

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](#).

## 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](#).

### 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: → Holdover Out Of Spec state	The LO state machine was in Time Locked state and a Reference Lost event occurred. Holdover is not unqualified, transitioned to Holdover Out Of Spec state.
1004	enablePhc4IOutputs failed, index = %d	-
1006	PPS Trigger not detected!	The timestamp device cannot detect the 1 PPS trigger. Check hardware configuration.
1007	Invalid G.8265.1 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	Can not 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	Can not 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	Can not 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	Can not 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.

ID	Messages	Description
1019	Can not 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.
1020	Can not 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	Can not 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	Can not 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	Can't 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	New master port ID not equal to the best master port ID and best master is not in tracking list. 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	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	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	PTSF-unusable flag could not be set or cleared for current G.8265.1 master. Could be using a reserved or invalid port ID.
1038	Master locked state update, master	Cannot get information for the master with this port ID. Cannot update frequency lock state from the Servo.

ID	Messages	Description
1039	G.8265.1 frequency lock state notification callback, best master	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	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	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	The old master to be replaced is not found in the list of registered masters.
1054	Cannot deregister tracker %s because it is not registered	The tracker could not be deregistered as it is not in the tracker list.
1055	E_cmnMngApi_SetUserSelectedReferenceMaster - invalid master:	Could not set user selected reference master as the master information could not be retrieved.
1056	Startup FFO correction failed, PDV exceeded tolerance: +/- %.0f 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.
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	Stack adaptor: SLAVE_RX_SYNC_TIMING_DATA TLV received with invalid TLV length.
1061	Invalid SLAVE_DELAY_TIMING_DATA message length: %d instead of %u	Stack adaptor: SLAVE_DELAY_TIMING_DATA TLV received with invalid TLV length.

ID	Messages	Description
1062	Signaling TLV with invalid TLV type received: %04X	Stack adaptor: Invalid signaling TLV received. The allowed types are: SLAVE_RX_SYNC_TIMING_DATA, SLAVE_RX_SYNC_COMPUTED_DATA, and SLAVE_DELAY_TIMING_DATA.
1063	Management TLV with invalid TLV length received.	Stack adaptor: Invalid management TLV received.
1064	Received management message with another target Port ID.	Stack adaptor: 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	Stack instance %u requestDefaultDataSet_cb: Invalid number of responses received!	Stack adaptor: Invalid number of responses received for Default data set callback (only 1 allowed).
1067	Stack instance %u requestDefaultDataSet_cb: Unexpected domain number (%u instead of %u).	Stack adaptor: Invalid domain number obtained from Default data set.
1068	Stack instance %u requestDefaultDataSet_cb: General error %u occurred!	Stack adaptor: General error occurred for Default data set callback.
1069	Stack instance %u requestDefaultDataSet_cb: Unexpected error %u received!	Stack adaptor: Unexpected error occurred for Default data set callback.
1070	Stack instance %u requestParentDataSet_cb: Invalid number of responses received!	Stack adaptor: Invalid number of responses received for Parent data set callback (only 1 allowed).
1071	Stack instance %u requestParentDataSet_cb: General error %u occurred!	Stack adaptor: General error occurred for Parent data set callback.
1072	Stack instance %u requestParentDataSet_cb: Unexpected error %u received!	Stack adaptor: Unexpected error occurred for Parent data set callback.
1073	Stack instance %u requestTimePropertiesDataSet_cb: Invalid number of responses received!	Stack adaptor: Invalid number of responses received for Time Properties data set callback (only 1 allowed).
1074	Stack instance %u requestTimePropertiesDataSet_cb: General error %u occurred!	Stack adaptor: General error occurred for Time Properties data set callback.
1075	Stack instance %u requestTimePropertiesDataSet_cb: Unexpected error %u received!	Stack adaptor: Unexpected error occurred for Time Properties data set callback.
1076	Stack instance %u requestClockDescription_cb: Invalid number of responses received!	Stack adaptor: Invalid number of responses for Clock Description callback (should be equal to number of ports).
1077	Stack instance %u requestClockDescription_cb: General error occurred!	Stack adaptor: General error occurred for Clock Description callback.
1078	Stack instance %u requestClockDescription_cb: Unexpected error %u received!	Stack adaptor: Unexpected error occurred for Clock Description callback.
1079	Stack instance %u requestPortDataSet_cb: Invalid number of responses received!	Stack adaptor: Invalid number of responses for Port data set callback (should be equal to number of ports).
1080	Stack instance %u requestPortDataSet_cb: General error occurred!	Stack adaptor: General error occurred for Port data set callback.
1081	Stack instance %u requestPortDataSet_cb: Unexpected error %u received!	Stack adaptor: Unexpected error occurred for Port data set callback.
1082	Default data set – stack adaptor request timeout!	Stack adaptor: failed to get Default data set from stack due to timeout.

ID	Messages	Description
1083	Parent data set – stack adaptor request timeout!	Stack adaptor: failed to get Parent data set from stack due to timeout.
1084	Parent data set – stack adaptor request error!	Stack adaptor: failed to get Parent data set from stack due to error.
1085	Time Properties data set – stack adaptor request timeout!	Stack adaptor: failed to get Time Properties data set from stack due to timeout.
1086	Time Properties data set – stack adaptor request error!	Stack adaptor: failed to get Time Properties data set from stack due to error.
1087	Clock Description data set – stack adaptor request timeout!	Stack adaptor: failed to get Clock Description data set from stack due to timeout.
1088	Clock Description data set – stack adaptor request error!	Stack adaptor: failed to get Time Clock Description data set from stack due to error.
1089	Port data set – stack adaptor request timeout!	Stack adaptor: failed to get Port data set from stack due to timeout.
1090	Port data set – stack adaptor request error!	Stack adaptor: failed to get Port data set from stack due to error.
1091	Stack instance %u requestDefaultDataSet_cb: Invalid number of ports (%u).	Stack adaptor: Invalid number of ports obtained from Default data set.
1092	Timestamp device verification failed!	Timestamp device(s) used by external Linux stack are not accessible.
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.
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.
1098	PDV threshold is exceeded in both links	The PDV threshold is exceeded in both uplink and downlink directions or single path 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 or single path 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.

