stop the OTS stack. Once OTS is stopped, all the communication end points (CEPs) being used by OTS applications will no longer be usable. OTS will try to do a graceful disconnect on all the active connections. Once OTS stop is complete, the OTS stack can be restarted by using the command 'otsstart'. Any change in the OTS configuration files will take effect.

•Support for On Line Replacement(OLR) of LAN and X.25 cards.

With HP-UX 11.11 online replacement of LAN and X.25 cards is supported on N-Class, L-Class and SD-Class systems. OTS has been enhanced to work with on line replacement of LAN and X.25 cards.

For more information on OLR, refer HPUX 11.11 Release Notes.

Benefits

Upgrading to HP OTS/9000 version C.11.00 will provide the following benefits:

• Dynamic Restart

OTS stack can now be stopped and restarted without a system reboot. This would enable :-

- changing NON-DYNAMIC configuration parameters in ots_parms (such as clns_net_entity_title, clns_route_cache_size, clns_dynamic_nsaps, etc.) and subnet configuration parameters for any configured subnet in ots_subnets, which earlier needed a reboot.

- Adding new subnets in ots_subnets.

- Deleting existing subnets from the configuration in ots_subnets.

- Support for On Line Replacement(OLR) of LAN and X.25 cards.

- Support for HP-UX version 11.11. If you wish to upgrade to HP-UX version 11.11, you must also upgrade to HP OTS/9000 version C.11.00.

- Updated documentation set with HP OTS/9000 version C.11.00.

OTS support for OnLine Replacement of LAN and X.25 cards

•On Line Replacement of LAN cards

When LAN cards configured in OTS are replaced, OTS applications using those interfaces will not be able to communicate further till the replaced interfaces have been activated. All outbound OSI packets over those interfaces will be dropped. The applications will be able to resume communication once the interfaces become active.

There is a possibility that the applications may exit with an error due to the transport layer aborting the connection when it fails to send the packets after repeated retransmissions. In such cases, the applications will have to be restarted. If the interface is activated before the transport layer encounters the retransmission limit, the applications will continue without problems.

•On Line Replacement of X.25 cards

When X.25 cards configured in OTS are replaced, OTS applications using that interface will be aborted with an error. The applications will have to be restarted once the replaced interface has been activated.

For more information on OLR, refer to the product specific documentation and HPUX 11.11 Release Notes.

•   Note that OTS support for OLR applies for those interfaces that are already configured for use by OTS in ots_subnets.

   •   This does not require OTS to be stopped.

   •   This means that replacing a LAN card would affect only those applications using that subnet. This would not affect applications running on other configured subnets such as RFC1006, X.25 (CONS/CLNS) or even other CLNS LAN subnets. Only those applications running on the subnet for which the particular interface has been configured would be affected. Again, in case of LAN, as mentioned above, the impact would depend on whether the transport layer aborts the connection due to the retransmission limit being reached.

       For example, if there are two CLNS LAN subnets (say snet1 and snet2), using LAN interfaces lan1 and lan2, if lan1 were to be replaced, this would affect only applications running on snet1. Applications running over snet2 would not be affected.

- In case of X.25, if the interface being replaced is a multi-port card, and if more than one port of this card is configured for use in ots_subnets, then replacing this card would affect all applications using any such subnets.

  For example, if there are two CONS/X.25 subnets (say snet1 and snet2) and 1 CLNS/X.25 subnet (say snet3) configured in OTS to use ports 1, 2 and 3 respectively of a 4-port X.25 card, replacing this X.25 card would affect all applications running over snet1, snet2 and snet3.

Known Problems and Workarounds

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

- In C.11.00 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.

