

PTP Clock Manager for Linux Message Log

This document describes the JSON configuration options to control the output logs and the message types in each of the enabled logs. It also provides the details about each specific message. There are three different destinations for logs: the system log, a specific file on this machine, or another machine via the remote syslog protocol. The JSON configuration file controls the categories of log messages displayed by each log by their respective “selectionMask” parameter. Each log message (with the exception of the debug and time stamp categories) has a unique id. To find a message in this document quickly, search for the id number.

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1. Introduction

The different message types in the log are listed in following table.

| messageType | ID |
|--------------|-------------|
| SyncError | 1000 – 1999 |
| SyncWarning | 2000 – 2999 |
| SyncAnalysis | 3000 – 3999 |
| Error | 4000 – 4999 |
| Warning | 5000 – 5999 |
| Debug | n/a |
| Timestamp | n/a |

For more information on the software architecture of PTP Clock Manager for Linux (pcm4l), see the *pcm4l Datasheet* located on the [Renesas](https://www.renesas.com) website.

2. Message Log

There are two formats to the message log messages.

For information on configuration of the message log contents, see the “loggerConfig Configuration Parameters” section of the *PTP Clock Manager for Linux Reference Manual* located on the [Renesas](#) website.

2.1 RE::

All the messages with the exception of the Timestamp message are in the following format:

```
"RE::
```

Example messages:

```
RE::SyncError: 2021-03-22 13:52:49 391693131 ns [0, Main] (1094) No possible absolute tracking found
RE::SyncWarning: 2021-03-22 13:52:49 391702154 ns [0, Main] (2000) Enter holdover in spec state
RE::SyncAnalysis: 2021-03-22 13:52:49 391711178 ns [0, Main] (3001) Very little PDV detected.
RE::Error: 2021-03-22 13:52:49 391739353 ns [0, Main] (4080) Invalid configuration parameters detected.
RE::Warning: 2021-03-22 13:52:49 391749461 ns [0, Main] (5009) Input parameter is NULL in SET API
RE::Debug: 2021-03-22 13:52:49 391770039 ns [0, Main] Correction history cleared.
```

2.2 RE::Timestamp

The timestamp log message is in this format:

```
"RE::
```

and

```
"RE::
```

Example:

```
RE::Timestamp: 2021-03-23 02:20:02 283618984 ns [3, Tracker#0] T1(1) = 1616466002.283411436000;
T2(1) = 1616466002.283418970000;
RE::Timestamp: 2021-03-23 02:20:02 331616974 ns [3, Tracker#0] T3(2) = 1616466002.329363505000;
T4(2) = 1616466002.329371384000;
```

3. List of Messages

The SyncError/SyncWarning/SyncAnalysis messages are related to the synchronization to a 1588 reference while more general operational messages fall under Error/Warning messages.

- Warning messages are informational and no actions are needed by the user.
- Error messages are more serious in nature and some user intervention may be required.

The descriptions in this section provide more information about the cause of the message and any required action.

3.1 Sync Error

| ID | Messages | Description |
|------|--|--|
| 1003 | Time Locked state: --> Unqualified state | The LO state machine was in Time Locked state and a Reference Lost event occurred. The Holdover state is unqualified, and the LO state machine transitioned to Unqualified state. |
| 1006 | PPS Trigger not detected! | The timestamp device cannot detect the 1PPS trigger. Check hardware configuration. |
| 1007 | Invalid G.82651 profile master clock class (%d) reported, new master rejected, master port ID = %02x:%02x:%02x:%02x:%02x:%02x:%02x:%02x.%d | Invalid clock class for G.8265.1 profile. The allowed values are: 80, 82, 84, 86, 90, 96, 100, 102, 104, 106, 108, 110. Check the 'instanceConfig.defaultDS.clockQuality.clockClass' value in the JSON file. |
| 1008 | Can't update QL for master port ID: %02x:%02x:%02x:%02x:%02x:%02x:%02x:%02x.%d, master not found | Cannot find matching G.8265.1 master in the qualified or unqualified master list, cannot update clock class. |
| 1009 | Can't set PTSF signals for master ID: %02x:%02x:%02x:%02x:%02x:%02x:%02x:%02x.%d, master not found | Cannot find matching G.8265.1 master in the qualified or unqualified master list, cannot set PTSF signals. |
| 1010 | Can't get PTSF signals for master ID: %02x:%02x:%02x:%02x:%02x:%02x:%02x:%02x.%d, master not found | Cannot find matching G.8265.1 master in the qualified or unqualified master list, cannot get PTSF signals. |
| 1011 | Can't clear PTSF signals for master port ID: %02x:%02x:%02x:%02x:%02x:%02x:%02x:%02x.%d, master not found | Cannot find matching G.8265.1 master in the qualified or unqualified master list, cannot clear PTSF signals. |
| 1012 | Can't change master lock out state, no matching master found for master port ID: %02x:%02x:%02x:%02x:%02x:%02x:%02x:%02x.%d | Cannot find matching G.8265.1 master in the qualified or unqualified master list, cannot change master lockout state. |
| 1013 | Can't get master lock out state, no matching master found for master port ID: %02x:%02x:%02x:%02x:%02x:%02x:%02x:%02x.%d | Cannot find matching G.8265.1 master in the qualified or unqualified master list, cannot get master lockout state. |
| 1014 | Cannot set wait to restore time, no matching master found for master port ID: %02x:%02x:%02x:%02x:%02x:%02x:%02x:%02x.%d | Cannot find registered G.8265.1 master in the qualified or unqualified master list, cannot set wait to restore time. |
| 1015 | Cannot get wait to restore time, no matching master found for master port ID: %02x:%02x:%02x:%02x:%02x:%02x:%02x:%02x.%d | Cannot find registered G.8265.1 master in the qualified or unqualified master list, cannot get wait to restore timer. |
| 1016 | Cannot check wait to restore timer running state, no matching master found for master port ID: %02x:%02x:%02x:%02x:%02x:%02x:%02x:%02x.%d | Cannot find registered G.8265.1 master in the qualified or unqualified master list, cannot check wait to restore timer state. |
| 1017 | Cannot clear wait to restore timer, no matching master found for master port ID: %02x:%02x:%02x:%02x:%02x:%02x:%02x:%02x.%d | Cannot find registered G.8265.1 master in the qualified or unqualified master list, cannot clear wait to restore timer. |
| 1018 | Cannot update PTSF-unusable state, no matching master found for master port ID: %02x:%02x:%02x:%02x:%02x:%02x:%02x:%02x.%d | Cannot find registered G.8265.1 master in the qualified or unqualified master list, cannot update PTSF-unusable state. |
| 1019 | Cannot update master frequency lock state, no matching master found for master port ID: %02x:%02x:%02x:%02x:%02x:%02x:%02x:%02x.%d | Cannot find registered G.8265.1 master in the qualified or unqualified master list, cannot update master frequency lock state. |

| ID | Messages | Description |
|------|---|--|
| 1020 | Cannot set master local priority, no matching master found for master port ID: %02x:%02x:%02x:%02x:%02x:%02x:%02x:%02x.%d | Cannot find registered G.8265.1 master in the qualified or unqualified master list, cannot set master local priority. |
| 1021 | Cannot get master local priority, no matching master found for master port ID: %02x:%02x:%02x:%02x:%02x:%02x:%02x:%02x.%d | Cannot find registered G.8265.1 master in the qualified or unqualified master list, cannot get master local priority. |
| 1022 | Cannot get master clock class, no matching master found for master port ID: %02x:%02x:%02x:%02x:%02x:%02x:%02x:%02x.%d | Cannot find registered G.8265.1 master in the qualified or unqualified master list, cannot get master clock class. |
| 1023 | Cannot set G.8265.1 frequency sync interface, all interface functions not provided | Cannot set all of frequency interface synchronization functions to be valid for the G 8265.1 profile. |
| 1025 | Best master not found, best master port ID: %02x:%02x:%02x:%02x:%02x:%02x:%02x:%02x.%d | New master port ID not equal to the best master port ID, best master not found when adding a new master. This is an internal error. Contact Renesas for support. |
| 1026 | Cannot find old master port ID, master not replaced | The old master's tracking information cannot be found from the port ID. Cannot replace the old master. This is an internal error. Contact Renesas for support. |
| 1027 | Best master not found, best master port ID: %02x:%02x:%02x:%02x:%02x:%02x:%02x:%02x.%d | New master port ID not equal to the best master port ID. The new master cannot be the best master. This is an internal error. Contact Renesas for support. |
| 1028 | G.8265.1 master lockout, best master not found, best master port ID: %02x:%02x:%02x:%02x:%02x:%02x:%02x:%02x.%d | Best G.8265.1 master lockout status cannot be retrieved from the portID. Could be using a reserved or invalid port ID. |
| 1029 | G.8265.1 master lockout callback returns failure | G.8265.1 master lockout status cannot be set or cleared. The stack callback returns an error. |
| 1030 | G.8265.1 master lockout status, check callback returns failure | G.8265.1 master lockout status cannot be queried. The stack callback returns an error. |
| 1031 | G.8265.1 master get master wait to restore returns failure | G.8265.1 master wait to restore time cannot be retrieved. The stack callback returns an error. |
| 1032 | G.8265.1 set all master wait to restore timer callback returns failure | G.8265.1 master wait to restore time for ALL masters cannot be set. The stack callback returns an error. |
| 1033 | G.8265.1 check master wait to restore timer status callback returns failure | G.8265.1 master wait to restore time cannot be set. The stack callback returns an error. |
| 1034 | G.8265.1 clear master wait to restore timer returns failure | G.8265.1 master wait to restore time could not be cleared. The stack callback returns an error. |
| 1035 | G.8265.1 get master revertive switching mode callback returns failure | Cannot retrieve G.8265.1 master revertive switching mode status. The stack callback returns an error. |
| 1036 | G.8265.1 set master revertiveswitching mode callback returns failure | G.8265.1 master wait to restore time could not be set. The stack callback returns an error. |
| 1037 | G.8265.1 PTSF-unusable notification callback, best master not found, best master port ID: %02x:%02x:%02x:%02x:%02x:%02x:%02x:%02x.%d | PTSF-unusable flag could not be set or cleared for current G.8265.1 master. Could be using a reserved or invalid port ID. |

| ID | Messages | Description |
|------|--|--|
| 1038 | Master locked state update, master not found for port ID: %02x:%02x:%02x:%02x:%02x:%02x:%02x:%02x.%d | Cannot get information for the master with this port ID. Cannot update frequency lock state from the Servo. |
| 1039 | G.8265.1 frequency lock state notification callback, best master not found, best master port ID: %02x:%02x:%02x:%02x:%02x:%02x:%02x:%02x.%d | Information for G.8265.1 new best master port ID cannot be found in the master info table. Master frequency lock state could not be updated. |
| 1040 | G.8265.1 master set local priority, best master not found, best master port ID: %02x:%02x:%02x:%02x:%02x:%02x:%02x:%02x.%d | Information for G.8265.1 new best master port ID cannot be found in the master info table. Master local priority could not be set. |
| 1041 | G.8265.1 master set local priority callback returns failure | G.8265.1 master's local priority cannot be set. The stack callback returns an error. |
| 1042 | G.8265.1 master get local priority callback returns failure | G.8265.1 master's local priority could not be retrieved using the stack callback. |
| 1043 | G.8265.1 master set local priority, master not found for best master port ID: %02x:%02x:%02x:%02x:%02x:%02x:%02x:%02x.%d | Indicates local priority cannot be set as invalid G.8265.1 master port ID found. The port ID conditions must be locked by the mutex. This is an internal software error. |
| 1044 | G.8265.1 master set local priority with instance callback returns failure | G.8265.1 master local priority for an SOOC instance could not be set. The stack callback returns an error. |
| 1045 | G.8265.1 master get local priority callback returns failure | Local priority for cannot be retrieved for the G.8265.1 master. The stack callback returns an error. |
| 1046 | G.8265.1 master set master lockout with instance callback returns failure | G.8265.1 master lockout for an SOOC instance could not be set. The stack callback returns a failure. |
| 1047 | G.8265.1 master get master lockout callback returns failure | G.8265.1 master lockout could not be retrieved. The stack callback returns a failure. |
| 1048 | G.8265.1 master get clock class callback returns failure | G.8265.1 master clock class could not be retrieved. The stack callback returns failure. |
| 1049 | mngApi failed. %d - %s | The indicated management API error occurred. |
| 1050 | Expected unicast table size = 1, actual size = %d | Observed incorrect unicast master table size for G.8265.1. The unicast master table size should be equal to 1. |
| 1051 | %s is not receiving timestamps | Reference tracker stops receiving timestamps while in time locked or frequency locked state. |
| 1053 | Master not replaced, old master: %02x:%02x:%02x:%02x:%02x:%02x:%02x:%02x.%d not found | The old master to be replaced is not found in the list of registered masters. |
| 1054 | Can't de-register tracker %s because it is not registered | The tracker could not be de-registered as it is not in the list of registered tracker |
| 1055 | E_cmnMngApi_SetUserSelectedReferenceMaster - invalid master: %02x:%02x:%02x:%02x:%02x:%02x:%02x:%02x.%d | Could not set user selected reference master as the master information could not be retrieved. |
| 1056 | Startup FFO correction failed, PDV exceeded tolerance: +/- %.0Lf ppb | Indicates that all the correction attempts are used and correction at startup failed. The tracker applies fast phase correction and goes to converging stage. |