ID	Messages	Description
1108	LO state: %s, Event: %s	Holdover out of spec duration exceeded event occurred.
1110	todIndex %u is out of range!	phc4!: ToD index is out of range. Cannot read the ToD values.
1111	cancelTodRead todIndex %u is out of range!	phc4!: 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.
1120	snapSubStage: 'Unknown enum %d' to 'Frequency Measurements'	Snap sub-stage changes from unknown stage to Frequency Measurements stage for startup snapping.
1124	mngApi_SetDelayAsymmetry command only available for linuxExtern application.	Must compile binary with LINUX_EXTERN macro defined.
1125	PPS timestamp not within +/- %d ns tolerance!	The 1 PPS timestamp is not stable enough, successive 1 PPS timestamp nanosecond portion should be the same or within ns of each other. Check hardware configuration.
1127	Failed to allocate master information list node: actual	
1128	Stack instance %d, master	Received downlink and/or uplink timestamps for specified master. Discovered that master is not in uncalibrated or slave state when updating master information with Port Dataset information.
1129	Invalid SLAVE_RX_SYNC_COMPUTED_DATA message length: %d instead of %u	Stack adaptor: SLAVE_RX_SYNC_COMPUTED_DATA TLV received with invalid TLV length.
1130	mngApi_RT_SetDelayAsymmetry command only available for linuxExtern application.	Must compile binary with LINUX_EXTERN macro defined.
1131	Warm start: Problem encountered with '%s', doing cold start	Problem processing warm start file, falling back to cold start.
1132	mngSupervisorGetTargetClockClass: Unsupported Event %d	
1133	JSON 'outlierFilteringFactor' (%u) must be more than 0. Ignoring and using default value 500	Wrong outlierFilteringFactor value. Use default value. This is an JSON configuration parameter error.
1134	snapSubStage: 'Unknown enum %d' to 'Frequency Measurements'	Snap sub-stage changes from unknown stage to Frequency Measurements stage for write phase snap.
1135	JSON 'outlierFilteringFactor' (%u) must be more than 0. Ignoring and using default value 500	Wrong outlierFilteringFactor value. Use default value. This is an JSON configuration parameter error.



### 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 = %f, %f	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 = %f, %f	Clears the PDV threshold exceeded notification. The argument is the current Packet Delay Variation value in both directions.
2012	Frequency traceable is TRUE, stay in Frequency Locked state	The LO state machine stays in Frequency Locked state when frequency traceable is TRUE.
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.
2015	Frequency traceable is TRUE, stay in Frequency Locked state	The LO state machine stays in Frequency Locked state when frequency traceable is TRUE.
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.
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.

ID	Messages	Description
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 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 %.1f%% 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.
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.

ID	Messages	Description
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	G.8265.1 master not found for the specified port ID. Cannot set PTSF unusable notification.
2052	Clock class changed (%d → %d):	Clock class for a G.8265.1 master used for tracking has changed.
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 %f, Up %f	PTSF-unusable will be set or cleared based on the PDV log variance and PDV threshold values.
2060	%s: Best master changed:	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.
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	Frequency correction from %s discarded: Tracking electrical reference (%.6f ppb)	Frequency correction from the tracker discarded as electrical reference is being tracked.
2066	Frequency correction from %s discarded: Unchosen tracker (%.6f ppb)	Frequency correction from the tracker discarded as the tracker is unchosen.
2067	Frequency correction from %s discarded: First correction after master switch (%.6f ppb)	Frequency correction from the tracker discarded as it is the first correction after master switch.
2068	Phase correction from %s discarded: Tracking electrical reference (%f %s)	Phase correction from the tracker discarded as electrical reference is being tracked

ID	Messages	Description
2069	Phase correction from %s discarded: Unchosen tracker (%f %s)	Phase correction from the tracker discarded as the tracker is unchosen.
2070	Phase correction from %s discarded: First correction after master switch (%f %s)	Phase correction from the tracker discarded as it is the first correction after master switch.
2071	Correction failed: %.6f ppb from %s	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	Deregister the master with the specified port ID.
2074	Deregister the best master	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.
2081	Stationarity score 1: %.3f (should be in [%f, %f]) 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.
2088	Downlink packet rate cannot be measured for stack instance %u master	The downlink packet rate cannot be measured by the stack adaptor and therefore the sync interval is initialized using Port Dataset.
2089	Uplink packet rate cannot be measured for stack instance %u master	The uplink packet rate cannot be measured by the stack adaptor and therefore the delay request interval is initialized using Port Dataset.

ID	Messages	Description
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: %f, 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: %.1f (ns), variance %.6e >= %.6e 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	Stack instance %u: Lost master alarm raised for master	Lost alarm is raised when time threshold for receiving downlink timestamps is exceeded.
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 (%f ppb) Counter %d	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 abs(%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.
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.
2109	Outlier detected: Huge sample offset marked as outlier without filtering. offset %.6f >= %.6f threshold	The detected huge phase offset is declared as an outlier without filtering.
2111	Stack instance %u: Best master signal alarm raised for	Best master signal alarm was raised.
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.

ID	Messages	Description
2115	Minimum not trackable (exponential.proportion %f < %f) 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.
2120	%s: No chosen tracker, no state change.	LO reference acquired, but no chosen tracker assigned so do action is taken, in other words, no state change
2121	%s: No chosen tracker, no state change.	LO reference acquired, but no chosen tracker assigned so no action is taken, in other words, no state change
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 %.9f > %.9f sec ( %.1f * timeLockThreshold )	Large time offset detected under syncE assisted mode. Freq lock and Time lock lost, LOSM state goes to Lock Acquisition state.
2124	prev: t1:	Indicates previous timestamps t1 and t2 when timestamps not received in chronological order for Adaptive Frequency Reference Tracker.
2125	curr: t1:	Indicates current timestamps t1 and t2 when timestamps not received in chronological order for Adaptive Frequency Reference Tracker.
2126	prev: t3:	Indicates previous timestamps t3 and t4 when timestamps not received in chronological order for Adaptive Frequency Reference Tracker.
2127	curr: t3:	Indicates current timestamps t3 and t4 when timestamps not received in chronological order for Adaptive Frequency Reference Tracker.
2128	prev: t1:	Indicates previous timestamps t1 and t2 when timestamps not received in chronological order for Adaptive Time Reference Tracker.
2129	curr: t1:	Indicates current timestamps t1 and t2 when timestamps not received in chronological order for Adaptive Time Reference Tracker.
2130	prev: t3:	Indicates previous timestamps t3 and t4 when timestamps not received in chronological order for Adaptive Time Reference Tracker.
2131	curr: t3:	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.