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

- With RFC1006 subnet configured in ots_subnets, 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)
```

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

Compatibility and Installation Requirements

Software Requirements

- HP-UX 11.11 operating system

  If you are currently running an older version of HP-UX, you must upgrade to HP-UX 11.11 before installing HP OSI Transport Services/9000 version C.11.00.

- HP 9000 networking link products such as HP LAN/9000, HP FDDI/9000 and HP X.25 products (High-Performance STREAMS-X25, ACC/X.25).

Hardware Requirements

- HP 9000 Servers

- Installation/Update hardware such as:

  - DDS tape drive

  - CDROM drive

  - Networking link adapter (e.g. HP LAN/9000 card)

Disk Space Requirements

- 85 MB of disk space

Installation Instructions

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

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.

Patches and Fixes in this Version

HP OTS/9000 version C.11.00 incorporates several fixes as available via patch PHNE_17859 to be applied to OTS/9000 versions C.09.00, C.09.01, or C.09.02.

The following section describes the new fixes available in PHNE_17859 and the additional fix in this version:

1. **CR JAGaa32750**

   Symptom Description

   otslogd should report an informative message when OTS drivers are missing in system configuration. In such a case,the following message is logged in /var/opt/ots/OTS.startlog when OTS is started:

   ```
   ERROR:  Can't open streams
   device:  Network is down.
   ```

   Defect Description

   If OTS/9000 is installed on a system without X.25 or LAN product installed, the corresponding OTS drivers are not configured in the system configuration file. Hence OTS fails to start up, logging a message in the file /var/opt/ots/OTS.startlog.

   Resolution

   Code has been modified to report the actual cause of the problem. Also, the message displayed on the screen during OTS startup has also been modified to point the user to the above mentioned log file for more information.

2. **CR JAGab47033**

   Symptom Description

   New occurrence of panic in prctr42().

   Defect Description

   OTS panics in prctr42(), because OTS is unable to handle all the errors in CLNP re-assembly.

Resolution	CLNP re-assembly function has been modified to handle all the error conditions.

3. **CR JAGab65123**

Symptom	Panic in sx25_reactivate()/qenable()
Defect Description	When an X.25 connection channel is suspended due to temporary lack of resources, the references in the suspended queue were not removed when the resources became available later, if the queue had only one element.
Resolution	The code was modified to remove the queue entries properly.

4. **CR JAGab68119**

Symptom	OTS cannot start with "-i" option because otsstart script loops indefinitely.
Defect Description	otsstart script loops indefinitely when used with -i option, because the option -i was not parsed correctly and the error returned from getopt(1m) was not correctly handled.
Resolution	otsstart script has been changed to parse -i option correctly

5. **CR JAGab15222**

Symptom	OTS panic in Xosidump or OsiUnlinkBseg.
Defect Description	OTS panic in Xosidump or OsiUnlinkBseg. The reason is either a "DOM memory error" or "Magic number mismatch". In either case, it is due to accessing an invalid pointer. This happens when the dispatcher tries to reactivate a previously suspended channel, which ideally should have been removed from the suspended queue.

Resolution | The code has been modified to check for suspended channels whenever a destructive interaction arrives on a channel. If the channel on which the interaction arrives is present in the list of suspended channels, the channel is removed from the list so that we don't receive any more interactions on it.

6. **CR JAGab47102**

Symptom | Customer needs to have TCP_KEEPALIVE option for RFC1006 OSI connections.

Defect Description | OTS/RFC1006 does not enable the TCP_KEEPALIVE option which enables TCP to detect physical layer down conditions. Hence the application is not informed of lower layer failures.

Resolution | The OTS/RFC1006 code has been modified to enable the option. A new option has been added to 'otsstart' which may be used to enable this functionality during OTS startup.

7. **CR JAGaa43858**

Symptom | OTS panic in OsiSndInterUp()

Defect Description | The panic was due to a message being received by OSIAM when the context state is O_DIS. This happened due to the context cleanup not being complete when the context is in O_DIS state.