| ID | Messages | Description |
|------|---|---|
| 1057 | snapSubStage: 'Unknown enum %d' to 'Frequency Measurements' | Snap sub stage changes from unknown stage to Frequency Measurements stage for write phase snap. |
| 1058 | Invalid SLAVE_RX_SYNC_TIMING_DATA message length: %d instead of %u | External stack: SLAVE_RX_SYNC_TIMING_DATA TLV received has incomplete/improper header, port identity and/or TLV format. |
| 1059 | Invalid SLAVE_DELAY_TIMING_DATA message length: %d instead of %u | External stack: Renesas SLAVE_DELAY_TIMING_DATA TLV received has incomplete/improper header, port identity and/or TLV format. |
| 1060 | Invalid organization ID and sub type | External stack: Invalid Organization and Sub Type for Renesas SLAVE_DELAY_TIMING_DATA TLV. Valid values are: 0x00, 0xE0, 0xCF, 0xFF, 0x80, 0x06. |
| 1061 | Invalid SLAVE_DELAY_TIMING_DATA message length: %d instead of %u | External stack: Linuxptp SLAVE_DELAY_TIMING_DATA TLV type has incomplete/improper header, port identity and/or TLV format. |
| 1062 | Invalid signaling TLV type: %04X | External stack: Invalid Signaling TLV type detected. The allowed types are: PTP_TLV_TYPE_SLAVE_RX_SYNC_TIMING_DATA, PTP_TLV_TYPE_SLAVE_DELAY_TIMING_DATA, TLV_SLAVE_DELAY_TIMING_DATA_NP. |
| 1063 | Received management message is too short. | External stack: PTP Management message has incomplete management TLV and/or other fields. |
| 1064 | Received management message with another target Port ID. | External stack: Management message received with a different port ID. |
| 1065 | Is ptp4l running? If yes, then is UDS path %s? | UDS server path not proper for ptp4l. Proper path needs to be set for 'remoteUdsAddress' parameter in the JSON file. |
| 1066 | requestDefaultDataSet_cb: Invalid number of responses received from ptp4l stack! | External stack: Invalid number of responses received for Default dataset callback. Only 1 allowed. |
| 1067 | requestDefaultDataSet_cb: Unexpected domain number in Default Data Set, %u instead of %u. | External stack: Invalid domain number obtained from the Default dataset. Check the 'instanceConfig.defaultDS.domainNumber' parameter in the JSON file. |
| 1068 | requestDefaultDataSet_cb: General Error received from ptp4l stack: %u! | External stack: General error occurred for Default dataset callback. |
| 1069 | requestDefaultDataSet_cb: Unexpected error %u received from ptp4l stack! | External stack: Unexpected error occurred for Default dataset callback. |
| 1070 | requestParentDataSet_cb: Invalid number of responses received from ptp4l stack! | External stack: Invalid number of responses received for Parent dataset callback. Only 1 allowed. |
| 1071 | requestParentDataSet_cb: General Error received from ptp4l stack: %u! | External stack: General error occurred for Parent dataset callback. |
| 1072 | requestParentDataSet_cb: Unexpected error %u received from ptp4l stack! | External stack: Unexpected error occurred for Parent dataset callback. |
| 1073 | requestTimePropertiesDataSet_cb: Invalid number of responses received from ptp4l stack! | External stack: Invalid number of responses received for Time properties dataset callback. Only 1 allowed. |
| 1074 | requestTimePropertiesDataSet_cb: General Error received from ptp4l stack: %u! | External stack: General error occurred for Time properties dataset callback. |

| ID | Messages | Description |
|------|---|--|
| 1075 | requestTimePropertiesDataSet_cb: Unexpected error %u received from ptp4l stack! | External stack: Unexpected error occurred for Parent dataset callback. |
| 1076 | requestClockDescription_cb: Insufficient number of responses received from ptp4l stack! | External stack: Invalid number of responses for Clock Description callback. Should be equal to the number of ports. |
| 1077 | requestClockDescription_cb: General Error received from ptp4l stack! | External stack: General error occurred for Clock Description callback. |
| 1078 | requestClockDescription_cb: Unexpected error %u received from ptp4l stack! | External stack: Unexpected error occurred for Clock Description callback. |
| 1079 | requestPortDataSet_cb: Insufficient number of responses received from ptp4l stack! | External stack: Invalid number of responses for Port dataset callback. Should be equal to the number of ports. |
| 1080 | requestPortDataSet_cb: General Error received from ptp4l stack! | External stack: General error occurred for Port dataset callback. |
| 1081 | requestPortDataSet_cb: Unexpected error %u received from ptp4l stack! | External stack: Unexpected error occurred for Port dataset callback. |
| 1082 | Failed to retrieve the Default Data Set from the stack! | External stack: Renesas Servo failed to get Default dataset from ptp4l stack. The domain number exceeds maximum allowed value. Check the 'instanceConfig.defaultDS.domainNumber' parameter in the JSON file. |
| 1083 | Parent Data Set - stack adaptor request timeout! | External stack: Management API request for Parent dataset timed out. |
| 1084 | Parent Data Set - stack adaptor request error! | External stack: Management API request for Parent dataset returned an error. |
| 1085 | Time Properties Data Set - stack adaptor request timeout! | External stack: Management API request for Time Properties dataset timed out. |
| 1086 | Time Properties Data Set - stack adaptor request error! | External stack: Management API request for Time Properties dataset returned an error. |
| 1087 | Clock Description - stack adaptor request timeout! | External stack: Management API request for Clock Description timed out. |
| 1088 | Clock Description - stack adaptor request error! | External stack: Management API request for Clock Description returned an error. |
| 1089 | Port Data Set - stack adaptor request timeout! | External stack: Management API request for Port dataset timed out. |
| 1090 | Port Data Set - stack adaptor request error! | External stack: Management API request for Port dataset returned an error. |
| 1091 | Master info cannot be updated! | Master information could not be updated after getting the Port dataset. |
| 1092 | Timestamp device verification failed! | Stack and Servo could be using the same timestamp device. Timestamp device verification failed. |
| 1093 | Too many foreign corrections without reaction: resetting the tracker | Foreign FFO corrections exceeded maximum allowed number. The maximum number of foreign corrections indicated by MAX_FOREIGN_CORRECTIONS. |

| ID | Messages | Description |
|------|--|---|
| 1094 | No possible absolute tracking found | No absolute tracking found for the ToD correction. |
| 1095 | No possible relative tracking found | No relative tracking found for the ToD correction. |
| 1096 | No tracking in either direction is possible | No absolute or relative tracking found in both the directions. |
| 1097 | Correction denied | Indicates frequency correction denied when frequency offset correction in PPB is the inverse of the frequency offset in PPB. |
| 1098 | PDV threshold is exceeded in both links | The PDV threshold is exceeded in both uplink and downlink directions for the Adaptive Frequency Reference Tracker. PTSF Unusable will be declared. |
| 1099 | PDV threshold is exceeded in downlink | The PDV threshold is exceeded in downlink direction for the Adaptive Frequency Reference Tracker. PTSF Unusable will be declared. |
| 1100 | PDV threshold is exceeded in uplink | The PDV threshold is exceeded in uplink direction for the Adaptive Frequency Reference Tracker. PTSF Unusable will be declared. |
| 1101 | PDV threshold is exceeded (pdvExceededThresholdCount %d >= 2) | The PDV threshold is exceeded in both uplink and downlink directions for the Adaptive Time Reference Tracker. PTSF Unusable will be declared. |
| 1102 | !!! Unexpected TLV Type: %d, MNT-ID: 0x%04X | The response TLV is expected to have a TLV type as MANAGEMENT. |
| 1103 | !!! managementErrorId MNT-ID: 0x%04X General Error | The response TLV is of MANAGEMENT_ERROR_STATUS type and a general error has occurred. |
| 1104 | !!! Unexpected MNT-ID: %d, expected: %d | The response management ID is a mismatch with the requested management ID. |
| 1108 | LO state: Holdover Out Of Spec, Event: %s | Holdover Out of Specification duration exceeded event occurred. State change into Unqualified state imminent. |
| 1109 | syncPhc4lTimestampToPpsOut timeout! | phc4l: Timeout occurred when synchronizing the Timestamp device to PPS output. |
| 1110 | todIndex %u is out of range! | phc4l: ToD index is out of range. Cannot read the ToD values. |
| 1111 | cancelTodRead todIndex %u is out of range! | phc4l: ToD read is cancelled because of unknown index. The valid ToD index values are: E_DPLL_0, E_DPLL_1, E_DPLL_2, E_DPLL_3. |
| 1112 | Wrong Size of Compiler Data Type ' | Compiler set up wrong size for data type. It can cause application failure or performance degradation. Define proper typedef according to C compiler specifications and integration documentation \ |

3.2 Sync Warning

| ID | Messages | Description |
|------|---|---|
| 2000 | Enter holdover in spec state | LOSM state machine enters Holdover In Specification state as a result of reference loss. |
| 2001 | Exit holdover in spec state | LOSM exits the Holdover In Specification state. Either reference has been reacquired or holdover duration expired. |
| 2002 | Suspecting a change in PDV statistics in %s | The observed PDV does not seem to be stationary in the specified direction. |
| 2003 | Physical PLL clock category %d exceeds the physical clock category threshold %d | Physical clock category exceeds the threshold. Holdover In Specification timer is stopped and forces transition to Holdover Out of Specification state. |
| 2010 | Set PDV threshold exceeded notification, current PDV measurement = %Lf, %Lf | Sets the PDV threshold exceeded notification. The argument is the current Packet Delay Variation value in both directions. |
| 2011 | Clear PDV exceeded threshold notification, current PDV measurement = %Lf, %Lf | Clears the PDV threshold exceeded notification. The argument is the current Packet Delay Variation value in both directions. |
| 2012 | Frequency Locked state --> Holdover In Spec state | The LO state machine was in Frequency Locked state and a Reference Lost event occurred, transitions to Holdover. |
| 2013 | Lock acquisition state --> Holdover In Spec state | The LO state machine was in Lock Acquisition state and a Reference Lost event occurred, transitions to Holdover. |
| 2014 | Time Locked state --> Holdover In Spec state | The LO state machine was in Time Locked state and a Reference Lost event occurred, transitions to Holdover. |
| 2016 | Received TIE reset management API command, master switch type is hitless, reset hitless switch offset | Servo receives a hitless switch TIE reset management API command and resets hitless switch offset to zero. |
| 2017 | Received TIE reset management API command, master switch type is not hitless, TIE reset not supported | Servo receives a hitless switch TIE reset management API command, but master switch mode is not hitless, TIE reset is not supported. |
| 2019 | The Instant Switch is applied, System could be temporarily out of lock | Switching instantly to a new master, the system may be temporarily out of lock. |
| 2020 | PTSF alarm SET for PTSF-lossSync: Master port id: %02x:%02x:%02x:%02x:%02x:%02x:%02x:%02x.%d | PTSF alarm raised when loss of SYNC messages is detected for the master with specified port ID. |
| 2021 | PTSF alarm CLEAR for PTSF-lossSync: Master port id: %02x:%02x:%02x:%02x:%02x:%02x:%02x:%02x.%d | PTSF-lossSync flag cleared for the master with specified port ID. |
| 2022 | PTSF alarm SET for PTSF-lossAnnounce: Master port id: %02x:%02x:%02x:%02x:%02x:%02x:%02x:%02x.%d | PTSF alarm raised when loss of ANNOUNCE messages is detected for the master with specified port ID. |
| 2023 | PTSF alarm CLEAR for PTSF-lossAnnounce: Master port id: %02x:%02x:%02x:%02x:%02x:%02x:%02x:%02x.%d | PTSF-lossAnnounce flag cleared for the master with specified port ID. |
| 2024 | PTSF alarm SET for PTSF-unusable: Master port id: %02x:%02x:%02x:%02x:%02x:%02x:%02x:%02x.%d | PTSF alarm raised when the PTP stack declares the master with specified port ID is unusable. |
| 2025 | PTSF alarm CLEAR for PTSF-unusable: Master port id: %02x:%02x:%02x:%02x:%02x:%02x:%02x:%02x.%d | PTSF-unusable flag cleared for the master with specified port ID. |

| ID | Messages | Description |
|------|--|---|
| 2026 | PTSF alarm SET for PTSF-unusable (servo): %s Master port id: %02x:%02x:%02x:%02x:%02x:%02x:%02x:%02x.%d | PTSF alarm raised when the Servo declares master with specified port ID is unusable. For example, due to excessive PDV. |
| 2027 | PTSF alarm CLEAR for PTSF-unusable (servo): %s Master port id: %02x:%02x:%02x:%02x:%02x:%02x:%02x:%02x.%d | PTSF-unusable Servo flag cleared for the master with specified port ID. |
| 2028 | PTSF alarm CLEAR: Clear all PTSF flags: Master port id: %02x:%02x:%02x:%02x:%02x:%02x:%02x:%02x.%d | All PTSF flags cleared for master with the specified port ID. |
| 2029 | PTSF-Unknown (%d): Master port id: %02x:%02x:%02x:%02x:%02x:%02x:%02x:%02x.%d | Unsupported PTSF event detected for the master with the specified port ID. |
| 2030 | ac_strBuf | This Stack-level sync warning message is printed using the user-implemented and thread-safe function called TGT_dbg_printf. This message is only printed when TGT_dbg_printf is called by the user. |
| 2031 | Lock acquisition qualification timeout. | Lock acquisition qualification time exceeds the timeout limit. LOSM state change imminent. |
| 2032 | Inst %d: Master clock with Port ID: %02x:%02x:%02x:%02x:%02x:%02x:%02x:%02x.%d has been locked out. Operator intervention is required to restore eligibility of this master for clock selection. | Master clock has been locked out due to lock acquisition qualification timeout. Operator intervention required. |
| 2033 | Timestamps are not in chronological order in DL direction! | Timestamps are not in chronological order in downlink direction, when reference tracker is in frequency mode. |
| 2034 | Timestamps are not in chronological order in UL direction! | Timestamps are not in chronological order in uplink direction, when reference tracker is in frequency mode. |
| 2035 | Timestamps are not in chronological order in DL direction! | Timestamps are not in chronological order in downlink direction, when reference tracker is in time mode. |
| 2036 | Timestamps are not in chronological order in UL direction! | Timestamps are not in chronological order in uplink direction, when reference tracker is in time mode. |
| 2037 | ---PI frequency correction is limited to %.1Lf%% of the frequency unlock threshold. | Proportional Integral loop controller frequency correction is limited to a portion of the frequency unlock threshold. |
| 2040 | IDT device initialization: character device is not valid %s. | Clock is invalid, cannot open the character device for access. |
| 2041 | Check network interface %s is valid and have sudo access. | Check if the 'instanceConfig.portConfig.interfaceName' parameter in the JSON is proper and has sudo access. |
| 2042 | Both Uplink and Downlink are not trackable. | The mean and minimum tracking not available in both directions. The floor and mean delays are unknown. |
| 2043 | Wait to restore timer expired for master port ID = %02x:%02x:%02x:%02x:%02x:%02x:%02x:%02x.%d, try to re-qualify master for best master selection | Wait to restore timer is expired for the master with this port ID, need to requalify current master before a best master selection. |
| 2044 | Can't delete master, no matching master found for master port ID: %02x:%02x:%02x:%02x:%02x:%02x:%02x:%02x.%d | The master not found in the list of qualified and unqualified masters, so cannot remove it. |