ID	Messages	Description
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 %.1f s too big, using todOffsetSeconds with no skew correction.	Elapsed time before skew correction is unrealistic. Using ToD offset without skew corrections.
2139	Frequency correction procedure delay (%f) is wrong (should be in [0.0, 0.5]) seconds. Delay Ignored.	Frequency correction delay procedure return incorrect timestamp. Phase correction has to be done without delay compensation. It may decrease ToD accuracy. Check timestamper and DCO synchronizing.
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	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	ptp4lIosmStateChangedCallback 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 %.1f ns >= timeLockThreshold %.1f 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.gnssPllClockCategoryThreshold' 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.
2170	Detected Peak-to-peak asymmetry (%.1f ns) exceeding tolerance threshold (%.1f 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 → Holdover Out Of Spec state	The LO state machine was in Frequency Locked state and a Reference Lost event occurred. LO state machine transitioned to Holdover Out Of Spec state.
2175	Lock Acquisition state → Holdover Out of Spec 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 HOOS state.
2176	LO state: %s, Event: %s	Holdover duration exceeded event occurred.
2177	Suspecting a change in PDV statistics in %s	The PDV does not seem to be stationary in the uplink and/or downlink direction.



ID	Messages	Description
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	GNSS 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 GNSS supervisor will switch into GnssUnqualified state if the retry limit is exceeded.
2183	GNSS 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 GNSS supervisor will switch into GnssUnqualified state if the retry limit is exceeded.
2184	Cold start: Unable to delete warm start file '%s'	Cold start failed to delete stale warm start file.
2190	Sync-e Supervisor: physical clock category (%d) does not meet the threshold (%d)	The physical clock category is higher than the threshold.
2191	Sync-e Supervisor: Fast transition of clock category detected	Sync-e Supervisor goes into Holdover due to Combo being set on hold by LOSM.
2192	Could not find active tracker for S%d.Tracker#%d to update %s nominal interval to %u us	-
2195	Timestamper %d correction exceeds %d ns	The timestamper adjustment correction is greater than 100 ns.
2196	Timestamper %d correction exceeds %d ns	The timestamper adjustment correction is greater than -100 ns in amplitude.
2226	Very large time offset is detected!!! todOffset %.9f > %.9f sec ( %.1f * timeLockThreshold )	Large time offset detected under syncE assisted mode. Time lock lost, LOSM state goes to Lock Acquisition state.
2227	Very large time offset is detected!!! todOffset %.9f > 1.0 sec	Large time offset detected under syncE assisted mode. Time lock lost, LOSM state goes to Lock Acquisition state.
2228	Event: 'Set user force holdover' HOIS qualified while in user force HOIS, this should not occur.'	User force holdover event occurred in HOIS, but HOIS qualified. This shouldn't occur because HOIS qualified should have been cleared by user force holdover.
2229	There is no chosen tracker, receiving corrections from unchosen tracker in Holdover Out Of Spec state	Receiving corrections from chosen tracker in HOOS, there is no chosen tracker. Stay in HOOS.
2230	Warm start criteria not met. holdoverInSpecQualified = %d, userForceHoldoverQualified = %d	Warm start valid when HOIS is qualified.
2231	Frequency correction procedure delay (%f) is wrong (should be in [0.0, 0.5]) seconds. Delay Ignored.	Frequency correction delay procedure return incorrect timestamp. Phase correction has to be done without delay compensation. It may decrease ToD accuracy. Check timestamper and DCO synchronizing.
2232	LO state: Stay in 'Holdover In Spec', chosen tracker not time locked Event: '%s'	-
3272	Outlier detected: %.1f (ns), variance %.6e >= %.6e threshold	The detected phase offset is declared as an outlier.
3274	Outlier detected: Huge sample offset marked as outlier without filtering. offset %.6f >= %.6f threshold	The detected huge phase offset is declared as an outlier without filtering.



### 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 or single path) 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.
3005	Applying FFO correction %f (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: %e.	Estimated PDV variance by the Servo for the given direction (downlink, uplink or both ).
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 %s).	The Servo determined that for the frequency correction calculation with both links or single path, a frequency correction was no longer needed or that it needed to recalculate it for the current choice of direction.
3013	Correction %s, %f	Indicates frequency correction accepted or denied.
3014	Estimated FFO: %f ppb.	Estimated frequency offset (in other words, prior to correction being applied) in parts-per-billion.
3015	Correction denied, %f ppb	Indicates frequency correction denied.
3016	Correction applied, %f ppb	Indicates frequency correction applied.
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.

ID	Messages	Description
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): %.2f / %.2f.	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.
3032	Empty sample buffer in %s direction.	The Servo has an empty buffer in one of the directions. Statistic estimation is impossible.
3034	Use configured highPrecisionFrequencyCorrectionTimeMinutes: %.1f.	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: %.1f.	The Servo has calculated the time required to collect timestamps using the frequency skew algorithm.
3036	The probability of the FFO smaller than the frequency lock threshold is approximately: %0.0f%%.	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 (%.2f) is different from the nominal rate (%.2f).	The Adaptive Time Reference Tracker has determined that the downlink packet rate is different from the nominal expected rate.
3041	UL packet rate (%.2f) is different from the nominal rate (%.2f).	The Adaptive Time Reference Tracker has determined that the uplink packet rate is different from the nominal expected rate.
3042	DL packet rate (%.2f) is different from the nominal rate (%.2f).	The Adaptive Frequency Reference Tracker has determined that the downlink rate is different from the nominal expected rate.
3043	UL packet rate (%.2f) is different from the nominal rate (%.2f).	The Adaptive Frequency Reference Tracker has determined that the uplink rate is different from the nominal expected rate.
3044	DL packet rate (%.2f) is different from the nominal rate (%.2f).	The Write Phase Reference Tracker has determined that the downlink packet rate is different from the nominal expected rate.
3045	UL packet rate (%.2f) is different from the nominal rate (%.2f).	The Write Phase Reference Tracker has determined that the uplink packet rate is different from the nominal expected rate.

ID	Messages	Description
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.
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 bound 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.
3052	%s: Connection %d closed.	The specified cliClient connection has been closed.
3053	%s: Current hitless switch offset is set to %.2f 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 %.2f 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 (in other words, 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.

ID	Messages	Description
3060	Switch type is hitless.	The master was switched via a hitless switch (in other words, 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 (in other words, 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 (in other words, 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 (in other words, 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.
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: Set 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: %.1f 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.

