Oracle® Communications

Performance Intelligence Center
Acquisition Data Feed Installation and Configuration Guide

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Oracle Communications Performance Intelligence Center Acquisition Data Feed Installation and Configuration Guide, Release 10.5.0.

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Call the CAS main number at 1-800-223-1711 (toll-free in the US), or call the Oracle Support hotline for your local country from the list at http://www.oracle.com/us/support/contact/index.html.

See more information on MOS in the Appendix section.

Table of Contents

1 INTRODUCTION

1.1 Document Admonishments

The following icons found throughout this manual alert the reader to ensure personal safety, to minimize possible service interruptions and to warn of potential equipment damages.

DANGER (This icon and text indicate the possibility of personal injury.)

WARNING (This icon and text indicate the possibility of equipment damage.)

CAUTION (This icon and text indicate the possibility of service interruption.)

Table 1. Admonishments

1.2 Reference Documents

- Quick Start Guide, Performance Intelligence Center release 10.5.0

1.3 Related Publications

For information about additional publications that are related to this document, refer to the Release Notice document. The Release Notice document is published as a part of the Release Documentation and is also published as a separate document on the Oracle Customer Support Site.

1.4 Documentation Availability, Packaging and Updates

Oracle provides documentation with each system and in accordance with contractual agreements. For General Availability (GA) releases, Oracle publishes a complete Oracle Communications Performance Intelligence Center 10.5.0 documentation set. Documentation Bulletins announce a new or updated release.

Note: Customers may print a reasonable number of each manual for their own use.

Documentation is updated when significant changes are made that affect system operation. Updates resulting from severity 1 and 2 bugs are made to existing manuals. Other changes are included in the documentation for the next scheduled release. Updates are made by re-issuing an electronic file to the customer support site. Occasionally, changes are communicated first with a Documentation Bulletin to provide customers with an advanced notice of the issue until officially released in the documentation. Documentation Bulletins are posted on the Customer Support site and can be viewed per product and release.

1.5 Scope and Audience

This document describes the procedures to install Acquisition Data Feed.

This document is intended for use by internal Oracle manufacturing, PSE, SWOPS, and partners trained in software installation on both rackmount and c-class blades system. A working-level understanding of Linux and command line interface is expected to successfully use this document.

It is strongly recommended that prior to performing an installation of the operating system and applications software, on a rack mount or c-class blades system, the user read through this document.

1.6 Requirements and Prerequisites

1.6.1 Hardware & software Requirements

The customer server shall meet the following minimum specifications. Although HP servers have been used, any server with similar characteristics is acceptable:

- HP DL360
- TPD 8.9.0.2.0_130.8.0
- Single Intel Quad Core
- 16GB RAM, 8G free for TADAPT
- 300GB Free Disk Space (Acquisition Data Feed plus files), note – smaller storage can be provided, but total file retention time will be reduced. For example, with an average MSU size of 100 Bytes (blend of ISUP and SCCP traffic), each Integrated Acquisition would be sending approximately, 68K MSU/sec (at max capacity) as such 300G of storage would be about 12 hours of storage for one (1) Integrated Acquisition), six (6) hours of storage for two (2) Integrated Acquisition, and so on.
- Internal disks or Disk Arrays should be enterprise class and capable of writing data at a peak rate of at least 50Mbps.

Customer is responsible for configuring the server, including installation of OS.

1.6.2 License Requirements

There is no need for license key check mechanism to activate Acquisition Data feed on the acquisition servers (Probe or Integrated).

2 OVERVIEW

2.1 Overview

The Filterable MSU capability of Performance Intelligence Center is implemented by an xMF feature working in conjunction with the **Acquisition Data Feed** that resides on the customer server, having the specifications given in section 1.6.1. Here is the high-level architecture:

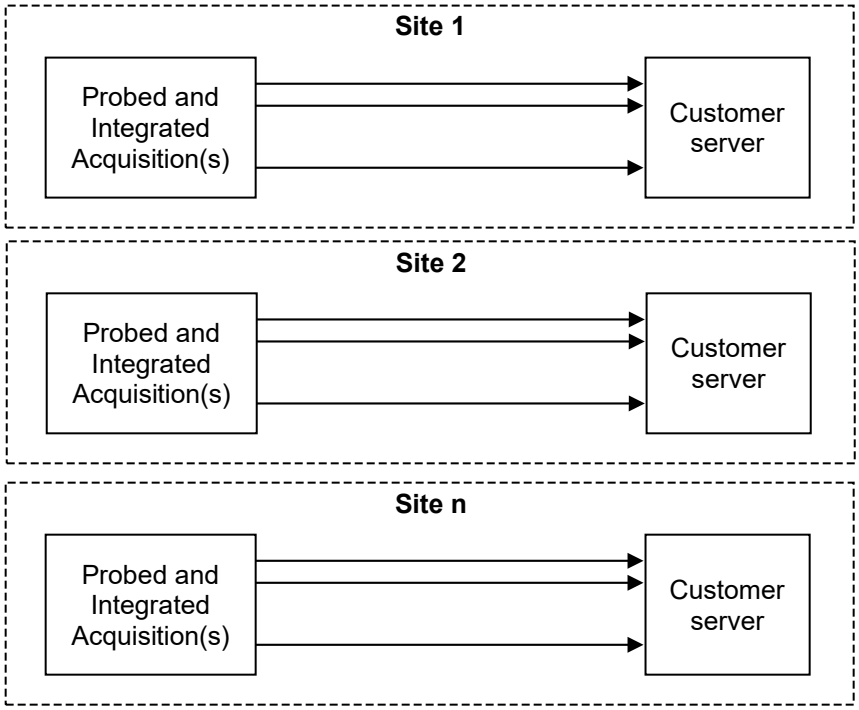


Figure 1 High-Level Architecture Diagram

2.2 Acquisition Data Feed

Acquisition Data Feed is the Oracle software running on the customer provided server, that opens LAN/WAN connections to Probe and Integrated Acquisition servers of a Performance Intelligence Center setup (refer to section 5 to learn how to configure the Acquisition servers). The customer server does not necessarily have to be located on the same site as the Acquisition servers.

The Acquisition Data Feed function will:

1) Open and maintain the connection(s) with the Probe and Integrated Acquisition server(s)
2) Aggregate the MSU into files
3) Write these files in a user defined directory
4) Raise alarms in case of connection loss.

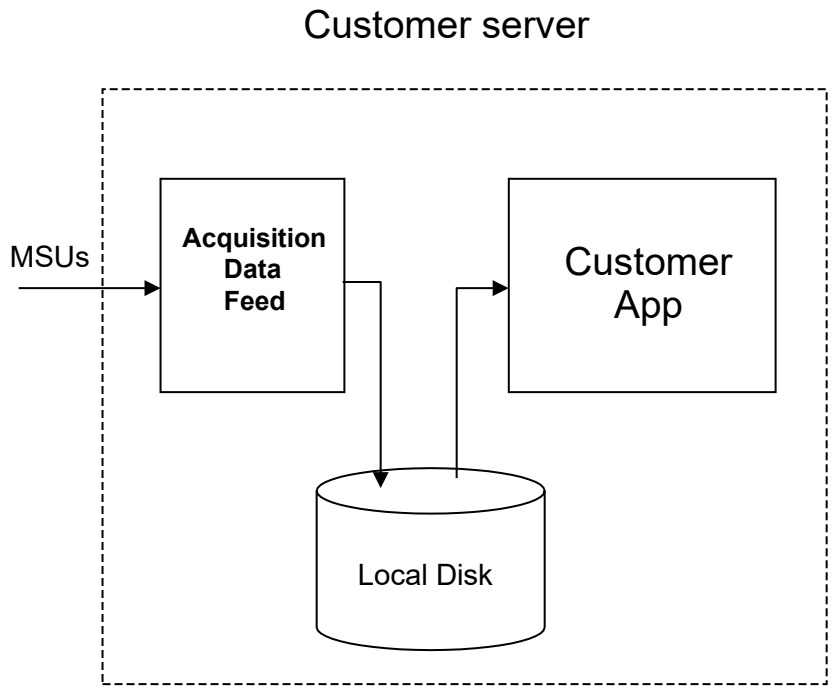


Figure 2 Customer server overview

The MSU Feed shall be available from all of the following Probed and Acquisition interfaces and any protocol carried on the interface:

- LSL
- HSL
- SigTran
- IP
- Eagle (i.e., TR005008 and FC)

3 INSTALLATION

3.1 Installing Acquisition Data Feed

STEP #	This procedure describes how to install tadapt process on the customer server. Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. IF THIS PROCEDURE FAILS, CONTACT ORACLE CUSTOMER SUPPORT AND ASK FOR ASSISTANCE.	