| ID | Messages | Description |
|------|---|---|
| 2045 | Can't get the best master clock ID, the tracked master list is empty | The tracked master list is empty. Hence, can't choose the best master clock. |
| 2046 | PTSF flags cleared for master port ID = %02x:%02x:%02x:%02x:%02x:%02x:%02x:%02x.%d, set master wait to restore timeout to %d seconds | PTSF flags are cleared for the master with this port ID. Setting the wait to restore timer for the master. |
| 2047 | Manually stop running wait to restore timer, master ID: %02x:%02x:%02x:%02x:%02x:%02x:%02x:%02x.%d | Manually stop running wait to restore timer if running, for the specified master. |
| 2048 | PTSF flags cleared for master port ID = %02x:%02x:%02x:%02x:%02x:%02x:%02x:%02x.%d, set master wait to restore timeout to %d seconds | PTSF-Unusable flags from the Servo are cleared for the current master. Setting the wait to restore timer for the master. |
| 2049 | Set local priority from %d to %d for master: %02x:%02x:%02x:%02x:%02x:%02x:%02x:%02x.%d | Set local priority to a specified value for a registered master. |
| 2050 | Set non-IDT G.8265.1 frequency sync interface | Set non-IDT PTP G.8265.1 telecom profile for frequency synchronization interface. |
| 2051 | G.8265.1 PTSF-unusable notification, master not found for port ID: %02x:%02x:%02x:%02x:%02x:%02x:%02x:%02x.%d | G.8265.1 master not found for the specified port ID. Cannot set PTSF unusable notification. |
| 2052 | Clock class changed (%d --> %d): %02x:%02x:%02x:%02x:%02x:%02x:%02x:%02x.%d | Clock class for a G.8265.1 master used for tracking has changed. |
| 2053 | mngAPI - holdover not qualified, checking previous holdover validity. | Get LO status management API inquired. If the current holdover is not qualified, then return the previous holdover qualification status. |
| 2054 | %s: Interface Session %d Terminated | The interface session terminated as no message received from the IPv4 address or management API exceeds maximum value. |
| 2055 | %s: Hitless switch not possible, phase offset to target master not available | Maximum hitless switch count exceeded, no hitless switch possible in frequency correction. |
| 2056 | %s: Not enough information on the current phase offset, need to check again, hitlessSwitchCheckCounter = %d | Need to collect more phase offset information to confirm if hitless switch is possible in frequency correction. |
| 2057 | %s: Hitless switch not possible, phase offset to target master not available | Maximum hitless switch count exceeded, no hitless switch possible in phase correction. |
| 2058 | %s: Not enough information on the current phase offset, need to check again, hitlessSwitchCheckCounter = %d | Need to collect more phase offset information to confirm if hitless switch is possible in phase correction. |
| 2059 | PDV threshold exceeded flag %s, current PDV: Down %Lf, Up %Lf | PTSF-unusable will be set or cleared based on the PDV log variance and PDV threshold values. |
| 2060 | %s: Best master changed: %02x:%02x:%02x:%02x:%02x:%02x:%02x:%02x.%d->%02x:%02x:%02x:%02x:%02x:%02x:%02x:%02x.%d, change chosen tracker: %s->%s. | Reference Tracker supervisor updated the best master when not switching from electrical to packet reference. |
| 2061 | Change reference tracking from electrical to PTP master %s | Reference tracking changed from electrical to packet tracking. Electrical reference can be enabled or disabled in the G.8275.1 JSON file using the 'deviceConfig.electricalReference.enable' parameter. |

| ID | Messages | Description |
|------|---|--|
| 2062 | Servo not in time mode, PSL switch not supported | The Servo is not in time mode in a Frequency Locked state, phase slope limit not applicable while switching references. |
| 2063 | Target reference phase not stable, no hitless switch possible | The target reference phase is not in the stable state, hitless switch not possible. |
| 2064 | Servo not in time mode, hitless switch not supported | Hitless switch is not supported as Servo is not in time mode. |
| 2065 | Correction from %s discarded: Tracking electrical reference (%.6Lf ppb) | Frequency correction from the tracker discarded as electrical reference is being tracked. |
| 2066 | Correction from %s discarded: Unchosen tracker (%.6Lf ppb) | Frequency correction from the tracker discarded as the tracker is unchosen. |
| 2067 | Correction from %s discarded: First correction after master switch (%.6Lf ppb) | Frequency correction from the tracker discarded as it is the first correction after master switch. |
| 2068 | Correction from %s discarded: Tracking electrical reference (%Lf %s) | Phase correction from the tracker discarded as electrical reference is being tracked |
| 2069 | Correction from %s discarded: Unchosen tracker (%Lf %s) | Phase correction from the tracker discarded as the tracker is unchosen. |
| 2070 | Correction from %s discarded: First correction after master switch (%Lf %s) | Phase correction from the tracker discarded as it is the first correction after master switch. |
| 2071 | Correction failed: %.6Lf ppb | The DCO does not apply the frequency correction. |
| 2072 | %s: Delete request already in the pipeline, master NOT registered | Master not registered, delete request for the master is already in the pipeline. |
| 2073 | Deregister master, master port ID: %02x:%02x:%02x:%02x:%02x:%02x:%02x:%02x.%d, Next best master port ID: %02x:%02x:%02x:%02x:%02x:%02x:%02x:%02x.%d | Deregister the master with the specified port ID. |
| 2074 | Deregister the best master clock, master port ID: %02x:%02x:%02x:%02x:%02x:%02x:%02x:%02x.%d!!! | Deregister the best master with the specified port ID. |
| 2075 | %s not tracking any master, ignore PDV.Exceeded threshold notification. | The port ID is reserved/invalid. Ignore the PDV exceeded threshold notification. |
| 2076 | processSetMasterOverrideEnable: Master override %s | If master override is enabled, LOSM accepts user configured master as the reference master. |
| 2077 | Frequency Locked state: LO Reference Lost | The LO state machine was in Frequency Locked state and a Reference Lost event occurred. |
| 2078 | Apply DPLL user forced holdover | Enter the forced holdover mode based on a user forced holdover event. LOSM transitions to Holdover In Specification state. |
| 2079 | Apply DPLL user forced holdover | Enter the forced holdover mode based on a user forced holdover event. LOSM transitions to Holdover Out of Specification state. |
| 2080 | Time Locked state: LO Reference lost | Reference lost while in Time Locked state. State transition imminent. |

| ID | Messages | Description |
|------|--|---|
| 2081 | Stationarity score 1: %.3Lf (should be in [%.2Lf, %.2Lf]) in %s | Stationarity score out of bounds. The PDV is not stationary. |
| 2082 | Switching to other direction's frequency estimator suggestion | If the correction is done in the chosen direction, choose the other direction's frequency estimator suggestion if already set. |
| 2083 | Possible reroute detected! (unexplained floor delay change) | The Servo detects an unexplained floor delay change. |
| 2084 | Possible reroute detected! (unexplained floor delay change with large ToD offset) | The Servo detects an unexplained floor delay change with large ToD offset. |
| 2085 | Possible reroute detected! (abnormal ToD change) | The Servo detects an abnormal Time-of-Day change for minimum tracking. |
| 2086 | Possible reroute detected! (unexplained mean delay change) | The Servo detects an unexplained mean delay change. |
| 2087 | Possible reroute detected! (unexplained mean delay change with large ToD offset) | The Servo detects an unexplained mean delay change with large ToD offset. |
| 2090 | Floor delay is unknown. Unable to estimate | Initial floor delay is unknown to estimate proper ToD offset or floor delay. |
| 2091 | Mean delay is unknown. Unable to estimate. | The mean delay is unknown to estimate proper ToD offset. |
| 2092 | Large FFO detected: ffoOverFreqLockThreshold: %Lf, frequencyLostLockCounter: %d | Large FFO detected. Frequency lost lock counter value is incremented. Maximum value should be 1 before frequency lost lock is declared. |
| 2093 | Outlier detected: %.1Lf (ns), variance %.6Le >= %.6Le threshold | The detected phase offset is declared as an outlier. |
| 2094 | Minimum not trackable (not stationary) in %s | The minimum tracking data cannot be calculated because PDV is not stationary in this direction. |
| 2097 | Lost master alarm raised! | The linuxptp master is declared lost based on whether the time threshold for receiving downlink timestamps is exceeded. |
| 2098 | No tracker found for stack instance %d | No tracker found in the tracker list for the specified stack instance. |
| 2099 | Requesting stabilization (reason: long expected time-to-lock %d, no tracking is possible %d) | Stabilization request generated due to long expected time to lock. |
| 2100 | Suspecting a big change in PDV statistics (%Lf ppb) | When current corrections are greater than frequency lock threshold, corrections are not applied and suspects large PDV statistics change. |
| 2101 | Observing large frequency corrections | Detecting large number of frequency corrections based on the frequency lock state unlock counter. |
| 2102 | Set the algorithm choice to no correction | Currently not in the Frequency Locked state and not applying corrections until back in Frequency Locked state. |
| 2103 | Exit freq lock, largeFreqUnlockCounter %d > %d | Frequency lock state unlock counter exceeds threshold, LOSM exits the frequency locked state. |
| 2104 | large PDV is observed | Detecting large PDV based on the small frequency lock state unlock counter. |

| ID | Messages | Description |
|------|--|---|
| 2105 | Exit lock state internally, smallFreqUnlockCounter %d > %d | Small frequency lock state unlock counter exceeds threshold, LOSM exits the Frequency locked state internally. |
| 2106 | Not enough timestamps in %s direction for statistics. (%d) | Not enough timestamps to calculate PDV statistics in the specified direction. |
| 2107 | Using downlink direction only with known floor delay | Downlink direction with known floor delay is used for coarse ToD estimation. |
| 2108 | Using uplink direction only with known floor delay | Uplink direction with known floor delay is used for coarse ToD estimation. |
| 2113 | Stack instance %d not enabled, skip profile checking | Profile checking is skipped for this stack instance because it is disabled. The stack instance can be configured in the JSON configuration file using the 'instanceConfig.instanceEnable' parameter. |
| 2114 | Stack instance %d, port %d not enabled, skip profile checking | Profile checking is skipped for this port instance in the stack instance as it is disabled. The port instance can be enabled in the JSON configuration file using the 'instanceConfig.portConfig.portEnable' parameter. |
| 2115 | Minimum not trackable (exponential.proportion %Lf < %Lf) in %s | The Exponential + Gaussian proportion observed is lesser than the static value set for 'instanceConfig.trackerConfig.minExpProportionForMinTracking' parameter in the JSON file. |
| 2116 | Lost time lock declared !!! | Time lock is declared as lost due to a large frequency or ToD offset or due to reset by the Reference Tracker Supervisor. |
| 2117 | phc4l initialization: cannot retrieve actual DCO offset. Set initial DCO offset to 0. | The FFO could not be retrieved during phc4l initialization. Initial DCO offset is set 0. |
| 2122 | Lost frequency and time lock declared (frequencyLostLockCounter %d >= MAX_FREQUENCY_LOST_LOCK_COUNTER %d)!!! | The maximum frequency lost lock counter value exceeded. Adaptive time tracker lost time and frequency lock. |
| 2123 | Very large time offset is detected!!! todOffset %.9Lf s > 3 * timeLockThreshold %.9Lf s | Large time offset detected. Freq lock and Time lock lost, LOSM state goes to Lock Acquisition state. |
| 2124 | prev: t1: %.9Lf t2: %.9Lf | Indicates previous timestamps t1 and t2 when timestamps not received in chronological order for Adaptive Frequency Reference Tracker. |
| 2125 | curr: t1: %.9Lf t2: %.9Lf | Indicates current timestamps t1 and t2 when timestamps not received in chronological order for Adaptive Frequency Reference Tracker. |
| 2126 | prev: t3: %.9Lf t4: %.9Lf | Indicates previous timestamps t3 and t4 when timestamps not received in chronological order for Adaptive Frequency Reference Tracker. |
| 2127 | curr: t3: %.9Lf t4: %.9Lf | Indicates current timestamps t3 and t4 when timestamps not received in chronological order for Adaptive Frequency Reference Tracker. |
| 2128 | prev: t1: %.9Lf t2: %.9Lf | Indicates previous timestamps t1 and t2 when timestamps not received in chronological order for Adaptive Time Reference Tracker. |