ID	Messages	Description
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: %.6f ppb from %s Total Aged: %.6f 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.
3110	Correction ToD: DL %.9f ns UL %.9f ns (Min Tracking - %s).	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 %.9f 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 %.9f 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 %.9f ns UL %.9f ns (Mean Tracking - %s).	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.
3114	Correction ToD: DL %.9f 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 %.9f 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.
3116	Timestamp %d correction = %d ns	-
3120	Cleared accumulatedFfoCorrection %.6f %s.	Since the LO is time and frequency locked, the accumulated frequency correction can be cleared.
3121	Corrected: %c%ld.%09d s from %s Max FFO req/gnt: %.6F / %.6f 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, %s is the chosen tracker	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:	The Reference Tracker is already tracking the given master.
3125	Assign tracker %s to track	The Reference Tracker Supervisor has assigned the specified tracker to track the new registered master.
3126	%s: New registered master	The new registered master has the indicated clock class.
3127	%s: New master	The new registered master has the indicated IPv4 address.

ID	Messages	Description
3128	Holdover timeout is limited by the unqualified timeout %u s.	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 (in other words, 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: %.6f [ppb].	A frequency correction was required to keep the GNSS and PTP DPLLs aligned.
3132	Estimated FFO correction accuracy (std): %.6f [ppb].	Estimated frequency correction accuracy in PPB.
3133	Apply software loop filter holdover correction %f ppb.	Since the LO has transitioned into Holdover in Specification state and an Adaptive Write Phase Reference Tracker with a software loop filter is being used to track the reference, holdover frequency correction must be applied.
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: 0, unqualified timer not started.	The LO will never transition into the Unqualified state once the Holdover in Specification state timeout expires.
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 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.
3141	Apply FFO correction: %.6f [ppb].	The LO has transitioned into Holdover Out of Specification state and the accumulated frequency correction must be reverted.
3142	Apply user defined holdover FFO: %.9f [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.

ID	Messages	Description
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 (for example, 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.
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 (in other words, the quality level of the physical clock), which is also initially set by the parameter 'profileConfig.physicalPllClockCategory' in the JSON file.
3155	Revert FFO correction: %.6f [ppb].	The LO has transitioned into Unqualified state and has reset the frequency correction history because it is no longer valid.



ID	Messages	Description
3167	GNSS TS = %llu.%09u s PTP TS = %llu.%09u s, GNSS FFO = %.6f ppb, PTP FFO = %.6f ppb	Information received by the Reference Tracker Supervisor from GNSS 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: %.2f ppb	The PTP Fractional Frequency Offset estimation in parts-per-billion. This FFO estimation is done after a frequency correction is applied.
3170	QR: Set PTSF.unusable = %u for %s	Set PTSF.unusable for a master
3171	QR: Set PTSF.unusable = 0 for %s	In FREERUN/UNQUALIFIED, set PTSF.unusable = 0, anything is qualified
3172	QR: Set PTSF.unusable = 1 for %s	In TIMELOCK, set PTSF.unusable = 1 because not qualified due to phase is not stable
3173	QR: Set PTSF.unusable = 0 for %s	In HOOS, set PTSF.unusable = 0 because freq locked is enough for tracker to be considered qualified
3174	QR: Set PTSF.unusable = %u for %s	Set PTSF.unusable for a master
3190	Floor delay estimate based on %s: %.1f ns.	The current ToD tracking type is 'Minimum Tracking'. Current floor delay estimate in nanoseconds based on timestamps in both directions (downlink and uplink) or single path option.
3191	Refined rough floor delay estimate: %.1f 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	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): %f.	The current ToD tracking type is 'Mean Tracking'. Refined mean delay estimate in microseconds based on timestamps in both directions (downlink and uplink) or single path.
3194	Refined rough mean delay estimate (us): %f.	The current ToD tracking type is 'Mean Tracking'. Refined mean delay estimate in microseconds based on one direction (downlink or uplink).
3195	Update todMeanTackingOffset	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) or single path.
3196	Update todMeanTackingOffset	The current ToD tracking type is 'Mean Tracking'. Updated mean tracking offset based on timestamps based on timestamps in both directions (downlink and uplink) or single path.
3197	Unfiltered mean delay estimate is	The current ToD tracking type is 'Mean Tracking'. Unfiltered mean delay estimate in seconds based on timestamps in both directions (downlink and uplink) or single path.
3199	Corrected: %.6f ppb from %s Total Aged: %.6f ppb, Requested: %.6f, Limit: %.6f 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. Requested: Requested correction in PPB. Limit: current phase slope limit in PPB.



ID	Messages	Description
3200	ToD offset: %.1f ns%s%s.	The Adaptive Time Reference Tracker started the post-filtering and correction estimation processes. ToD offset: latest ToD offset measurement. Floor delay: latest floor delay if used. Mean delay: latest mean delay if used.
3201	Correction failed: %c%ld.%09d s from %s Max FFO req/gnt: %.6F / %.6f 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: %e Var: %e logVar: %e.	The Reference Tracker periodically prints sample statistics for both downlink and uplink or single path timestamps. Std dev: standard deviation. Var: variance. logVar: log2(variance).
3203	numberOfCorrection: %d, mean: %.1f ns, std: %.1f 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: %.2f 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.
3206	Adaptive Post-Filter request phase offset for %.1f ns	The Adaptive Time Reference Tracker under syncE assisted mode requested phase correction.
3212	Sync time of day: Skipped %c%llu.%09u s	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 the skip the proposed ToD adjustment.
3213	Sync time of day: %c%llu.%09u s	ToD correction applied to LO in nanoseconds.
3214	Phase pull-in: %ld 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	Timestamp device %s is used by external Linux stack	The specified timestamp device being used by external Linux stack is accessible.
3222	Instance %u: stack adaptor state transition → %s.	The stack adaptor transitioned from one state to another. The possible states are: Start, WaitTimeout, RequestDefaultDataSet, RequestParentDataSet, RequestTimePropertiesDataSet, RequestClockDescription, RequestPortDataSet, and Running.
3223	Measured sync interval is %u us for master	Measured interval between successive sync messages in microseconds.
3224	Measured delay request interval is %u us for master	Measured interval between successive delay request messages in microseconds.
3225	Register tracker %s: stack instance number %d; reference tracker instance number %d	The Reference Tracker Supervisor has registered the specified tracker.
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.

ID	Messages	Description
3228	Variance in high precision frequency mode after collecting required timestamps: %e.	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: %.1f ns delay: %.1f 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: %s todOffset =	The Adaptive Time Reference Tracker has calculated a coarse estimate of the ToD offset (Stage 3: ToD Correction) using both links or single path timestamps.
3242	Coarse ToD estimate: Using down link todOffset =	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: Using up link todOffset =	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: %s in a simplified way todOffset =	The Adaptive Time Reference Tracker has calculated a coarse estimate of the ToD offset (Stage 3: ToD Correction) using a simplified way (in other words, using the mean value in BothLinks or SinglePath direction ).
3245	Rough Time Correction: Using %s.	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) or single path 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.
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.