1 ☐	**Prepare the rpm**	As root, mount the ISO with the tadapt package:
		`# mount –t iso9660 -o loop <ISO NAME> /mnt`
		Change directory:
		`# cd /mnt/tadaptDir/`

2 ☐	**Installation of the package**	Install the tadapt package:
		`# rpm -Uvh tadapt-*.i386.rpm`
		The result might look like this:
		`Preparing...`
		`########################################### [100%]`
		`1:TAdapt`
		`########################################### [100%]`

3 ☐	**Creating configuration file**	When the package is installed switch to cfguser:
		`# su - cfguser`
		Invoke the following command to create the basic configuration. At this point, the configuration parameters can be set to the values that customer wants (target directory, file period, mode). They can also be left with their default value, as the configuration can be changed later.
		`$ tklc.tadapt_configure`
		`No configuration file found`
		`Running initial configuration`
		The configuration script will ask for settings values (keep the default value by hitting the <enter> key). There is one setting that doesn't have a default value: it is the target directory where all the data files will be stored. Be sure to provide a valid path (the directory has to exist).
		Here's an example of what the configuration steps might look like (note that there are more settings to configure):
		`Hint - 'Values between 1 and 10. In seconds.'`
		`tadapt file buffer timeout [default 1]:`
		`Used default value`
		`Hint - 'Values between 1 and 1024. In KB.'`
		`tadapt file buffer [default 100]:`
		`Used default value`
		`...`
		When the configuration is finished, the command line prompt will show up again.

4 ☐	**Start the tadapt service**	Once the configuration is created, the tadapt service shall be started. Switch back to root.
		`$ exit`
		And run the following command :
		`# /etc/init.d/TKLCtadapt start`

5 ☐	**Check that tadapt service is running**	Switch to cfguser again :
		`# su - cfguser`
		And run the following script :
		`$ tklc.tadapt_printstats`
		The script should end with a message similar to the following one:
		`Watchdog statistics:`
		`Name PID Respawn Started on`
		`tadapt 18783 1 10/06/13 11:04:05`
		The value of 'Respawn' shall remain to 1, even after several calls of the script.

3.2 Removal of Acquisition Data Feed

STEP #	This procedure describes how to remove tadapt package from the customer server. Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. IF THIS PROCEDURE FAILS, CONTACT ORACLE CUSTOMER SUPPORT AND ASK FOR ASSISTANCE.
1 ☐	**Login**	Login to a customer server as root.
2 ☐	**Uninstalling the package**	Run the following command: `# rpm –e tadapt` The package should have been removed, at this point.
3 ☐	**Removing user**	When the package is successfully removed, run the following command as root to remove the cfguser environment. `# userdel –r cfguser`

3.2.1 Upgrade of Acquisition Data Feed

STEP #	This procedure describes how to remove tadapt package from the customer server. Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. IF THIS PROCEDURE FAILS, CONTACT ORACLE CUSTOMER SUPPORT AND ASK FOR ASSISTANCE.	

1
☐
	Login and prepare	Login to a customer server as root.
		Mount the ISO containing the tadapt package using:
		`# mount –t iso9660 –o loop <ISO NAME> /mnt`
		Change directory:
		`# cd /mnt/tadaptDir /`

2 ☐	**Upgrade the package**	Run the following command: `# rpm –Uvh tadapt-*.i386.rpm` Package should be upgraded at this moment

3.3 Configuration

Process tadapt has its configuration stored at **`/home/cfguser/tadapt.conf`** file. Do not edit the file, always use the script **`tklc.tadapt_configuration`** instead.

3.3.1 Available settings

Default values are recommended, except for MAXFILEOPENSECONDS, MAXFILESIZE, DIRECTORYPATH and MODE: these four parameters are free to be set with any allowed value.

Process tadapt has this set of configuration parameters:

Name	Value type (unit)	Default value	Description
MAXFILEBUFFERKEEP	Seconds	1	tadapt has an internal buffer for each data file. The duration such a buffer can be kept in memory without writing into a file can be specified. When the timeout expires, the buffer is flushed to the file.
MAXFILEBUFFER	KB	100	This parameter is the size of the internal buffer.
STATSFILE	String	/tmp/.tadapt_stat	This parameter is the full path and name of the statistics file. Statistics are periodically (see STATSPERIOD parameter) gathered from all connected peers and written to the statistics file. If there is no requirement to change it, keep the default value.