| ID | Messages | Description |
|------|---|--|
| 2129 | curr: t1: %.9Lf t2: %.9Lf | Indicates current timestamps t1 and t2 when timestamps not received in chronological order for Adaptive Time Reference Tracker. |
| 2130 | prev: t3: %.9Lf t4: %.9Lf | Indicates previous timestamps t3 and t4 when timestamps not received in chronological order for Adaptive Time Reference Tracker. |
| 2131 | curr: t3: %.9Lf t4: %.9Lf | Indicates current timestamps t3 and t4 when timestamps not received in chronological order for Adaptive Time Reference Tracker. |
| 2132 | Exit time stable state | Exits the time stable state based on the phase corrections and hitless phase offset values. |
| 2133 | Not enough timestamps to use downlink, lastIndex %d < %d | Indicates that the downlink cannot be used to estimate ToD for the first stage of Adaptive Tracking because of insufficient timestamps. |
| 2134 | Not enough timestamps to use uplink, lastIndex %d < %d | Indicates that the uplink cannot be used to estimate ToD for the first stage of Adaptive Tracking because of insufficient timestamps. |
| 2135 | Elapsed time %.1Lf s too big, using todOffsetSeconds with no skew correction. | Elapsed time before skew correction is unrealistic. Using ToD offset without skew corrections. |
| 2140 | Enter holdover out of spec state | Holdover In Specification duration exceeded, the LOSM enters Holdover Out of Specification state. |
| 2141 | Exit holdover out of spec state | The LOSM exits Holdover Out of Specification state to Lock Acquisition or Unqualified state based on reference acquisition. |
| 2144 | Replace old master: %02x:%02x:%02x:%02x:%02x:%02x:%02x:%02x.%d, with new master: %02x:%02x:%02x:%02x:%02x:%02x:%02x:%02x.%d, old master clock class: %d, new master clock class: %d, tracker: %s | When the new master is registered, replace the old master with new master. The other arguments indicate the clock classes for old and new masters. |
| 2146 | ptp4lLosmStateChangedCallback untested for IDT_STACK_MAX_INST > 1 | LOSM state change callback for linuxptp external stack untested for more than 1 stack instance. |
| 2147 | Lost time lock. delta %.1Lf ns >= timeLockThreshold %.1Lf ns | Time lock lost when updating after applying phase offset corrections. Possible state transition to Frequency Locked state. |
| 2150 | GNSS clock category (%d) does not meet the threshold (%d) | The GNSS clock category goes beyond the threshold value. The threshold is indicated by 'profileConfig.gnssPIIClockCategoryThreshold' parameter in the JSON file. |
| 2155 | DCO offset at its maximum value. | Phc4l indicates that the maximum frequency offset limit has been reached. |
| 2156 | DCO offset at its minimum value. | Phc4l indicates that the minimum frequency offset limit has been reached. |
| 2169 | IDT device configuration: Output alignment must be configured in TCS file! | Parameter 'deviceConfig.ppsOutputs.alignedPpsOutputs' from JSON file is deprecated. Use the TCS file to enable the alignment per output. |

| ID | Messages | Description |
|------|---|--|
| 2170 | Detected Peak-to-peak pktSelected2wayTE (%.1Lf ns) exceeding tolerance threshold (%.1Lf ns) | Asymmetry calibration measurements exceeds warning threshold during Reference Tracker Assisted Calibration stage. Unexpected asymmetry level or PDV variance could impact APTS calibration accuracy. |
| 2174 | Frequency Locked state --> Unqualified state | The LO state machine was in Frequency Locked state and a Reference Lost event occurred. The Holdover state is unqualified, and the LO state machine transitioned to Unqualified state. |
| 2175 | Lock Acquisition state --> Unqualified state | The LO state machine was in Lock Acquisition state and a Reference Lost event occurred. The Holdover state is unqualified, and the LO state machine transitioned to Unqualified state. |
| 2176 | LO state: Holdover In Spec, Event: %s | Holdover duration exceeded event occurred while in Holdover state. |
| 2177 | Suspecting a change in PDV statistics in %s | The PDV does not seem to be stationary in the uplink and/or downlink direction. |
| 2178 | Physical PLL clock category %d exceeds the physical clock category threshold %d | Physical clock category exceeds the threshold and the holdover loss of physical layer out-of-specification flag is enabled. Holdover In Specification timer is stopped and forces transition to Holdover Out of Specification state. |
| 2181 | Possible reroute detected! (abnormal ToD change) | The Servo detects an abnormal Time-of-Day change for mean tracking. |
| 2182 | APTS Supervisor in WaitFirstTodRead state: gnssTodReadDone = %d, ptpTodReadDone = %d | While in WaitFirstTodRead state, either the GNSS TOD or the PTP TOD is not ready yet. This event happened repeatedly and the APTS supervisor will switch into GnssUnqualified state if the retry limit is exceeded. |
| 2183 | APTS Supervisor in GnssLocked state: gnssTodReadDone = %d, ptpTodReadDone = %d | While in GnssLocked state, either the GNSS TOD or the PTP TOD is not ready yet. This event happened repeatedly and the APTS supervisor will switch into GnssUnqualified state if the retry limit is exceeded. |

3.3 Sync Analysis

| ID | Messages | Description |
|------|---|---|
| 3001 | Very little PDV detected. | The Servo determined the standard deviation of the PDV to be less than or equal to 1e-7. |
| 3002 | Deriving algorithm parameters for %s. | The frequency skew algorithm parameters for the given direction (downlink or uplink) are being established by the Servo. |
| 3003 | Both statistical models are ok in %s. | The Servo determined that the PDV fits the chi-square (gamma and exponentially modified Gaussian) distributions using the timestamps collected in the given direction (downlink and uplink) to a satisfactory level. This will enable the Servo to make better predictions regarding the PDV. |
| 3004 | RE PTP Software Release ID: %s & Commit ID: %s. | RE PTP software release and commit IDs. The PTP session has been initiated. |

| ID | Messages | Description |
|------|---|--|
| 3005 | Applying FFO correction (ppb). | An estimated frequency correction was applied by the Adaptive Time Reference Tracker during the first ToD snap to correct the LO because the parameter 'instanceConfig.willCorrectFrequencyAtFirstSnap' was enabled in the JSON file. |
| 3009 | A priori PDV variance in %s: %Le. | Estimated PDV variance by the Servo for the given direction (downlink or uplink). |
| 3010 | Estimating frequency offset using frequency estimation algorithm %s in %s. | The frequency offset of the PTP packets in the specified direction (downlink or uplink) is being estimated by the Servo using the indicated frequency skew algorithm. |
| 3011 | Frequency skew algorithm: No frequency correction. | The Servo has made no frequency correction at this time. This can occur when the frequency correction exceeds the frequency lock threshold specified by the parameter 'instanceConfig.frequencyLockThresholdPpb' in the JSON file, frequency lock was regained, the frequency correction needed to be recalculated, etc. |
| 3012 | Frequency skew algorithm: not supported (algo %d, dir %d). | The Servo determined that for the frequency correction calculation with both links, a frequency correction was no longer needed or that it needed to recalculate it for the current choice of direction. |
| 3014 | Estimated FFO: %Lf ppb. | Estimated frequency offset (i.e. prior to correction being applied) in parts-per-billion. |
| 3017 | Phase stabilization is needed. | The Servo needs more timestamps to calculate the ToD correction and stabilize the phase. |
| 3024 | Time to next frequency correction: %d min %d seconds. | The time remaining until the next frequency correction is applied is over a minute. The Servo has already decided on a frequency skew algorithm. |
| 3025 | Time to next frequency correction: %d seconds. | The time remaining until the next frequency correction is applied is less than a minute. The Servo has already decided on a frequency skew algorithm. |
| 3026 | Estimated packet rates in pps (DL/UL): %.2Lf / %.2Lf. | Estimated downlink and uplink packet rates in packets per second. |
| 3027 | UL PDV analysis in progress, time left: %d seconds. | Time remaining in seconds until the next frequency correction is applied because the uplink PDV analysis is in progress. |
| 3028 | DL PDV analysis in progress, time left: %d seconds. | Time remaining in seconds until the next frequency correction applied because the downlink PDV analysis is in progress. |
| 3031 | Approximate time to lock if the PDV changes continue to occur: %d min %d s. | Estimated time in minutes and seconds until the next frequency correction is applied. The Servo cannot perform a frequency correction right now because it needs more timestamps since the PDV keeps changing. |
| 3034 | Use configured highPrecisionFrequencyCorrectionTimeMinutes: %.1Lf. | The Servo has decided to spend the time specified by the parameter 'trackerConfig.highPrecisionFrequencyCorrectionTimeMinutes' in the JSON file to collect timestamps. |
| 3035 | Use estimated highPrecisionFrequencyCorrectionTimeMinutes: %.1Lf. | The Servo has calculated the time required to collect timestamps using the frequency skew algorithm. |

| ID | Messages | Description |
|------|--|--|
| 3036 | The probability of the FFO smaller than the frequency lock threshold is approximately: %0.0Lf%%. | The Servo has calculated the probability of having a frequency offset that is less than the frequency lock threshold. |
| 3037 | Very little PDV variance. Collected time stamps are enough. | The Servo has estimated that the PDV variance is equal to or less than 1e-14 and therefore concluded that the number of timestamps that have been collected is enough to estimate a viable frequency correction. |
| 3038 | The probability of the FFO smaller than the frequency lock threshold is approximately: 99%%. | The Servo has a sufficient number of timestamps considering the current PDV variance and has estimated that the probability of having a frequency offset less than the frequency lock threshold is 99%. |
| 3040 | DL packet rate (%.2Lf) is different from the nominal rate (%.2Lf). | The Adaptive Time Reference Tracker has determined that the downlink packet rate is different from the nominal expected rate. |
| 3041 | UL packet rate (%.2Lf) is different from the nominal rate (%.2Lf). | The Adaptive Time Reference Tracker has determined that the uplink packet rate is different from the nominal expected rate. |
| 3042 | DL packet rate (%.2Lf) is different from the nominal rate (%.2Lf). | The Adaptive Frequency Reference Tracker has determined that the downlink packet rate is different from the nominal expected rate. |
| 3043 | UL packet rate (%.2Lf) is different from the nominal rate (%.2Lf). | The Adaptive Frequency Reference Tracker has determined that the uplink packet rate is different from the nominal expected rate. |
| 3044 | DL packet rate (%.2Lf) is different from the nominal rate (%.2Lf). | The Write Phase Reference Tracker has determined that the downlink packet rate is different from the nominal expected rate. |
| 3045 | UL packet rate (%.2Lf) is different from the nominal rate (%.2Lf). | The Write Phase Reference Tracker has determined that the uplink packet rate is different from the nominal expected rate. |
| 3046 | Selected best master port ID: %02x:%02x:%02x:%02x:%02x:%02x:%02x:%02x.%d | The reference with the indicated port ID has been selected as the best master. |
| 3047 | Clock class (%d) is not frequency sync telecom profile clock class. The telecom profile clock class is from 80 to 110. | The clock class of the first master used for comparison does not meet the standards for the PTP Telecom Profile for frequency. This is just a reminder. |
| 3048 | mngApi_GetLoStatus: %s (%d), %s, %s. | LO state. The possible states are: Initial, Lock Acquisition, Frequency Locked, Time Locked, Holdover in Specification, Holdover Out of Specification, and Free Run. |
| 3049 | Listening on IP Address %s on port %d. | The socket interface over which one or more instances of cliClient (Management API) can communicate with the Stack via multiple threads has been successfully created. The socket interface is binded to the specified port. (Only one instance of cliClient is supported at this time). |
| 3050 | Interface thread accepted connection = %d. | cliClient has been granted a connection to the socket interface that was created. |
| 3051 | Connection thread %d started, connection = %d. | The specified thread has been initiated for the indicated cliClient connection (i.e. multiple instances of cliClient are running). |
| 3052 | %s: Connection %d closed. | The specified cliClient connection has been closed. |