ID	Messages	Description
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: %.1f	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 (for example, 2), and if the PDV is large, then it can be set to a bigger value (for example, 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	Stack instance %d: Attempt to register new master	The specified clock has not been registered before.
3259	Stack instance %d:	The specified clock has already been registered with the Reference Tracker Supervisor.
3260	Stack instance %d, tracker instance %d: Allocated new tracker %s.	A new tracker has been allocated for the master.
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 %.12f 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.
3264	Use the estimated capable holdover time %u s.	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.
3267	Phase Assisted Full Seconds Correction:%lld sec. Using %s.	The Adaptive Time Reference Tracker has calculated a rough estimate of the ToD full second offset under external phase supervision (Stage 1: Rough Time And Frequency Correction) using both (downlink and uplink) or single path timestamps.

ID	Messages	Description
3268	Instance %u:	The master transitioned from one state to another. The possible states are Start, WaitTimestamps, UpdateMasterInfo, and Running.
3269	Tracker run mode: '%s' %d.	Current Adaptive Write Phase Tracker mode. The possible modes are: Snapping, Converging, Statistics Collecting, and Tracking.
3270	Write Phase Reference Tracker is not time locked (absolute filtered offset %.1f ns > time lock threshold %.1f ns).	The Write Phase Reference Tracker ran the hysteresis comparator and has determined that it is not time locked because the absolute value of the filtered offset (ToD offset) exceeds the threshold set by the parameter 'instanceConfig.trackerConfig.timeLockThresholdNanoseconds in the JSON file.
3271	Tracker run mode: '%s' to '%s' %d.	Switch of Adaptive Write Phase Tracker mode . The possible modes are: Snapping, Converging, Statistics Collecting, and Tracking.
3273	Adaptive Write Phase Reference Tracker is not time locked (absolute filtered offset %.1f ns > time lock threshold %.1f ns).	The Adaptive Write Phase Reference Tracker ran the hysteresis comparator and has determined that it is not time locked because the absolute value of the filtered offset (ToD offset) exceeds the threshold set by the parameter 'instanceConfig.trackerConfig.timeLockThresholdNanoseconds in the JSON file.
3275	Single path active: %d.	If set to 1, then external Linux stack delay mechanism is set to e_DelMechanism_DISBL.
3276	%s: Single path active = %d.	The specified reference tracker has been notified of value of the single path active parameter.
3277	%s: Sync-e assistance is %s.	The reference tracker has been notified that Sync-e assistance has changed.
3278	%s: Frequency Traceable at supervisor is %s.	The reference tracker has been notified that frequency is Traceable at supervisor level flag has changed.
3279	CCM: %s (Initial clockClass: %d, JSON: manageClockClassEnable %d, manageClockClassExtendedEnable %d)	Servo management of clock class. Enabled if 'instanceConfig.manageClockClassEnable' is set to 1 in the JSON file and initial clock class is e_CLKClass_TBC_HO, e_CLKClass_TGM_HOOS_C1, e_CLKClass_TGM_HOOS_C2, e_CLKClass_TGM_HOOS_C3, e_CLKClass_TBC_HOOS, or e_CLKClass_DEF. Disabled otherwise. Enabled with extended support if the first condition is true and 'instanceConfig.manageClockClassExtendedEnable' is set to 1 in the JSON file.
3280	Notified frequency traceability for stack instance %d: %d	Stack adaptor succeeded in notifying frequency traceability.
3282	Set stackInst %d PTSF.unusable = %d for Tracker#%u	Succeeded in notifying PDV threshold exceeded.
3283	Inserted master information list node: actual	-
3284	numberOfPhaseMeasurements: %d, mean: %.1f ns, std: %.1f ns.	The Adaptive Write Phase Reference Tracker displays the statistical information every minute and updates the LO lock state.
3285	Best master changed from	Stack adaptor: Specified master is best master.
3286	snapSubStage: 'Initial' to 'Frequency Measurements'.	The Adaptive Write Phase Reference Tracker changed the stage from Initial to Frequency Measurements.

ID	Messages	Description
3287	Frequency and ToD estimation finished. Estimation time: %.2f seconds.	The Adaptive Write Phase Reference Tracker linear regression reached the requested confidence level (98%). The tracker is ready for the initial frequency and ToD corrections.
3289	Stack instance %d, tracker instance %d: Reallocated on hold tracker %s %s reset.	An on hold tracker has been allocated for the master.
3291	CCM: Set stack GM clock class to %d	Stack adaptor succeeded in notifying clock class.
3292	DL packet rate (%.2f) is different from the nominal rate (%.2f).	The Adaptive Write Phase Reference Tracker has determined that the downlink packet rate is different from the nominal expected rate.
3293	UL packet rate (%.2f) is different from the nominal rate (%.2f).	The Adaptive Write Phase Reference Tracker has determined that the uplink packet rate is different from the nominal expected rate.
3294	CCM: Not allowed to change clock class to %d with parent clock class %d	
3297	snapSubStage: 'Initial' to 'Frequency Measurements'.	The Adaptive Time Reference Tracker changed the stage from Initial to Frequency Measurements.
3298	Startup Frequency estimation finished. Estimation time: %.2f seconds.	The Adaptive Time Reference Tracker linear regression reached the requested confidence level (98%). The tracker is ready for the initial frequency and ToD corrections.
3299	CCM: '%s' (%d) event	-
3300	CCM: GM clock class remains %d	-
3500	GNSS Supervisor is enabled.	The GNSS Supervisor timer is started.
3501	GNSS Supervisor state: %s	GNSS 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.%09u) to PTP TOD (%llu.%09u).	The GNSS 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.
3506	GNSS Supervisor wait-to-restore timer started.	The GNSS Supervisor transition from Holdover to Locked state is delayed by parameter 'gnssPllWaitToRestoreTimeoutValue' from JSON file.
3507	GNSS Supervisor wait-to-restore timer expired.	The timer specified by parameter 'gnssPllWaitToRestoreTimeoutValue' expired and the GNSS Supervisor can transition from Holdover to Locked state.