Resolution | The problem has been fixed by nsuring that the context cleanup is complete.

8. **CR JAGab77869**

Symptom | Unable to add NSAP after deleting the last NSAP displayed by otsshownsaps.

Defect Description	The problem was because of incorrect handling of NSAP removal. This happens when maximum number of dynamic NSAPs (limited by clns_dynamic_nsaps, cons_dynamic_nsaps or rfc_dynamic_nsaps) are added and the last dynamic NSAP is removed.
Resolution	The code for NSAP deletion has been modified to correct this problem.

9. **CR JAGab83428**

Symptom	osiconfchk dumps core when X25INIT_FILE parameter exceeds 28 characters.
Defect Description	The problem was due to the small array used to store the file name. It used to overflow the array and cause a core dump.
Resolution	The code has been modified to ensure that the array is large enough to hold long file names.

10. **CR JAGab76311**

Symptom	OSI stops communication. When OTS receives a broadcast or a multicast packet on a lan subnet, whose destination address is neither all_es_address nor all_is_address, OTS stops communication on that subnet. Following message is logged in the syslog file.
	vmunix: hp_lan_up:multicast: NO OPT
Defect Description	An invalid incoming PDU results in an error condition in the lower read service procedure of the OTS LAN module. Once this PDU is processed,

	the service procedure does not get scheduled, since the queue is not enabled.
Resolution	The lower read queue is enabled after processing of the erroneous PDU.

11. **CR JAGab70710**

Symptom	64-bit APLI/XAP/ROSE libraries dump core in mutli-threaded environment.
Defect Description	64 bit APLI, ROSE and XAP libraries dump core in multi-threaded environment. This was because these libraries were not compiled with _PROTOTYPES preprocessor directive.
Resolution	OTS libraries are now compiled with _PROTOTYPES preprocessor directive.

12. **CR JAGab78402**

Symptom	otsdelnsap not able to remove RFC1006 dynamic NSAPs.
Defect Description	otsdelnsap was unable to remove RFC1006 dynamic NSAPs when the number of statically configured X.25 CONS NSAPs was more than two. This is because OTS used to treat the dynamic RFC1006 NSAPs as statically configured and not allow their deletion.
Resolution	Fix is to consider RFC1006 NSAPs separately and allow their deletion, irrespective of the number CONS X.25 subnets.

13. **CR JAGaa93170**

Symptom	System crashing in OTS code showing OsiDmnIoctl() at the top of the stack trace.

Defect Description	During an I_UNLINK processing, the OTS multiplexor relies on the value of the lower write queue stored in its context (Wlqueue) to access the the private data structures. The panic happens due to the dereferencing of the Wlqueue pointer, which happens to be invalid.
Resolution	The value of linkp->l_qbot which is obtained from the I_UNLINK message from STREAMS is used instead of the value of Wlqueue to access the OTS multiplexor's private data structure.

14. **CR JAGab67792**

Symptom	shutdown -r when ftam_init is running causes crash in OTS code showing DO_PUT_DOWN()/canput() at the top of the stack trace.
Defect Description	When shutdown -r is invoked when OTS applications using the LAN NSAP are running, the controlling process of the OTS multiplexor (otsamd) is terminated before the application is killed. When the controlling process terminates, STREAMS issues I_UNLINK on all the queues linked under the multiplexor. The I_UNLINK on the LAN LAM queue was not being handled, due to which the OTS private data structures retained the information that these queues are still linked under the multiplexor, whereas from the STREAMS rerspective, these queues are unlinked. The panic is due to the dereferencing of this invalid queue pointer.

Resolution	I_UNLINK is handled for the LAN LAM queue so that the OTS private data structures remove references to these lower unlinked queues so that no further messages are sent on these queues.

15. **CR JAGac42758**

Symptom	Potential memory corruption.This can lead to Data page fault panics.
Defect Description	Memory corruption while receiving a fragmented TSDU because of using an uninitialized variable. This is just a potential problem in 11.00.
Resolution	Using the correct variable instead of the uninitialized variable.

16. **CR JAGab70711**

Symptom	Makefiles for 64-bit APLI/ROSE/XAP threads demo programs not available.
Defect Description	There were no Makefiles for building 64-bit APLI/ROSE/XAP threads demo programs and some of the files were not 64-bit clean.
Resolution	The APLI/ROSE/XAP demo source files have been made 64 bit clean, and 64 bit Makefiles have been made available.