| ID | Messages | Description |
|------|--|---|
| 3053 | %s: Current hitless switch offset is set to %.2Lf ns. | The Adaptive Frequency Reference Tracker has determined that a hitless switch to minimize phase disturbances to the output clocks while switching masters is possible because the reference is Frequency Locked, Time Locked, and Time Stable. No frequency correction is needed. |
| 3054 | %s: Current hitless switch offset is set to %.2Lf ns. | The Adaptive Time Reference Tracker has determined that a hitless switch to minimize phase disturbances to the output clocks while switching masters is possible because the reference is Frequency Locked, Time Locked, and Time Stable. No phase correction is needed. |
| 3056 | %s is the new chosen tracker, reset the time correction counter. | A new master has been selected and so the phase correction history is reset to accommodate the new chosen tracker. |
| 3057 | Hitless switch TIE reset, reset hitless switch offset to 0. | The Reference Tracker Supervisor has received the 'mngApi_HitlessSwitchTieReset' command from cliClient to reset the offset accumulated by historical hitless switching applied against the current master. The slave(s) will be phase-aligned with the master. |
| 3058 | Not the target tracker: reset hitless switch offset to 0 regardless. | The offset accumulated by historical hitless switching applied against the current master is reset for all Reference Trackers when the Reference Tracker Supervisor receive the 'mngApi_HitlessSwitchTieReset' command from cliClient, including those that are not tracking. |
| 3059 | Apply hitless switch outside the ToD offset thresholds. | Although the reference switch type of the master is set to hitless (i.e. The parameter 'ptpPacketReferenceSwitch.referenceSwitchType' in the JSON file is set to 'PhaseSlopeLimit'), since the absolute ToD offset is between the lower and upper ToD thresholds, which are set by the parameters 'ptpPacketReferenceSwitch.lowerTodThresholdNanoseconds' and 'ptpPacketReferenceSwitch.upperTodThresholdNanoseconds' in the JSON file, a hitless LO reference switch occurred instead. |
| 3060 | Switch type is hitless. | The master was switched via a hitless switch (i.e. the parameter 'ptpPacketReferenceSwitch.referenceSwitchType' in the JSON file is set to 'Hitless'). The possible types of LO reference switches are: Hitless, Phase Slope Limit, and Instant. |
| 3061 | Apply PSL outside the ToD offset thresholds. | Although the reference switch type of the master is set to hitless (i.e. The parameter 'ptpPacketReferenceSwitch.referenceSwitchType' in the JSON file is set to 'Hitless'), since the absolute ToD offset is between the lower and upper ToD thresholds, which are set by the parameters 'ptpPacketReferenceSwitch.lowerTodThresholdNanoseconds' and 'ptpPacketReferenceSwitch.upperTodThresholdNanoseconds' in the JSON file, a phase slope limited LO reference switch occurred instead. |
| 3062 | Switch type is instant. | The master was switched via an instant switch (i.e. the parameter 'ptpPacketReferenceSwitch.referenceSwitchType' in the JSON file is set to 'Instant'). The possible types of LO reference switches are: Hitless, Phase Slope Limit, and Instant. |
| 3065 | Switch type is phase slope limit. | The master was switched via a phase slope limited reference switch (i.e. the parameter 'ptpPacketReferenceSwitch.referenceSwitchType' in the JSON file is set to 'PhaseSlopeLimit'). The possible types of LO reference switches are: Hitless, Phase Slope Limit, and Instant. |

| ID | Messages | Description |
|------|---|---|
| 3066 | LO state: '%s' to '%s' Event: '%s'. | The LO transitioned from one state to another due to the occurrence of a particular event. The possible states are: Initial, Lock Acquisition, Frequency Locked, Time Locked, Holdover in Specification, Holdover Out of Specification, and Free Run. The possible events are: User force holdover, LO correction update, LO reference acquired, LO reference lost, LO reference switched, LO frequency locked, LO frequency not locked, LO time locked, LO not time locked, Holdover duration exceeded, Holdover out of specification duration exceeded, LO initialized, Clear user force holdover, and External set LOSM state. |
| 3100 | Estimated time to correction: %.1Lf s. | Estimated time until the next ToD correction is applied. |
| 3101 | Configuring Phc4l device driver (%s). | The phc4l device adaptor driver is being initialized and will be used to discipline the LO. The name indicated is the name used by the PHC driver (Linux kernel) to identify the device. |
| 3102 | Configuring IDT Phc4l timestamper (%s). | The phc4l timestamper is being initialized. The name indicated is the name used by the PHC driver (Linux kernel) to identify the timestamper. |
| 3103 | *** Timing Commander Software Version: %s. | Timing Commander software version ID. The TCS file being used was generated using the specified version of Timing Commander. |
| 3104 | *** Reading %s file. | Name of TCS file being used to program the device. |
| 3105 | *** TC: %d data bytes are loaded from %s file. | Number of bytes loaded from the TCS file to program the device. |
| 3106 | *** Timing Commander Software Version: %s. | Timing Commander software version ID. The TCS file being used to program the 8A3400x device was generated using the specified version of Timing Commander. |
| 3107 | *** Reading %s file. | Name of TCS file being used to program the 8A3400x device. |
| 3108 | *** TC: %d data bytes are loaded from %s file. | Number of bytes loaded from the TCS file to program the 8A3400x device. |
| 3109 | Corrected: %.6Lf ppb %s Total Aged/Raw: %.6Lf / %.6Lf ppb. | The LO frequency correction passed without phase slope limit restrictions. The allowed correction is equal to the requested correction. Correction: applied frequency correction in PPB. Aged: frequency correction accumulator in PPB. Raw: holdover frequency correction accumulator in PPB. |
| 3110 | Correction ToD: DL %.9.1Lf ns UL %.9.1Lf ns (Min Tracking - Both). | The Adaptive Time Reference Tracker has calculated an accurate estimate of the ToD offset (Stage 3: ToD Correction) using the floor delay of both the downlink and uplink timestamps. |
| 3111 | Correction ToD: DL %.9.1Lf ns (Min Tracking - Downlink only). | The Adaptive Time Reference Tracker has calculated an accurate estimate of the ToD offset (Stage 3: ToD Correction) using the floor delay of only the downlink timestamps. |
| 3112 | Correction ToD: UL %.9.1Lf ns (Min Tracking - Uplink only). | The Adaptive Time Reference Tracker has calculated an accurate estimate of the ToD offset (Stage 3: ToD Correction) using the floor delay of only the uplink timestamps. |
| 3113 | Correction ToD: DL %.9.1Lf ns UL %.9.1Lf ns (Mean Tracking - Both). | The Adaptive Time Reference Tracker has calculated an accurate estimate of the ToD offset (Stage 3: ToD Correction) using the mean delay of both the downlink and uplink timestamps. |

| ID | Messages | Description |
|------|---|---|
| 3114 | Correction ToD: DL %9.1Lf ns (Mean Tracking - Downlink only). | The Adaptive Time Reference Tracker has calculated an accurate estimate of the ToD offset (Stage 3: ToD Correction) using the mean delay of only the downlink timestamps. |
| 3115 | Correction ToD: UL %9.1Lf ns (Mean Tracking - Uplink only). | The Adaptive Time Reference Tracker has calculated an accurate estimate of the ToD offset (Stage 3: ToD Correction) using the mean delay of only the uplink timestamps. |
| 3120 | Cleared accumulated FfoCorrection %6Lf %s. | Since the LO is time and frequency locked, the accumulated frequency correction can be cleared. |
| 3121 | Corrected: %1Lf ns %s Max FFO req/gnt: %6LF / %6Lf ppb. | The LO phase correction passed without any phase slope limit restrictions. Corrected: applied phase correction in ns. Req : frequency correction requested in PPB. Gnt: frequency correction granted in PPB. |
| 3122 | Local clock is grandmaster: %s. | Since the local clock is a Grandmaster Clock, the Reference Tracker Supervisor will try to switch to electrical tracking. |
| 3123 | 1588 reference acquired, best master port ID: %02x:%02x:%02x:%02x:%02x:%02x:%02x:%02x. %d, chosen tracker: %s. | The chosen tracker has not been assigned and so the best master will be assigned to the chosen tracker. |
| 3124 | Best master is the same, best master port ID: %02x:%02x:%02x:%02x:%02x:%02x:%02x:%02x. %d, chosen tracker: %s. | The Reference Tracker is already tracking the given master. |
| 3125 | Assign tracker %s to track master, master port ID: %02x:%02x:%02x:%02x:%02x:%02x:%02x:%02x. %d, stack instance number = %d. | The Reference Tracker Supervisor has assigned the specified tracker to track the new registered master. |
| 3126 | %s: New master registered with master port ID: %02x:%02x:%02x:%02x:%02x:%02x:%02x:%02x. %d, clock class: %d. | The Reference Tracker Supervisor has registered a new master with the indicated port ID. |
| 3127 | %s: IPv4 address: %d.%d.%d.%d. | The Reference Tracker Supervisor has registered a new master with the indicated IPv4 address. |
| 3128 | Holdover timeout is limited by the unqualified timeout. | The LO has transitioned into Holdover in Specification state. The Holdover in Specification state timer is set to the timeout specified by the parameter 'deviceConfig.holdover.holdoverTimeoutSeconds' in the JSON file. The Holdover Out of Specification state timer is set to the timeout specified by the parameter 'deviceConfig.holdover.unqualifiedTimeoutSeconds'. |
| 3129 | Apply hardware holdover. | Since the LO has transitioned into Holdover in Specification state and an Adaptive Write Phase Reference Tracker is being used to track the reference, the DCO must be put into hardware holdover. |
| 3130 | No holdover FFO correction required. | The GNSS and PTP DPLLs are frequency-locked (i.e. the FFO of the GNSS DPLL the last time it was locked is equal to the last measured FFO of the PTP DPLL). |
| 3131 | Apply holdover FFO correction: %6Lf [ppb]. | A frequency correction was required to keep the GNSS and PTP DPLLs aligned. |
| 3132 | Estimated FFO correction accuracy (std): %6Lf [ppb]. | Estimated frequency correction accuracy in PPB. |

| ID | Messages | Description |
|------|---|--|
| 3133 | Apply hardware holdover. | The parameter 'deviceConfig.holdover.holdoverType' is set to 'Hardware' in the JSON file and so because the LO state machine transitioned into Holdover in Specification state, the DCO must be put into hardware holdover. |
| 3134 | Holdover Unqualified Timeout: %u seconds. | The indicated timeout in seconds is specified by the parameter 'deviceConfig.holdover.unqualifiedTimeoutSeconds' in the JSON file and is also known as the Holdover Out of Specification state timeout. Once it expires, the LO transitions into Unqualified state, unless a qualified reference becomes available. |
| 3135 | Holdover Unqualified Timeout: none. | The LO will immediately transition into the Unqualified state once the Holdover in Specification state timeout expires (if it is indeed configured) and because the parameter 'deviceConfig.holdover.unqualifiedTimeoutSeconds' in the JSON file is set to zero , unless a qualified reference becomes available. |
| 3136 | Holdover Timeout: %u s. | The indicated timeout in seconds is specified by the parameter 'deviceConfig.holdover.holdoverTimeoutSeconds' in the JSON file and is also known as the Holdover in Specification timeout. Once it expires, the LO transitions into Holdover Out of Specification state, unless a qualified reference becomes available. |
| 3137 | Holdover with no Timeout. | The LO is in Holdover in Specification state, but will LO will immediately transition into the Holdover Out of Specification state because the parameter 'deviceConfig.holdover.holdoverTimeoutSeconds' in the JSON file is set to zero. |
| 3138 | Unqualified Timeout: %u s. | The indicated timeout in seconds is specified by the parameter 'deviceConfig.holdover.unqualifiedTimeoutSeconds' in the JSON file and is also known as the Holdover Out of Specification state timeout. Once it expires, the LO transitions into Unqualified state, unless a qualified reference becomes available. |
| 3139 | Unqualified with no Timeout. | The LO is in Holdover Out of Specification state, but will LO will immediately transition into the Unqualified state because the parameter 'deviceConfig.holdover.unqualifiedTimeoutSeconds' in the JSON file is set to zero. |
| 3140 | Apply hardware holdover. | The LO has transitioned into Holdover Out of Specification state and the parameter 'deviceConfig.holdover.outOfSpecUserDefinedFrequencyOffsetEnable' in the JSON file is disabled. Also, an Adaptive Write Phase Reference Tracker is being used to track the reference or the parameter 'deviceConfig.holdover.holdoverType' is set to 'Hardware', so the DCO must be put into hardware holdover. |
| 3141 | Apply FFO correction: %.6Lf [ppb]. | The LO has transitioned into Holdover Out of Specification state and since an Adaptive Write Phase Reference Tracker is being used to track the reference, the mode of the LO is 'Time Mode' (e.g. the possible modes are: Frequency Mode and Time Mode), and so the accumulated frequency correction must be reverted. |

| ID | Messages | Description |
|------|--|---|
| 3142 | Apply user defined holdover FFO: %.9Lf [ppb]. | The parameter 'deviceConfig.holdover.outOfSpecUserDefinedFrequencyOffsetEnable' in the JSON file is enabled and since the Holdover Out of Specification state timeout expired, which is specified by the parameter 'deviceConfig.holdover.unqualifiedTimeoutSeconds), the user-defined frequency offset (specified by the parameter 'deviceConfig.holdover.outOfSpecUserDefinedFrequencyOffsetPpb') is used, instead of the Servo's statistically computed frequency offset. |
| 3143 | Disable hardware holdover. | The Servo removed the device from hardware holdover because the parameter 'deviceConfig.holdover.outOfSpecUserDefinedFrequencyOffsetEnable' in the JSON file is enabled and the user-defined frequency offset (specified by the parameter 'deviceConfig.holdover.outOfSpecUserDefinedFrequencyOffsetPpb') is used. |
| 3144 | Electrical reference becomes valid. | It has been determined that the electrical reference for the LO has been qualified by the device, after querying the state of the DPLL that is being used to produce the electrical reference. |
| 3145 | Electrical reference becomes invalid. | It has been determined that the electrical reference for the LO has been unqualified by the device, after querying the state of the DPLL that is being used to produce the electrical reference. |
| 3146 | LOSM remains in %s (%d) - waiting for lock state to stabilize (count %d < %d). | Upon switching to electrical tracking, the state of the LO is locked until an internal software counter exceeds the threshold specified by the parameter 'deviceConfig.electricalReference.lockStateStabilityCounterThreshold' in the JSON file to give time for the DPLL to lock and avoid triggering a clock class change and switching back to packet tracking. |
| 3147 | %s: dpllStatus=%s (%d) LOSM: %s (%d). | Current DPLL and LO status. The possible DPLL states depend on the device being used. |
| 3148 | %s: LOSM frozen at %s (%d), ignore %s (%d) (%d/%d). | The state of the LO is locked again. The DPLL state will unfreeze once an internal threshold (IDT_ELECTRICAL_DPLL_LOSM_STATE_LOCKUP_PERIOD_SECONDS / IDT_ELECTRICAL_DPLL_STATE_POLLING_INTERVAL_SECONDS) is exceeded. |
| 3149 | %s: LOSM changing to %s. | The LO has transitioned from one state to another, due to a change in state of the electrical reference being tracked by the LO. The possible states are: Initial, Lock Acquisition, Frequency Locked, Time Locked, Holdover in Specification, Holdover Out of Specification, and Free Run. The possible events are: User force holdover, LO correction update, LO reference acquired, LO reference lost, LO reference switched, LO frequency locked, LO frequency not locked, LO time locked, LO not time locked, Holdover duration exceeded, Holdover out of specification duration exceeded, LO initialized, Clear user force holdover, and External set LOSM state. |
| 3150 | Switch to electrical reference tracking. | An electrical reference (e.g. synchronous Ethernet, GNSS 10 MHz, or 1PPS) is now being tracked by the LO. |
| 3151 | Switch to PTP packet reference tracking. | A 1588 clock is now being tracked by the LO. |