Name	Value type (unit)	Default value	Description
DROPDATAONMAXFILESIZE	0 or 1	**0**	When a data file did not yet reach its specified duration (see MAXFILEOPENSECONDS parameter) and this option is set to 0, the data file will become larger than the predefined size (see MAXFILESIZE parameter); conversely, if this option is set to 1, the data file will not grow beyond its predefined size, and the excessiver data will be dropped.
MAXWRITEERROR	Number of occurrences	**0**	This parameter defines how many I/O errors can occur before tadapt process is restarted. The 0 value means that each I/O error will cause tadapt process to be restarted.
STATSPERIOD	Seconds	**1**	This is the statistics period.
MAXFILEOPENSECONDS	Seconds	**10**	This is the duration before a new data file is created; setting this option to a too big value may cause data loss (see DROPDATAONMAXFILESIZE parameter).
TRACELEVEL	WARNING, TRACE or DEBUG	**WARNING**	This option sets the lowest tracing level of tadapt. WARNING means that only critical or informative messages are printed into trace file, whereas DEBUG is the most verbose setting.
ALARMFILE	String	**/home/cfguser/ tadapt.alarms**	This is the full path and name of the file where all important notifications (errors, non-standard conditions) are logged.
MAXFILESIZE	MB	**10**	This is the size before a new data file is created; setting this option to a too low value may cause data loss (see DROPDATAONMAXFILESIZE parameter).
DIRECTORYPATH	String	-	This option is the full path of the directory where tadapt process will store the data files. **Note**: this option has no default value and must be set by the customer.
MODE	MULTIPLE, STREAMSINGLE or SINGLE	**MULTIPLE**	This option defines how data files will be created. For each period: • one data file only for all the streams (SINGLE mode) • one data file per stream and all the data files in a single directory (STREAMSINGLE mode) • one data file per stream with one dedicated directory per stream (MULTIPLE mode).

3.3.2 Listing the current settings

The script **`tklc.tadapt_configure`** lists the available settings. There are 2 possible modes.

The first mode is a brief listing: call the script with the single **`-l`** parameter. Example of output:

```
$ tklc.tadapt_configure -l
             MAXFILEBUFFERKEEP 1
                 MAXFILEBUFFER 100
                     STATSFILE /tmp/.tadapt_stat
         DROPDATAONMAXFILESIZE 0
                 MAXWRITEERROR 0
                   STATSPERIOD 1
            MAXFILEOPENSECONDS 10
                    TRACELEVEL WARNING
                     ALARMFILE /home/cfguser/tadapt.alarms
                   MAXFILESIZE 10
                 DIRECTORYPATH /home/cfguser/data
                          MODE SINGLE
```

The second mode is a detailed listing. To see the detailed listing, call the script with the **`-p`** parameter. Example of output:

```
$ tklc.tadapt_configure -p
Name:    tadapt file buffer timeout
Key:     MAXFILEBUFFERKEEP
Value:   1
Default: 1
Hint:    Values between 1 and 10. In seconds.

Name:    tadapt file buffer
Key:     MAXFILEBUFFER
Value:   100
Default: 100
Hint:    Values between 1 and 1024. In KB.

Name:    Path to file with statistics
Key:     STATSFILE
Value:   /tmp/.tadapt_stat
Default: /tmp/.tadapt_stat
Hint:    Full path and name of stat file.

Name:    Drop data when max file reached
Key:     DROPDATAONMAXFILESIZE
Value:   0
Default: 0
Hint:    0 for false, 1 for true.
...
```

In the second mode, it is possible to output the value for a single configuration parameter: call the script with **-p** followed by a **<PARAMNAME>**. Example of output:

```
$ tklc.tadapt_configure -p MODE
Name:    Running mode
Key:     MODE
Value:   SINGLE
Default: MULTIPLE
Hint:    Modes MULTIPLE, SINGLE, STREAMSINGLE
```

3.3.3 Changing current settings

To change a configuration parameter, call the **tklc.tadapt_configure** script with the parameter **-s** followed by **<NAME>=<VALUE>** where **<NAME>** is the configuration parameter name and **<VALUE>** is the value to be set.

Example:

```
$ tklc.tadapt_configure -s MODE=MULTIPLE
$ tklc.tadapt_configure -p MODE
Name:    Running mode
Key:     MODE
Value:   MULTIPLE
Default: MULTIPLE
Hint:    Modes MULTIPLE, SINGLE, STREAMSINGLE
```

After parameters have been changed, the tadapt process has to be notified in order to load the new settings. This is done by calling the **tklc.tadapt_configure** script with the **-a** parameter.