ID	Messages	Description
3508	GNSS Supervisor is disabled.	GNSS supervisor timer is stopped so the GNSS supervisor is disabled.
3509	GNSS Supervisor runs in APTS mode	GNSS supervisor runs in APTS mode when reference tracker type is AdaptiveTimeAssist.
3510	GNSS Supervisor runs in AFTS mode	GNSS supervisor runs in AFTS mode when reference tracker type is WritePhaseAssist.
3520	Sync-e Supervisor is started.	The Sync-e Supervisor should be always started.
3521	Sync-e Supervisor state: %s	Sync-e Supervisor state. The possible states are: Unqualified, Locked and Holdover.
3522	Sync-e holdover duration = %d seconds	Sync-e Supervisor calculated the holdover duration based on sync-e stability relative to the local oscillator
3524	Sync-e Supervisor: physical clock category changed to %d	The physical 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.physicalPllClockCategory' in the JSON file.
3525	Sync-e Supervisor: physical clock category threshold changed to %d	The physical 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.physicalPllClockCategoryThreshold' in the JSON file.
3526	Sync-e Supervisor: wait-to-restore timer started.	The Sync-e Supervisor transition from Holdover to Locked state is delayed by parameter 'physicalPllWaitToRestoreTimeoutValue' from JSON file.
3527	Sync-e Supervisor: wait-to-restore timer expired.	The timer specified by parameter 'physicalPllWaitToRestoreTimeoutValue' expired and the Sync-e Supervisor can transition from Holdover to Locked state.
3550	APTS Asymmetry Calibration. Valid:%d Measured:%.1f ns Corrected:%.1f ns Tms:%.1f ns Tsm:%.1f 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>).
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 GNSS 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.

ID	Messages	Description
3554	Frequency skew algorithm: not supported (algo %d, dir %s).	The Servo determined that for the frequency correction calculation with both links or single path, 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 %s).	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 %s).	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.
3558	APTS Asymmetry Calibration Single Path mode. Valid:%d Tms:%.1f ns	Assisted reference tracker calibration data in single path mode. Each Assisted Reference Tracker prints updated asymmetry calibration values periodically. (Valid: <0/1>, DL Floor: <master-to-slave floor delay in ns>.
3559	Reroute detection reset Calibration Data. Assisted Tracker state: '%s'	PDV reroute detection cause the Assisted Reference Tracker reset calibration data.
3560	Reroute detection interrupt Assisted Tracker '%s' state.	PDV reroute detection cause Assisted Reference Tracker invalidate calibration data and interrupt assisted holdover stage.
3561	format	Dump JSON configuration values to message log for debugging.
3562	Set combo mode %s	-
3563	Holdover Qualification Timeout: %u seconds.	The indicated timeout in seconds is specified by the parameter 'deviceConfig.holdover.holdoverQualificationSeconds' in the JSON file. Once it expires, the configured or calculated holdover time is valid for use.
3564	Holdover In-Spec Qualified.	Holdover in spec is qualified when holdover in spec timer expires. Timeout specified by 'deviceConfig.holdover.holdoverQualificationSeconds'. Timer starts when entering time locked and stops when exit time locked
3565	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.
3566	Warm start: Configured warm start file '%s'	Warm start configured, will use configured warm start file.
3567	Cold start: Deleted warm start file '%s'	Cold start removes stale warm start file.
3568	Warm start: File retrieval %s	-
3569	Warm start: Opened '%s' for writing	Successfully opened warm start file for writing.
3570	SyncE upgraded. Attempt to start Holdover In-Spec Qualified timer and stay in '%s' state	SyncE upgraded in TIMELOCK, attempt to start HOIS timer and stay in TIMELOCK state
3571	Holdover timer already in progress, remaining time %d s	Holdover timer already running, do not restart the holdover timer.



ID	Messages	Description
3572	Event: 'Set user force holdover' – remain in 'Holdover In Spec'	Set user force holdover event occurred in HOIS, remain in HOIS.
3573	Event: 'Set user force holdover' – remain in 'Holdover Out Of Spec'	Set user force holdover event occurred while in HOOS, remain in HOOS
3574	Event: 'Clear user force holdover' – remain in 'Holdover Out Of Spec'	Clear user force holdover while in HOOS with no PTP master, remain in HOOS
3575	Warm start: Initialize tracker for warm start	Initialize tracker for to resume from warm start.
3576	Warm start: Deleted warm start file '%s'	Successfully deleted warm start file.
3577	Event: 'Physical frequency traceability lost' but tracker is frequency locked - remain in 'Frequency Locked' state	Physical frequency traceability lost while in FREQLOCK with frequency locked PTP master, remain in FREQLOCK
3578	SyncE degraded. Stop/Clear Holdover In-Spec Qualified timer/flag, stay in '%s' state	SyncE degraded in TIMELOCK, stop/clear HOIS timer/flag, but stay in TIMELOCK state
3579	QR: Qualified reference %s (PTP monitoring configuration is %s and reference tracker type configuration is %s)	Qualified reference is supported if PTP monitoring is enabled and configured reference tracker type supports it.
3580	Qualified reference is not supported (disabled in configuration)	Qualified reference is disabled if qualifiedReferenceDisable is set to 1 in JSON file.
3581	Updated S%d.Tracker#%d, master	DL/UL nominal packet rate was updated with latest calculation from reference tracker.
3582	Cleared tracker freqLock and phaseLocked, currentStateId = %d, trackerState = %d.	Chosen tracker clears tracker's freq/phase values, notify supervisor of freq/phase lock.
3583	Retain tracker state freqLock = %d, phaseLocked = %d, currentStateId = %d, trackerState = %d.	Chosen tracker retains tracker's freq/phase values, notify supervisor of freq/phase lock.



### 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	Instance %d reference tracker instance %d: 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.
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 deregister master	Reference Tracker Supervisor tried to deregister a master which was not registered.
4027	Unable to update chosen tracker, best master	Unable to find an active tracker for the specified best master ID.
4028	Stack instance %d: Unable to register	The Reference Tracker Supervisor is unable to find a free tracker for the new master.
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.

ID	Messages	Description
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.
4054	processQualificationTimeout called when chosenTracker == NULL!	processQualificationTimeout called when no Tracker chosen in system. This is an internal software error.
4058	TC: config_buff OS_MALLOC failed	TCS Configuration file: Cannot allocate a buffer for the TCS file. This is an internal software error.
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_MALLOC 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.

ID	Messages	Description
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.
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
4082	Unexpected message type: %d	The Linux Extern Thread received an unknown message type from another thread. This is an internal software error.
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.
4096	Connection rejected, max %d connection reached.	Management interface connection rejected due to the maximum limit.
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[%u] %s	PHC device adaptor: The PTP clock cannot be accessed or is invalid. Check parameter 'phc4lConfig.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).