| ID | Messages | Description |
|------|---|--|
| 3152 | Physical layer wait to restore timer started: %d seconds. | Since the physical clock category (i.e. 'profileConfig.physicalPllClockCategory' in the JSON file) meets the physical clock category threshold (i.e. 'profileConfig.physicalPllClockCategoryThreshold' in the JSON file) because traceability was restored, the physical layer wait to restore timer, which is configured by the parameter 'profileConfig.physicalPllWaitToRestoreTimeoutValue' in the JSON file in seconds, must expire before the physical layer connection is restored. |
| 3153 | Clock category changed: %s (%d) -> %s (%d). | The Servo has received the 'mngApi_SetPhysicalClockCategory' command from the cliClient to set the physical clock category (i.e. the quality level of the physical clock), which is also initially set by the parameter 'profileConfig.physicalPllClockCategory' in the JSON file. |
| 3154 | isPreviousHoldoverValid: holdoverQualified = %d remainingTime = %.0f. | While the LO was in Lock Acquisition, Frequency Locked, or Time Locked state, the LO reference was lost. The Servo has reviewed the previous holdover quality and indicated whether it is qualified or not. Also, it has indicated how much time it is valid for in seconds (e.g. zero seconds if the previous holdover quality is not qualified). |
| 3155 | Revert FFO correction: %.6Lf [ppb]. | The LO has transitioned into Unqualified state and has reset the frequency correction history because it is no longer valid. |
| 3167 | GNSS TS = %.9Lf s PTP TS = %.9Lf s, GNSS FFO = %.6Lf ppb, PTP FFO = %.6Lf ppb | Information received by the Reference Tracker Supervisor from APTS Supervisor: GNSS ToD and PTP ToD values latched on the rising edge of the 1PPS input and the current Fractional Frequency Offset of the GNSS DPLL and PTP DCO in parts-per-billion. |
| 3168 | Latest FFO estimate: %.2Lf ppb | The PTP Fractional Frequency Offset estimation in parts-per-billion. This FFO estimation is done after a frequency correction is applied. |
| 3190 | Floor delay estimate based on both links: %.1Lf ns. | The current ToD tracking type is 'Minimum Tracking'. Current floor delay estimate in nanoseconds based on timestamps in both directions (downlink and uplink). |
| 3191 | Refined rough floor delay estimate: %.1Lf ns. | The current ToD tracking type is 'Minimum Tracking'. Refined floor delay estimate in nanoseconds, since only timestamps in a single direction (downlink or uplink) are available right now. |
| 3192 | Update todMeanTackingOffset %.12Lf. | The current ToD tracking type is 'Mean Tracking'. Updated mean tracking offset based on timestamps in a single direction (downlink or uplink). |
| 3193 | Mean delay estimate based on both links (us): %Lf. | The current ToD tracking type is 'Mean Tracking'. Refined mean delay estimate in microseconds based on timestamps in both directions (downlink and uplink). |
| 3194 | Refined rough mean delay estimate (us): %Lf. | The current ToD tracking type is 'Mean Tracking'. Refined mean delay estimate in microseconds based on both directions (downlink and uplink). |
| 3195 | Update todMeanTackingOffset %.12Lf. | The current ToD tracking type is 'Mean Tracking'. A mean delay estimate has not been determined yet. Updated mean tracking offset based on timestamps in both directions (downlink and uplink). |
| 3196 | Update todMeanTackingOffset %.12Lf. | The current ToD tracking type is 'Mean Tracking'. Updated mean tracking offset based on timestamps based on timestamps in both directions (downlink and uplink). |

| ID | Messages | Description |
|------|---|---|
| 3197 | Unfiltered mean delay estimate is %.12Lf seconds. | The current ToD tracking type is 'Mean Tracking'. Unfiltered mean delay estimate in seconds based on timestamps in both directions (downlink and uplink). |
| 3199 | Corrected: %.6Lf ppb %s Total Aged/Raw: %.6Lf / %.6Lf ppb, Requested: %.6Lf, Limit: %d ppb. | The LO frequency correction passed without any phase slope limit restrictions. The allowed correction is less than the requested correction. Corrected: applied frequency correction in PPB. Total Aged: frequency correction accumulator in PPB. Total Raw: Holdover frequency correction accumulator in PPB. Requested: Requested correction in PPB. Limit: current phase slope limit in PPB. |
| 3200 | ToD offset: [%.1Lf ns] (prev %.1Lf ns) %s %s. | The Adaptive Time Reference Tracker started the post-filtering and correction estimation processes. ToD offset: latest ToD offset measurement. Prev: ToD offset measurement from history buffer. Floor delay: latest floor delay if used. Mean delay: latest mean delay if used. |
| 3201 | Correction failed: %.1Lf ns %s Max FFO req/gnt: %.6LF / %.6Lf ppb. | The LO phase correction request from source tracker failed. Req: requested maximum FFO in PPB. Gnt: granted maximum FFO in PPB. |
| 3202 | PDV %s: Std dev: %Le Var: %Le logVar: %Le. | The Reference Tracker periodically prints sample statistics for both downlink and uplink timestamps. Std dev: standard deviation. Var: variance. logVar: log2(variance). |
| 3203 | numberOfCorrection: %d, mean: %.1Lf ns, std: %.1Lf ns. | The Write Phase Reference Tracker displays the statistical information every minute and updates the LO lock state. |
| 3204 | snapSubStage: 'Initial' to 'Frequency Measurements'. | The Write Phase Reference Tracker changed the stage from Initial to Frequency Measurements. |
| 3205 | Frequency and ToD estimation finished. Estimation time: %.2Lf seconds. | The Write Phase Reference Tracker linear regression reached the requested confidence level (98%). The tracker is ready for the initial frequency and ToD corrections. |
| 3212 | Sync time of day: Skipped %.1Lf ns. | The error that would be introduced by the ToD correction is larger than the actual phase offset, which is less than 100 nanoseconds. So, it is better to skip the proposed ToD adjustment. |
| 3213 | Sync time of day: %.1Lf ns. | ToD correction applied to LO in nanoseconds. |
| 3214 | Phase pull-in: %.1Lf ns. blocking %d. | Double DCO phase correction applied for the specified phase offset in ns. |
| 3220 | HW device configuration complete. | The phc4l device adaptor driver initialization is complete. |
| 3221 | Interface name used by Linux PTP is %s | The specified interface name is the name of the timestamper being used by Linux PTP. |
| 3222 | stateTransition[instNum %u] --> %s. | The Linux PTP Stack Adaptor transitioned from one state to another. The possible states are: Start, WaitTimeout, RequestDefaultDataSet, RequestParentDataSet, RequestTimePropertiesDataSet, RequestClockDescription, WaitDownlinkTimestamps, RequestPortDataSet, Running, and End. |
| 3223 | Sync interval: %u us | Interval between successive sync and follow-up messages in microseconds. |
| 3224 | Delay request interval: %u us | Interval between successive delay request and response messages in microseconds. |

| ID | Messages | Description |
|------|--|---|
| 3225 | Register tracker %s, stack instance number %d. | The Reference Tracker Supervisor has registered the specified tracker for the Stack instance indicated. |
| 3226 | DeRegister tracker %s. | The Reference Tracker Supervisor has deregistered the specified master. |
| 3227 | ----Best tracking found: type: %s, absolute: %d, in %s. | The Servo has determined the best ToD tracking type based on the available statistics. The possible ToD tracking types are: Minimum Tracking, Mean Tracking, Robust Mean Tracking, and No Tracking. |
| 3228 | Variance in high precision frequency mode after collecting required timestamps: %Le. | The Adaptive Frequency/Time/Assisted Reference Tracker is done collecting the required timestamps for high precision frequency mode and has indicated the variance. |
| 3236 | phc4l initialization: set initial FFO value to %lld ppb. | To facilitate a less disruptive warm start, the FFO determined by the kernel is used to initialize the DCO offset. |
| 3239 | Enter time stable state. | The Adaptive Time Reference Tracker is time stable. The current phase correction is less than the parameter 'instanceConfig.trackerConfig.timeLockThresholdNanoseconds' divided by 4. (phaseCorrection < timeLockThresholdNanosecond / 4). |
| 3240 | offset: %.1Lf ns delay: %.1Lf ns | Adaptive Frequency/Time/Write Phase Reference Tracker calibration data. Each Adaptive Reference Tracker prints updated asymmetry calibration values periodically. (offset: <master-to-slave difference or T2 - T1 in ns>, delay: <slave-to-master floor delay or T4 - T3 in ns>). |
| 3241 | Coarse ToD estimate: use both links todOffset = %.9Lf s. | The Adaptive Time Reference Tracker has calculated a coarse estimate of the ToD offset (Stage 3: ToD Correction) using both downlink and uplink timestamps. |
| 3242 | Coarse ToD estimate: use down link todOffset = %.9Lf s. | The Adaptive Time Reference Tracker has calculated a coarse estimate of the ToD offset (Stage 3: ToD Correction) using only downlink timestamps. |
| 3243 | Coarse ToD estimate: use up link todOffset = %.9Lf s. | The Adaptive Time Reference Tracker has calculated a coarse estimate of the ToD offset (Stage 3: ToD Correction) using only uplink timestamps. |
| 3244 | Coarse ToD estimate: use both links in a simplified way todOffset = %.9Lf s. | The Adaptive Time Reference Tracker has calculated a coarse estimate of the ToD offset (Stage 3: ToD Correction) using a simplified way (i.e. using the mean value in both directions). |
| 3245 | Rough Time Correction: Using both links. | The Adaptive Time Reference Tracker has calculated a rough estimate of the ToD offset (Stage 1: Rough Time And Frequency Correction) using both downlink and uplink timestamps. |
| 3246 | Rough Time Correction: Using downlink only. | The Adaptive Time Reference Tracker has calculated a rough estimate of the ToD offset (Stage 1: Rough Time And Frequency Correction) using only downlink timestamps. |
| 3247 | Rough Time Correction: Using uplink only. | The Adaptive Time Reference Tracker has calculated a rough estimate of the ToD offset (Stage 1: Rough Time And Frequency Correction) using only uplink timestamps. |
| 3250 | Tracker run mode: '%s' %d. | Current Adaptive Reference Tracker mode. The possible modes are: Rough Time and Freq Correction, Freq Correction, High Precision Freq Correction Time Mode, High Precision Freq Correction Freq Mode, and ToD Correction. |

| ID | Messages | Description |
|------|--|--|
| 3251 | Tracker run mode: '%s' to '%s' %d. | Switch of Adaptive Reference Tracker mode. The possible modes are: Rough Time and Freq Correction, Freq Correction, High Precision Freq Correction Time Mode, High Precision Freq Correction Freq Mode, and ToD Correction. |
| 3252 | Tracker run mode: '%s' %d. | Current Write Phase Tracker mode. The possible modes are: Snapping, Converging, Statistics Collecting, and Tracking. |
| 3253 | Tracker run mode: '%s' to '%s' %d. | Switch of Write Phase Tracker mode . The possible modes are: Snapping, Converging, Statistics Collecting, and Tracking. |
| 3254 | Approximate time to lock if the PDV changes continue to occur: %d s | Estimated time to frequency lock in minutes due to an insufficient number of collected timestamps and a changing PDV. |
| 3255 | Estimated highPrecisionFrequencyCorrectionTime in minutes to frequency lock: %.1Lf | The duration in minutes specified by the parameter 'instanceConfig.trackerConfig.highPrecisionFrequencyCorrectionTime Minutes' in the JSON file (can also be configured using cliClient) that is used to estimate a high precision frequency correction has been adjusted by the Servo after considering the PDV. Generally, the longer the duration is, the more accurate the frequency correction will be. However, if the PDV is small, then the duration can be set to a smaller value (e.g. 2), and if the PDV is large, then it can be set to a bigger value (e.g. 8). |
| 3256 | ac_strBuf | This Stack-level sync analysis general info message is printed using the user-implemented and thread-safe function called TGT_dbg_printf. This message is only printed when TGT_dbg_printf is called by the user. |
| 3257 | ac_strBuf | This Stack-level sync analysis PDV message is printed using the user-implemented and thread-safe function called TGT_dbg_printf. This message is only printed when TGT_dbg_printf is called by the user. |
| 3258 | Register new master, master port ID: %02x:%02x:%02x:%02x:%02x:%02x:%02x:%02x. %d, best master port ID: %02x:%02x:%02x:%02x:%02x:%02x:%02x:%02x. %d, stack instance number: %d. | The specified clock has not been registered before. |
| 3259 | Master is already registered, master port ID: %02x:%02x:%02x:%02x:%02x:%02x:%02x:%02x. %d, tracker = %s. | The specified clock has already been registered as a master by the Reference Tracker Supervisor. It is ready to be tracked. |
| 3260 | Found matching tracker (%s) for stack instance %d. | A new master has been selected, which has not been registered before. The Reference Tracker Supervisor has identified the indicated Reference Trackers for the specified Stack instance. |
| 3261 | Accumulated correction = 0 - no reversion required to restore previous holdover. | Since the current holdover quality is not as good as the previous holdover quality, the Servo decided to use the previous holdover results, and does not have to take any additional measures because the accumulated frequency correction is zero. |
| 3262 | Reverted accumulated correction %.12Lf ppb to restore previous holdover. | Since the current holdover quality is not as good as the previous holdover quality, the Servo decided to use the previous holdover results, but has to revert the accumulated frequency correction to do so. |
| 3263 | Frequency Locked state: Previous holdover results can be used. | The previous holdover quality is better than the current holdover quality, so the Servo decided to use the previous holdover results. |