Example:

```
$ tklc.tadapt_configure -a
Settings applied
```

4 MONITORING & TROUBLESHOOTING

tadapt process and its watchdog write log files. Warning messages and, in case of higher logging level, other debug and informative messages are logged. The log files are located in **`/home/cfguser`** directory. The log file of the tadapt process is called **`tadapt.trace`**; the log file of the watchdog process is called **`watchdog.trace`**. Both files can be followed with '**`tail -f <filename>`**' command (to see the most recently added messages) and by using '**`cat <filename>`**' command (to print the whole file content).

You can also view current traffic flow and watchdog statistics. For this purpose there is script **`tklc.tadapt_printstats`** (has been already mentioned/used in installation). This script provides information on the following topics:

1. Connected peers
2. Traffic speed
3. When the peer connected
4. Average PDU size
5. Overall PDU count
6. Timestamp when last PDU was received

It also provides information on the watchdog:

1. Name of the process
2. UNIX PID number
3. How many times the process restarted
4. Timestamp when it started for the last time

Example of output:

```
$ tklc.tadapt_printstats
tadapt statistics:
                     Peer name Speed (B/s)      Connected On Avg PDU size PDU count Last data
  TADAPT_IS41_Raman_1_MG2_TADAPT        378 10/06/13 15:42:08          204      7564 10/06/13...
  TADAPT_IS41_Raman_2_MG2_TADAPT        378 10/06/13 15:42:08          213      7566 10/06/13...
  TADAPT_IS41_Raman_3_MG2_TADAPT        378 10/06/13 15:42:07          223      1900 10/06/13...
  TADAPT_IS41_Raman_4_MG2_TADAPT        378 10/06/13 15:42:07          214      1897 10/06/13...
TADAPT_Raman_ISUP_A_1_MG1_TADAPT      15628 10/06/13 15:42:07           91     96433 10/06/13...
TADAPT_Raman_ISUP_A_2_MG1_TADAPT      15390 10/06/13 15:42:07           91     96430 10/06/13...
TADAPT_Raman_ISUP_A_3_MG1_TADAPT      15628 10/06/13 15:42:07           81     96433 10/06/13...
TADAPT_Raman_ISUP_A_4_MG1_TADAPT      15528 10/06/13 15:42:07           95     96434 10/06/13...
...
Watchdog statistics:
              Name   PID Respawn Started on
            tadapt 19451       1 10/06/13 15:41:40
```

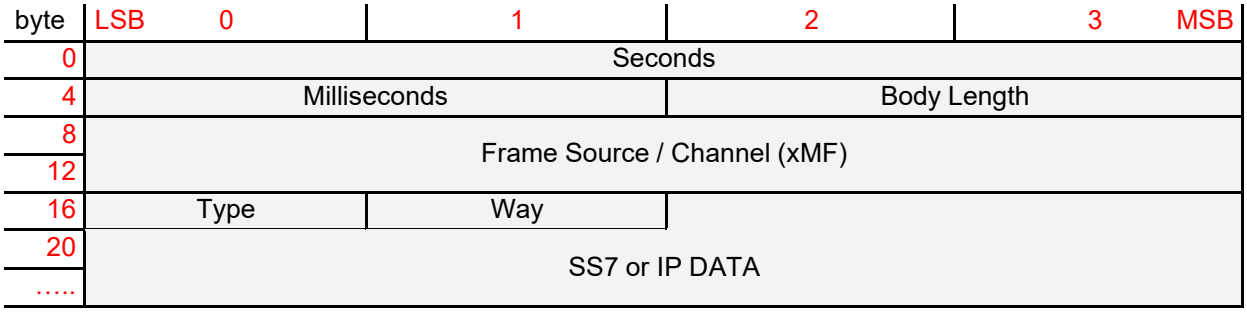
5 CONFIGURE PDU DATAFLOW(S) TO ACQUISITION DATA FEED SERVER

Please check, in the CCM's user guide, the following sections:

1. Managing Third Party (External) Applications
2. Managing MFP Streams to Third Party Applications

6 DATA RECORD FORMAT

A record is a sequence of bytes made of a MSU Record Header followed by the MSU itself (sections 6.1 and 6.2 for the MSU format):