ID	Messages	Description
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.
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 'phc4lConfig.phaseSnapDelaySeconds' in JSON file.
4128	Missing phc4lConfig.dcoDevice configuration (cannot be blank).	Check parameter 'phc4lConfig.dcoDevice' in JSON file.
4129	Missing phc4lConfig.tsDevice configuration (cannot be blank).	Check parameter 'phc4lConfig.tsDevice' in JSON file.
4130	Invalid PTP clock device name (dcoDevice = %s)	Check parameter 'phc4lConfig.dcoDevice' in JSON file. PTP clock device name must start with '/dev/ptp'.

ID	Messages	Description
4131	Invalid PTP timestamp name (tsDevice[%u] = %s)	Check parameter 'phc4lConfig.tsDevice' in JSON file PTP timestamp name must start with '/dev/ptp'.
4132	Invalid %s %d %s	Generic error message for an invalid integer parameter from JSON file.
4133	Invalid %s %f %s	Generic error message for an invalid float parameter from JSON file.
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	Identical PTP timestamp and clock device names (tsDevice[%u] = %s; dcoDevice = %s)	PTP timestamp and clock device names must be unique.
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.
4150	Stack instance %d: number of reference tracker instances must be between %d-%d.	Each instance must have a minimum and maximum of IDT_MIN_NUM_REF_TRACK_INSTANCES and IDT_MAX_NUM_REF_TRACK_INSTANCES reference tracker instances, respectively.
4153	Instance %d reference tracker instance %d: 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 tracking list is full; maximum number of masters supported is %u	Cannot add a new master for tracking because the list is full. Increase instanceConfig.numberOfTrackerInstances to increase size of master tracking list. Can support only a maximum of IDT_MAX_NUM_REF_TRACK_INSTANCES masters.

ID	Messages	Description
4167	Unable to poll TX timestamp.	Either the stack attempted to get the TX timestamp from the timestampers before it was received, or a linux kernel error occurred.
4168	Add message log instance failed, unable to find free message log ID	Cannot set a message log ID as all the available log IDs are assigned to other log messages. The maximum allowed value for message log instances is defined by IDT_MAX_MESSAGELOGS. One log instance is reserved for Syslog and one for STDOUT.
4169	Failed to dynamically allocate memory for T_stackApiClkDescInfoRsp structure	Cannot proceed because T_stackApiClkDescInfoRsp structure used to store information obtained from external Linux stack was not created.
4170	Failed to dynamically allocate memory for T_dynamicPortDsInfo structure	Cannot proceed because T_dynamicPortDsInfo structure used to store information obtained from external Linux stack was not created.
4171	Correction not applied, invalid correction type: %d	Unsupported correction type. This is an internal software error.
4172	Failed to initialize file log: %s	Cannot open the specified file log to be initialized.
4173	Max number of file log instances [%d] exceeded. Unable to add log instance.	Cannot add a new file log instance as the maximum number of allowed file log instances is already assigned. The maximum number of allowed file log instances is defined by IDT_CNFG_MAX_FILELOGS.
4174	Unable to close file log	Cannot close the file log as it is not found in the list of registered file logs. This is an internal software error. Contact Renesas for support.
4175	Unable to delete file log: %s	Cannot remove the specified file log from the list of assigned file logs. This could be because the file does not exist.
4176	Register callback log failed, unable to find a free entry to open a new callback log	Cannot register the callback log, as the maximum number of callback logs is already assigned. The maximum number of allowed callback logs is defined by IDT_CNFG_MAX_CALLBACKLOGS.
4177	Max number of callback log instances [%d] exceeded. Unable to add log instance.	Cannot add a new callback log instance as the maximum allowed number of callback logs is already registered. The maximum number of allowed callback logs is defined by IDT_CNFG_MAX_CALLBACKLOGS.
4178	Unable to deregister callback log	Cannot deregister the callback log as the matching log is not found in the list of registered callback logs. This is an internal software error. Contact Renesas for support.
4179	Stdout Message Log cannot be deleted	Indicates that deleting the message log is not a valid option for stdout message logs.
4180	Stdout Message Log cannot be deleted	Indicates that an appropriate message log to be deleted is not chosen. Also displays that deleting the message log is not a valid option for stdout message logs.
4181	Syslog instance is already active. Unable to add log instance.	Cannot have more than one syslog instance active at one time.
4182	Failed to initialize syslog	Cannot initialize syslog instance as the UDP socket has an invalid value.
4183	Stdout log is already active. Unable to add log instance.	Cannot have more than one stdout log active at one time.
4184	Max number of log instances exceeded. Unable to add log instance.	Cannot add a new callback log instance as the maximum allowed number of message log instances is already assigned. The maximum allowed value of log instances is defined by IDT_MAX_MESSAGELOGS.

ID	Messages	Description
4185	Max number of log instances exceeded. Unable to add log instance.	Cannot add a new file log instance as the maximum number of allowed message log instances is already assigned. The maximum value of allowed file log instances is defined by IDT_MAX_MESSAGELOGS. One log instance is reserved for Syslog and one for STDOUT.
4186	External fd log is already active. Unable to add log instance.	Cannot have more than one external fd log active at one time.
4187	Unable to close External Fd log	Cannot close the external fd log as it is not found in the list of registered message logs. This is an internal software error. Contact Renesas for support.
4188	servo_update_delay_asymmetry failed: no master with stack instance %u and reference tracker number %u!	
4189	Master information list is full; max masters is %u, cannot add	Cannot add a new master for tracking because the list is full. Increase instanceConfig.numberOfTrackerInstances to increase size of master information list. Can support only a maximum of IDT_MAX_NUM_REF_TRACK_INSTANCES masters.
4190	Failed to dynamically allocate memory for PTP information structure	Cannot proceed because PTP information structure used to store information obtained from external Linux stack was not created.
4191	Failed to sync TOD with T2 after %d attempts	Unable to sync ToD seconds with T2 seconds portion after MAX_T2_SYNC_ATTEMPTS. This is an internal software error.
4194	Retry of mngDeviceAdaptorPII_ApplyPhaseCorrection failed.	First correction failed, possibly clashing with previous APTS phase pull-in. * Retried correction after one second also failed. Contact Renesas for support.
4195	calculateMinOffset(...) called with empty buffer	Unable to do calculateMinOffset(...) calculation for empty input buffer
4196	Device adaptor not initialized	-
4197	cmnMean returns not-a-number!	The mean value is calculated for an empty vector. This is an internal software error.
4198	cmnVar returns not-a-number!	The variance is calculated for an empty vector. This is an internal software error.
4199	cmnSkewness returns not-a-number!	The skewness is calculated for an empty vector. This is an internal software error.
4200	cmnRobustMean returns not-a-number!	The robust mean value is calculated for an empty vector. This is an internal software error.
4201	Stack instance %u: IDTStackAdaptor_AddMaster	Timed-out waiting for master registration acknowledgement.
4202	Stack instance %u: IDTStackAdaptor_DeleteMaster	Timed-out waiting for master deletion acknowledgement.
4203	Generic management API timeout (ms) cannot be configured to zero.	The parameter 'mngApiTimeoutMilliseconds' cannot be set to zero.
4204	Request for Default Data Set from PTP stack with domainNumber %d timed out, ensure JSON ptpDomainNumber matches PTP stack domain number.	Request timed-out. JSON ptpDomainNumber was configured. Must match PTP stack domainNumber. If matches, try increasing mngApiTimeoutMilliseconds.
4205	Domain number must be between 0 - 255, or -1 if not configured.	Valid values for 'ptpDomainNumber' is -1 if not configured, or 0 - 255 if configured.