| ID | Messages | Description |
|------|---|--|
| 3264 | Use the estimated capable holdover time. | The Servo estimated the amount of time that the Adaptive Time Reference Tracker is able to hold the time based on the available PDV statistics, etc. Since it is smaller than the Holdover in Specification timeout that is specified by the parameter 'deviceConfig.holdover.holdoverTimeoutSeconds' in the JSON file, it will be used instead of the user-configured time. |
| 3265 | %s: Set clock class %d, clock accuracy 0x%02x, scaled log variance 0x%04x. | Since the switch from electrical reference tracking to PTP packet tracking has been completed, the Servo has restored the clock quality values of the local clock node. |
| 3266 | Time Locked state: Previous holdover results can be used. | The LO reference was lost while the LO was in the TimeLockSucceeded state. Since the current holdover quality is not as good as the previous holdover quality, the previous holdover results will be used. |
| 3270 | Write Phase Reference Tracker: LO is not time locked (absolute filtered delay %1Lf ns > time lock threshold %1Lf ns). | The Write Phase Reference Tracker ran the hysteresis comparator and has determined that the LO is not time locked because the absolute value of the filtered delay (ToD offset) exceeds the threshold set by the parameter 'instanceConfig.trackerConfig.timeLockThresholdNanoseconds' in the JSON file. |
| 3500 | APTS Supervisor is enabled. | The parameter 'referenceTrackerType' is set to 'AdaptiveTimeAssist' in the JSON file and so the device now has Assisted Partial Time Support (APTS) capabilities. |
| 3501 | APTS Supervisor state: %s | APTS Supervisor state. The possible states are: GnssUnqualified, WaitFirstToDRead, GnssLocked, and GnssHoldover. |
| 3502 | Align GNSS TOD seconds to PTP TOD seconds. GNSS TOD delta = %lld ns | The GNSS ToD must be adjusted with an integer number of seconds to bring it as close as possible to the current PTP ToD. The remaining offset in nanoseconds of the PTP ToD is corrected by tracking the GNSS 1PPS reference. |
| 3503 | Re-align GNSS TOD (%llu.%09lu) to PTP TOD (%llu.%09lu). | The APTS Supervisor detected an offset that is larger than half of a second between the GNSS ToD and the PTP ToD. Accordingly, the GNSS ToD must be adjusted with an integer number of seconds to align it closer to the PTP ToD. |
| 3504 | GNSS clock category: %d | GNSS clock category. The GNSS clock category is printed at start-up and every time it is changed through cliClient (Management APIs). Its initial value is given by the parameter 'profileConfig.gnssPllClockCategory' in the JSON file. |
| 3505 | GNSS clock category threshold: %d | GNSS clock category threshold. The GNSS clock category threshold is printed at start-up and every time it is changed through cliClient (Management APIs). Its initial value is given by the parameter 'profileConfig.gnssPllClockCategoryThreshold' in the JSON file. |
| 3510 | APTS holdover FFO correction: %.6Lf [ppb] | If the LO state machine switches into Holdover in Specification state and the APTS Supervisor is in GNSS Holdover state, then the servo restores the best known FFO. This is true only if parameter 'deviceConfig.holdover.holdoverType' is set to 'Software' in JSON file. |
| 3550 | APTS Asymmetry Calibration. Valid:%d Measured:%.1Lf ns Corrected:%.1Lf ns Tms:%.1Lf ns Tsm:%.1Lf ns | Assisted reference tracker calibration data. Each Assisted Reference Tracker prints updated asymmetry calibration values periodically. (Valid: <0/1>, Measured: <asymmetry in ns>, Corrected: <asymmetry in ns>, DL Floor: <master-to-slave floor delay in ns>, UL Floor: <slave-to-master floor delay in ns>). |

| ID | Messages | Description |
|------|--|---|
| 3551 | Assisted Tracker state changed from: '%s' to '%s' | The Assisted Reference Tracker transitioned from one state to another. The possible states are: IdleStage, PtpCalibrationStage, PtpOutOfSpecStage and PtpAssistedHoldoverStage. |
| 3552 | Assisted Tracker Frequency Priority holdover: '%s'. | If the APTS Supervisor switches to GnssHoldover state while the Assisted Reference Tracker is in the PtpCalibrationStage state, then the Assisted Reference Tracker transitions into PtpAssistedHoldoverStage and the adaptive time filter frequency priority mode is enabled, which implements frequency-prioritized filter parameters only for the duration specified by the parameter 'assistedHoldoverTimeoutSeconds' in the JSON file. |
| 3553 | Applying FFO correction (ppb). | An estimated frequency correction was applied by the Adaptive Frequency Reference Tracker during the first ToD snap to correct the LO because the parameter 'instanceConfig.willCorrectFrequencyAtFirstSnap' was enabled in the JSON file. |
| 3554 | Frequency skew algorithm: not supported (algo %d, dir %d). | The Servo determined that for the frequency correction calculation with both links, a frequency correction was no longer needed or that it needed to recalculate it for the current choice of algorithm. |
| 3555 | Frequency skew algorithm: not supported (algo %d, dir %d). | The Servo determined that if the direction choice is not uplink or downlink, a frequency correction was no longer needed or that it needed to recalculate it. |
| 3556 | Frequency skew algorithm: not supported (algo %d, dir %d). | The Servo determined that for the frequency correction calculation with a single link, a frequency correction was no longer needed or that it needed to recalculate it for the current choice of algorithm. |
| 3557 | Clock class (%d) is not frequency sync telecom profile clock class. The telecom profile clock class is from 80 to 110. | The clock class of the second master used for comparison does not meet the standards for the PTP Telecom Profile for frequency. This is just a reminder. |

3.4 Error

| ID | Messages | Description |
|------|---------------------------------------|---|
| 4002 | %s: Invalid message type: %d | The reference tracker received an unknown message type from another thread. This is an internal software error. |
| 4005 | Invalid reference tracker type: %d | Unsupported reference tracker type detected while constructing the reference tracker. Check parameter 'referenceTrackerType' in JSON file. The supported reference tracker types are: AdaptiveFrequency, AdaptiveTime, WritePhase and AdaptiveTimeAssist. |
| 4007 | Unexpected management API cmd: %d, %s | The reference tracker supervisor received an invalid API command. Check the list of valid management API commands. |
| 4008 | Unexpected message type: %d | The reference tracker supervisor received an unknown message type from another thread. This is an internal software error. |
| 4014 | cmnMean returns not-a-number! | The mean value is calculated for an empty vector. This is an internal software error. |
| 4015 | cmnVar returns not-a-number! | The variance is calculated for an empty vector. This is an internal software error. |

| ID | Messages | Description |
|------|---|--|
| 4016 | cmnSkewness returns not-a-number! | The skewness is calculated for an empty vector. This is an internal software error. |
| 4017 | cmnMeanAbsoluteDeviation returns not-a-number! | The mean absolute deviation is calculated for an empty vector. This is an internal software error. |
| 4018 | cmnRobustMean returns not-a-number! | The robust mean value is calculated for an empty vector. This is an internal software error. |
| 4020 | Correction not applied, invalid correction type: %d | The corrections applied to the local oscillator can be only phase or frequency corrections. This is an internal software error. |
| 4021 | Insert qualified master failed, invalid master comparison result: %d | Invalid master comparison result for G.8265.1. Only the following results are valid: A_better, B_better, A_B_equal. This is an internal software error. |
| 4022 | Unable to add new master, maximum number of supported masters exceeded: %d | Cannot add new master to be tracked as the master list is full. Can support only IDT_STACK_MAX_INST number of masters. This is an internal error. Contact Renesas for support. |
| 4023 | Expecting DPLL to be configured in AUTO mode for profileType %d %s, profileClockType %d %s | Reference Tracker Supervisor expects the DPLL to be configured in AUTO mode for profiles with T-GM, MOOC, OC-M clocks. This error message is deprecated. |
| 4024 | Electrical input port %d invalid. | Electrical input port invalid for G.8275.1 profile with T-BC clock. |
| 4026 | Can't de-register master, master not registered, master port ID: %02x:%02x:%02x:%02x:%02x:%02x:%02x:%02x. %d | Reference Tracker Supervisor tried to de-register a master which was not registered. |
| 4027 | Unable to update chosen tracker, best master not registered, best master port ID: %02x:%02x:%02x:%02x:%02x:%02x:%02x:%02x. %d | Unable to find the tracker for the best master ID because this master is not found in the registered master list. |
| 4028 | Unable to register new master: %02x:%02x:%02x:%02x:%02x:%02x:%02x:%02x. %d for stack instance %d, unable to find free matching tracker for the stack instance | The reference tracker supervisor is unable to find a free tracker for a new master for the given stack instance. |
| 4029 | Unable to process PDV threshold exceeded notification, %s not registered with supervisor | A reference tracker reports PDV threshold exceeded, but this tracker is not registered with reference tracker supervisor. This is an internal software error. |
| 4044 | %s:%d Failed to open dcoDevice %s | Cannot open the DCO device specified by 'phc4lConfig.dcoDevice' in JSON file. PHC initialization failed. |
| 4045 | %s:%d Failed to open syncdTargets %s | Cannot open the Syncd targets specified by 'phc4lConfig.syncdConfig.targets[]' in JSON file. PHC initialization failed. |
| 4046 | %s: Socket Failed | Failed to open TCP socket during management interface session bring up. This is an internal software error. |
| 4047 | %s: Bind failed. %s | Failed to bind to the TCP socket during management interface session bring up. This is an internal software error. |
| 4058 | TC: config_buff OS_MALLOCC failed | TCS Configuration file: Cannot allocate a buffer for the TCS file. This is an internal software error. |

| ID | Messages | Description |
|------|---|---|
| 4059 | !!! TC: Cannot find the beginning of the register table | TCS Configuration file: Register table must begin with 'Page.Byte#' header. Contact Renesas for support. |
| 4060 | !!! Unknown TC file format | TCS Configuration file: Cannot find the line start marker. Check the TCS file format. Contact Renesas for support. |
| 4061 | !!! Unknown TC file format | TCS Configuration file: Cannot find the line end marker or the width between markers is wrong. Check the TCS file format. Contact Renesas for support. |
| 4062 | !!! Unknown TC file format | TCS Configuration file: Line parsing error. Check the TCS file format. Contact Renesas for support. |
| 4063 | !!! TC: Invalid character %c at offset %u | TCS Configuration file: The value of higher nibble of the hex offset value is less than zero. Cannot convert ASCII value to data bytes. Check the TCS file format. Contact Renesas for support. |
| 4064 | !!! TC: Invalid character %c at offset %u | TCS Configuration file: The value of lower nibble of the hex offset value is less than zero. Cannot convert ASCII value to data bytes. Check the TCS file format. Contact Renesas for support. |
| 4065 | !!! TC: Cannot find %01X.%02X | TCS Configuration file: Cannot find page index and register address or there is a size mismatch. The format should be page index(1 byte).register address(2 bytes). Check the TCS file format. Contact Renesas for support. |
| 4066 | TC: fseek failed | TCS Configuration file: Failed to set file pointer position to the beginning of file. This is an internal software error. |
| 4067 | TC: fseek failed | TCS Configuration file: Failed to set file pointer position to the end of file. This is an internal software error. |
| 4068 | TC: Failed to open %s file | TCS Configuration file: Failed to open Timing Commander file. Check the 'deviceConfig.timingCommanderRegisterFile' parameter for the TCS file name in JSON or if the file exists. |
| 4069 | TC: config_buff OS_MALLOCC failed | Clock Matrix TCS Configuration file: Cannot allocate a buffer for the TCS file. This is an internal software error. |
| 4070 | !!! TC: Cannot find the beginning of the register table | Clock Matrix TCS Configuration file: Register table must begin with 'Page.Byte#' header. Contact Renesas for support. |
| 4071 | !!! Unknown TC file format | Clock Matrix TCS Configuration file: Cannot find the line start marker. Check the TCS file format. Contact Renesas for support. |
| 4072 | !!! Unknown TC file format | Clock Matrix TCS Configuration file: Cannot find the line end marker or the width between the markers is wrong. Check the TCS file format. Contact Renesas for support. |
| 4073 | !!! Unknown TC file format | Clock Matrix TCS Configuration file: Line parsing error. Check the TCS file format. Contact Renesas for support. |
| 4074 | !!! TC: Invalid character %c at offset %u | Clock Matrix TCS Configuration file: The value of higher nibble of the hex offset value is less than zero. Cannot convert ASCII value to data bytes. Check the TCS file format. Contact Renesas for support. |
| 4075 | !!! TC: Invalid character %c at offset %u | Clock Matrix TCS Configuration file: The value of lower nibble of the hex offset value is less than zero. Cannot convert ASCII value to data bytes. Check the TCS file format. Contact Renesas for support. |