Field	Type	Description
Seconds	unsigned long	Timestamp of the MSU in GMT in seconds since 1/1/1970.
Milliseconds	unsigned short	Milliseconds part of the MSU timestamp.
Body Length	unsigned short	Length of the body part (in bytes)
Frame Source/Channel	char[8]	Identification of the source link. See specific Data Record section.
Type	unsigned char	Type of MSU Record Header. Indicates the structure and the content of the remaining data. If a Type is known, just ignore the data by skipping it using the Body Length value
Way	unsigned char	Indicates the direction of the MSU. See specific Data Record section.
SS7 or IP DATA		Format depends on value of type (SS7 or IP). See details description in following section s

Table 2. Global data record format

6.1 SS7 Data record format

Field	Type	Description
Seconds	unsigned long	Timestamp of the MSU in GMT in seconds since 1/1/1970.
Milliseconds	unsigned short	Milliseconds part of the MSU timestamp.
Body Length	unsigned short	Length of the body part (in bytes)
Frame Source/Channel	char[8]	Identification of the source link. In case of Eagle/IMF, it is in the format of *eeccccpp*, where: • *ee*: 2-char eagle name prefix • *cccc*: eagle card • *pp*: eagle port

Field	Type	Description
Type	unsigned char	Type indicates the content of MSU Data: • 70 (M2PA ANSI): MSU Data starts with M2PA header • 74 (M2PA ETSI): MSU Data starts with M2PA header • 72 (M3UA): MSU Data starts with M3UA header • 60 (MTP2A): MSU Data starts with MTP2A header • 3 (MTP2): MSU Data starts with MTP2 header Values 73 (SUA), 69 (LSSU MTP2A) and 2 (LSSU) are used too; just ignore the data by skipping it using the Body Length value.
Way	unsigned char	Indicates the direction of the MSU with respect to the network element at the far end of the link: • 0: Incoming (MSU received by the STP for processing purposes) • 1: Outgoing (processed MSUs that will be transmitted by the STP)
Near End Point Code	Unsigned long	PC of the far end of the SLS (of the SSP/SCP for A-links, of the STP for B/D links)
Far End Point Code	Unsigned long	PC of the near end of the SLS (of the monitored Eagle STP)
LS Position	4 bits	0: A links; 1 otherwise
PC Type	4 bits	0: 14bit PCs (ITU-I); 1: 24bit PCs (ANSI)
Frame Length	unsigned short	Length of the MSU data following this field (in bytes)
MSU Data	N/A	Entire encapsulated MSU, starting with SS7 Layer 2 for SS7, resp. with M2PA/M3UA header for SIGTRAN (see Type description)

Table 3. SS7 record format

6.2 IP Data record format

Field	Type	Description
Seconds	unsigned long	Timestamp of the MSU in GMT in seconds since 1/1/1970.
Milliseconds	unsigned short	Milliseconds part of the MSU timestamp.
Body Length	unsigned short	Length of the body part (in bytes)
Channel	char[8]	Short Name of the Link or Traffic Classification (identifier of the Db)
Type	unsigned char	PDU type: • 90 (IP): MSU Data starts with IPv4 header

Field	Type	Description
Way (see WAY Management)	unsigned char	Direction of the PDU: • 0: If Way Management is configured and SourceIP@ is in SourceIP set and DestIP@ is NOT in SourceIP Set • 1: If Way Management is configured and SourceIP@ is NOT in SourceIP set and DestIP@ is in SourceIP Set • 253: If Way Management is configured and SourceIP@ and DestIP@ are NOT in SourceIP Set OR both SourceIP@ and DestIP@ are in SourceIP Set • 254: If Way Management is NOT configured
Header Version	unsigned char	Set always to 0
Length of the header	unsigned char	Size of this specific header. Use it to skip specific header and get MSU Data
Probe Number	unsigned short	Identifier of the probe
Interface Number	unsigned short	Identifier of the interface
Reassembled	unsigned char	Set always to 0
MSU Data	N/A	Entire IP frame

Table 4. IP record format

Appendix A: My Oracle Support (MOS)

MOS (https://support.oracle.com) is the initial point of contact for all product support and training needs. A representative at Customer Access Support (CAS) can assist for the MOS registration.

Call the CAS main number at 1-800-223-1711 (toll-free in the US), or call the Oracle Support hotline for your local country from the list at http://www.oracle.com/us/support/contact/index.html. When calling, make the selections in the sequence shown below on the Support telephone menu:

1. Select 2 for a new Service Request
2. Select 3 for hardware, networking and Solaris Operating System support
3. Select 2 for a non-technical issue

You will be connected to a live agent who can assist for the MOS registration and provide Support Identifiers.

MOS is available 24 hours a day, 7 days a week.