ID	Messages	Description
4206	Received timestamp packet with same sequenceId as previous. Prev: %lld.%09u seqId %d Curr: %lld.%09u seqId %d	Timestamps must have increased sequenceId, cannot be same as previous. This is a system error.
4207	cmnVar returns not-a-number!	The auto covariance is calculated for an empty vector. This is an internal software error.
4208	FAIL_STR	The warm start non-volatile file name can contain only letters, numbers, '.', '_', '/' or '-'.
4209	Warm start: Failed to open '%s' for writing	Failed to open warm start file for writing.
4210	Warm start: Failed to open %s for reading	Failed to open warm start file for reading.



### 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.

ID	Messages	Description
5026	%s: Failed. Returns 'Not Accepted'	IXXAT API: The stack does not accept the indicated SET request.
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.
5041	Log instance to be removed could not be found in instance list.	Cannot find the log instance to be removed in the list of assigned log instances.
5042	System clock resolution is greater than desired resolution.	The system time resolution validation failed, as its resolution is greater than the desired resolution in nanoseconds. This is relevant only when Linux system time is used.
5043	DCO's ToD set %lld.%09ld, expecting external process to synchronize Time Stamper ToD with DCO's ToD	The timestamp ToD is expected to be synchronized to DCO ToD by external process.
5051	Time stamper alignment is handled externally.	Alignment of time stamper to dcoDevice 1 PPS is done externally, in other words, tsDeviceAlignmentDisable = 1
5053	Invalid reference tracker - Parameter only applies to Assisted Reference Tracker	GetAsymmetryEstimation command is only valid for AdaptiveTimeAssist reference tracker
5054	Failed errorNanosecond check after %d attempts	Nanoseconds of T2 and ToD > MAX_ERROR_NS_CHECK_COUNT. May be an indication of stale time stamps or time stamper not aligned to DCO's 1 PPS.
5055	Downlink Input Buffer is full.	Downlink Input Buffer is full. Increase input buffer size ( SIZE_OF_ALLOCATED_STAMPS_ARRAY ) for better performance.

ID	Messages	Description
5056	Uplink Input Buffer is full.	Uplink Input Buffer is full. Increase input buffer size ( SIZE_OF_ALLOCATED_STAMPS_ARRAY ) for better performance.
5057	Downlink Input Buffer is full.	Downlink Input Buffer is full. Increase input buffer size ( SIZE_OF_ALLOCATED_STAMPS_ARRAY ) for better performance.
5058	Uplink Input Buffer is full.	Uplink Input Buffer is full. Increase input buffer size ( SIZE_OF_ALLOCATED_STAMPS_ARRAY ) for better performance.
5059	Empty vector range assigned.	Empty vector range assigned in assignRangeElements(...) function.
5060	format	Warn user of configuration values that are different than default values.
5061	Software holdover type with write phase reference tracker detected. Consider HW or HW Enhanced instead.	Write phase tracker is typically configured with HW holdover or HW Enhanced holdover.
5062	DCO is not seeded with any holdover value when write phase is configured with SW holdover	SW holdover with write phase tracker is unusual so warn user that DCO is not seeded with any holdover value.
5063	The "type" JSON keyword to configure holdover type is deprecated, use "holdoverType" instead	The "type" JSON keyword to configure holdover type is deprecated, use "holdoverType" instead.
5064	Unable to open externalFdLog. externalFdLog enabled in JSON but no valid externalFd was initialized by servolnit()	A valid file description must be passed into servolnit() before an externalFdLog can be opened.
5065	Failed to notify frequency traceability for stack instance %d due to %s	Stack adaptor failed to notify frequency traceability due to the specified error.
5066	SetOutputTdcGo() API not implemented by DCO driver.	SetOutputTdcGo() API but not implemented by DCO driver. Contact Renesas for support.
5067	CCM: Failed to change clock class for stack instance %d due to %s	
5068	HW holdover type not supported. SetHoldoverMode() API not implemented by DCO driver.	HW holdover configuration will call SetHoldoverMode(). SetHoldoverMode() API but not implemented by DCO driver. Try SW holdover or HW enhanced holdover instead. Contact Renesas for support.
5069	Failed to set stackInst %d PTSF.unusable = %d for Tracker#%u	Failed to notify PDV threshold exceeded due to the specified error.
5070	Correction not applied in %s	The corrections applied to the local oscillator is ignored when LOSM is not in TIMELOCK, FREQLOCK or LOCKACQ.
5071	Event: 'Set user force holdover' - HOIS not qualified while in HOIS, this should not occur.'	User force holdover event occurred in HOIS, but HOIS not qualified, transition to HOOS. This shouldn't occur.

## 4. Revision History

Revision	Date	Description
1.03	Oct 24, 2024	Updated software release number to 4.3.2.417904 from 4.3.2.
1.02	Oct 16, 2024	Updated to support software release 4.3.2.
1.01	Aug 26, 2021	Updated to support software release 4.1.1.81114.
1.00	Jun 10, 2021	Initial release. Supports software release 4.1.0.77765.

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### Corporate Headquarters

TOYOSU FORESIA, 3-2-24 Toyosu,  
Koto-ku, Tokyo 135-0061, Japan  
[www.renesas.com](http://www.renesas.com)

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