| ID | Messages | Description |
|------|---|--|
| 4076 | !!! TC: Cannot find %01X.%02X | Clock Matrix TCS Configuration file: Cannot find page index and register address or there is a size mismatch. The format should be page index(1 byte).register address(2 bytes). Check the TCS file format. Contact Renesas for support. |
| 4077 | TC: fseek failed | Clock Matrix TCS Configuration file: Failed to set the file pointer position to the beginning of file. This is an internal software error. |
| 4078 | TC: fseek failed | Clock Matrix TCS Configuration file: Failed to set the file pointer position to the end of file. This is an internal software error. |
| 4079 | TC: Failed to open %s file | Clock Matrix TCS Configuration file: Failed to open Timing Commander file. Check the 'deviceConfig.timingCommanderRegisterFile' parameter for the TCS file name in JSON or if the file exists. |
| 4080 | Invalid configuration parameters detected. | Invalid configuration parameters detected in the JSON file. Profile validation failed when 'testModeEnable' parameter in JSON file is 0. |
| 4081 | Invalid register configuration file, %s. | Invalid Timing Commander register file detected in the JSON file. Check the 'deviceConfig.timingCommanderRegisterFile' parameter for proper TCS file name |
| 4091 | Failed to set IF socket. | Failed to set the management interface socket receive timeout. This is an internal software error. |
| 4092 | Socket failed. %d | Socket error occurred on the receiver end. The management interface socket is closed. This is an internal software error. |
| 4093 | %s: Failed to set socket option 'reuse address'. %s | Could not bind to the same IPv4 address after restart during management interface session bring up. This is an internal software error. |
| 4094 | Unable to extract ptp index from %s. | PHC device adaptor: Unable to extract PTP index from the specified PTP device. Should be ranging from ptp[0-9]. |
| 4095 | Unable to read /sys/class/ptp/ptp%d/clock_name | PHC device adaptor: Reading the PTP clock name returned an error, the PTP device is not supported. |
| 4097 | PTP device %s %s not supported. | PHC device adaptor: The clock name must contain 'idt','rea' or 'renesas' substring. |
| 4100 | %s:%d Failed to open tsDevice %s | PHC device adaptor: The PTP clock cannot be accessed or is invalid. Check parameter 'phc4IConfig.tsDevice' in JSON file. PHC initialization failed. |
| 4110 | Profile ID %02x-%02x-%02x-%02x-%02x-%02x invalid. Setting to %s | The profile ID must be one of the following: '00-1B-19-00-01-00' (default profile), '00-19-A7-00-01-02' (G.8265.1), or '00-19-A7-01-01-00' (G.8275.1). |
| 4111 | Range check failed, null value or range parameter! | Function cmnCheckRange must receive both the value and the range for each profile-specific configuration parameter. This message indicates an internal software error. |
| 4112 | Range check not supported for type %d | Function cmnCheckRange received an invalid parameter type. This message indicates an internal software error. |
| 4113 | FAIL_STR | A profile-specific configuration parameter fails validation. The message prints the parameter name, the value and the range. |

| ID | Messages | Description |
|------|--|--|
| 4114 | FAIL_STR | A profile-specific configuration parameter fails validation. The message prints the parameter name. |
| 4115 | %s %s not supported by this image, compiled clock type: %s | G.8265.1 telecom master expects to only have 1 port and IDT_STACK_CLK_IS_OC_BC = IDT_STACK_ENABLE. |
| 4116 | %s %s not supported by this image, compiled clock type: %s | G.8265.1 telecom slave expects to only have 1 port and IDT_STACK_CLK_IS_OC_BC = IDT_STACK_ENABLE. |
| 4117 | Unknown clock type for %s | For G.8265.1, only telecom master and telecom slave are supported. Check parameter 'clockType' in JSON file. |
| 4118 | %s %s not supported by this image, compiled clock type: %s | G.8275.1 telecom grandmaster is not supported by this application image. Check parameter 'clockType' in JSON file. |
| 4119 | %s %s not supported by this image, compiled clock type: %s | G.8275.1 telecom slave clock is not supported by this application image. Check parameter 'clockType' in JSON file. |
| 4120 | %s %s not supported by this image, compiled clock type: %s | G.8275.1 telecom boundary clock is not supported by this application image. Check parameter 'clockType' in JSON file. |
| 4121 | Unknown clock type for %s | For G.8275.1, only telecom grandmaster, telecom slave clock and telecom boundary clock are supported. Check parameter 'clockType' in JSON file. |
| 4122 | %s %s not supported by this image, wrong transport specific field specified: %d, %d expected | This message indicates a problem with compile-time option IDT_STACK_802_3_SPEC. |
| 4123 | The selected profile is Default, unknown clock type %d specified | For the Default profile, only the following clock types are supported: linuxExtern, BC, OC and OC-M. This error message is deprecated. |
| 4124 | The selected profile is G.8265.1, unknown clock type %d specified | Valid G.8265.1 profile clock types are MOOC and SOOC. |
| 4125 | The selected profile is G.8275.1, unknown clock type %d specified | Valid G.8275.1 profile clock types are T-TSC, T-BC, T-GM-BC and T-GM-OC. This error message is deprecated. |
| 4126 | Invalid Profile detected | Check parameter 'clockType' in JSON file. |
| 4127 | Invalid phase snap delay %u (must be equal to or greater than %d seconds) | Check parameter 'phc4IConfig.phaseSnapDelaySeconds' in JSON file. |
| 4128 | Missing phc4IConfig.dcoDevice configuration, cannot be blank. | Check parameter 'phc4IConfig.dcoDevice' in JSON file. |
| 4129 | Missing phc4IConfig.tsDevice configuration, cannot be blank. | Check parameter 'phc4IConfig.tsDevice' in JSON file. |
| 4130 | Invalid or duplicate ptp clock device name dcoDevice = %s tsDevice = %s | Check parameters 'phc4IConfig.dcoDevice' and 'phc4IConfig.tsDevice' in JSON file. These device names must start with '/dev/ptp'. |
| 4131 | Invalid or duplicate ptp clock device name %s | Check parameters 'phc4IConfig.syncdConfig.targets'. These device names other than CLOCK_REALTIME, must start with '/dev/ptp', but must be different than 'dcoDevice' and 'tsDevice'. |
| 4132 | Invalid %s %d %s | Generic error message for an invalid integer parameter from JSON file. |
| 4133 | Invalid %s %Lf %s | Generic error message for an invalid float parameter from JSON file. |

| ID | Messages | Description |
|------|--|--|
| 4134 | Invalid %s %s %s | Generic error message for an invalid string parameter from JSON file. |
| 4135 | FAIL_STR, IDT_CNFIG_NAME_LOGGER_SYSLOG_CONFIG | Invalid Syslog IP address. |
| 4136 | Profile: NULL | Cannot retrieve the profile from the JSON file. |
| 4137 | FAIL_STR | The TCS file name can contain only letters, numbers, '.', '_' or '-'. |
| 4138 | pll1588Instance %d and physicalPllInstance %d cannot be the same. | The PTP DCO instance and the Sync-e DPLL instance must be different. |
| 4139 | FAIL_STR | Invalid 'mgmtIpAddress' parameter in JSON file. |
| 4140 | FAIL_STR, PermittedTransportMechanism | The specified network protocol is not permitted. |
| 4141 | FAIL_STR | The specified address mode is not permitted. |
| 4142 | FAIL_STR | The specified delay mechanism is not permitted. |
| 4143 | FAIL_STR | VLAN interface name is not supported by G8275.1. |
| 4144 | Invalid number of ports %d enabled, expected range [%d, %d] %s | The number of ports must belong to the specified range. |
| 4145 | G.8265.1 domain numbers validation failed | The domain number must be the same for all stack instances. |
| 4146 | Invalid JSON configuration versionId %d.%d.%d for releaseId %d.%d.%d | One or more configuration parameters did not pass validation. |
| 4147 | Duplicated target device name %s | Check parameters 'phc4IConfig.syncdConfig.targets'. Some target device names are duplicated. |
| 4149 | Stack instance %d: lost master timeout cannot be configured to zero. | The parameter 'instanceConfig.lostMasterTimeoutMilliseconds' cannot be set to zero because it would mean that the interval between consecutive sync packets is expected to be zero. |
| 4153 | Invalid reference tracker type: %d | Unsupported reference tracker type while destroying the reference tracker. Check parameter 'referenceTrackerType' in JSON file. The supported reference tracker types are: AdaptiveFrequency, AdaptiveTime, WritePhase and AdaptiveTimeAssist. |
| 4162 | cmnVar returns not-a-number! | The auto covariance is calculated for an empty vector. This is an internal software error. |
| 4164 | Master list is full, maximum number of masters supported is %d | Cannot add new master to be tracked for the stack adaptor, as the master list is full. Can support only IDT_STACK_MAX_INST number of masters. This is an internal error. Contact Renesas for support. |
| 4167 | Unable to poll TX timestamp. | Either the stack attempted to get the TX timestamp from the timestamp before it was received, or a linux kernel error occurred. |

3.5 Warning

| ID | Messages | Description |
|------|--|---|
| 5005 | %s: managementId 0x%04x Unexpected message - %s | An IXXAT stack management API returns an error. |
| 5006 | %s: Invalid IXXAT API code %d | Invalid API code of IXXAT generic management API. |
| 5007 | NULL output pointer in GET API function %s | IXXAT API GET function should have a valid output pointer. |
| 5008 | Zero responses requested by GET API function %s | IXXAT GET API requests for zero responses. |
| 5009 | Input parameter is NULL in SET API function %s | IXXAT SET API should have a valid input data pointer. |
| 5010 | %s: Unable to retrieve the local port ID | Cannot retrieve IXXAT clock dataset. |
| 5011 | Wrong IPv4 address length (%d) received by %s | IXXAT API: Network protocol indicates UDP_IPv4, but the address length is different than 4 bytes. |
| 5012 | Wrong IPv6 address length (%d) received by %s | IXXAT API: Network protocol indicates UDP_IPv6, but the address length is different than 16 bytes. |
| 5013 | Wrong IEEE 802.3 address length (%d) received by %s | IXXAT API: Network protocol indicates IEEE_802_3, but the address length is different than 6 bytes. |
| 5014 | Unsupported Network Protocol in %s | IXXAT API supports only the following network protocols: UDP_IPv4, UDP_IPv6, IEEE_802_3. |
| 5015 | %s: Wrong API code - %d %s | The API code in IXXAT (GET) response does not match the API code in the (GET) request. |
| 5016 | %s: State = e_MNTAPI_ERR_AL | Invalid management API state returned by IXXAT stack in (GET) response. Indicates an internal IXXAT stack error. |
| 5017 | %s: Unexpected MNT-ID: 0x%04X, expected: 0x%04X | The management ID received in (GET) response from IXXAT stack does not match the management ID in (GET) request. |
| 5018 | %s: Unexpected TLV Type: 0x%04X | Unexpected management TLV type received in (GET) response message from IXXAT stack. Indicates an internal IXXAT stack error. |
| 5019 | %s: State = e_MNTAPI_ERR_AL, expected managementId: %04X | Invalid management API state returned by IXXAT stack in (SET or CMD) response. Indicates an internal IXXAT stack error. |
| 5020 | %s: Unexpected MNT-ID: 0x%04X, expected: 0x%04X | The management ID received in (SET or CMD) response from IXXAT stack does not match the management ID in (SET or CMD) request. |
| 5021 | %s: Unexpected TLV Type: 0x%04X | Unexpected management TLV type received in (SET or CMD) response message from IXXAT stack. Indicates an internal IXXAT stack error. |
| 5022 | %s: Failed. Returns Not Supported | The indicated CMD API not supported by IXXAT stack. |
| 5023 | %s: Failed. Returns 'Not Supported' | IXXAT-specific CMD API not supported. |
| 5024 | %s: Failed. Returns 'Not Accepted' | The indicated GET API not supported by IXXAT stack. |
| 5025 | %s: Unexpected message - %s | Unexpected message type in (GET) response from IXXAT stack. |
| 5026 | %s: Failed. Returns 'Not Accepted' | IXXAT API: The stack does not accept the indicated SET request. |

| ID | Messages | Description |
|------|---|---|
| 5027 | %s: Failed. Returns 'Not Accepted' | IXXAT API: The stack does not accept the GET request for the acceptable master table. |
| 5028 | %s: Failed. Returns 'Not Accepted' | IXXAT API: The stack does not accept Initialize CMD. |
| 5031 | MNG API caller received an unexpected ITC message: %s | A linux extern stack management SET/CMD API returns an error. |
| 5032 | MNG API caller received an unexpected ITC message: %s | A linux extern stack management GET API returns an error. |
| 5033 | %s: Invalid MNG API code %d | Invalid API code of linux extern generic management API. |
| 5034 | NULL output pointer in GET API function %s | Linux extern stack API GET function should have a valid output pointer. |
| 5035 | Zero responses requested by GET API function %s | Linux extern stack GET API requests for zero responses. |
| 5036 | Input parameter is NULL in SET API function %s | Linux extern stack SET API should have a valid input data pointer. |
| 5037 | %s: Failed. Returns 'Not Accepted' | IXXAT API: The stack does not accept the GET request for all the recorded faults of a node. |
| 5038 | %s: Failed. Returns 'Not Accepted' | IXXAT API: The stack does not accept the GET request for the grandmaster cluster table from a node. |
| 5039 | %s: Failed. Returns 'Not Accepted' | IXXAT API: The stack does not accept the GET request for the unicast master table. |
| 5040 | TC: No TCS file name specified in JSON. | TCS Configuration file: Empty Timing Commander file name in the JSON file. Specify the file name if needed in the 'deviceConfig.timingCommanderRegisterFile' parameter. |

4. Revision History

| Revision | Date | Description |
|----------|--------------|---|
| 1.0 | Jun 10, 2021 | Initial release of the document. Supports software release 4.1.0.77765. |

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