**Oracle® Communications
Performance Intelligence Center**

**Acquisition Data Feed Installation and Configuration
Guide**

Release 10.1

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Oracle Communications Performance Intelligence Center Acquisition Data Feed Installation and Configuration Guide, Release 10.1

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

See more information on MOS in the Appendix section.

TABLE OF CONTENTS

List of Figures

List of Tables

1 INTRODUCTION

1.1 Document Admonishments

Admonishments are icons and text throughout this manual that alert the reader to assure personal safety, to minimize possible service interruptions, and to warn of the potential for equipment damage.

Table 1. Admonishments

	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.)

1.2 Reference Documents

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 PIC 10.0 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 Problem Reports (PRs) 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.

1.1 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 many times partners personnel 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 either a rackmount or c-class blades system, the user read through this document.

1.5   Requirements and Prerequisites

1.5.1   Hardware & software Requirements

The customer server must meet the following minimum specifications. Although HP has been used, any server with the same characteristics is acceptable:

- HP DL360

- CentOS 5.X

- 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 responsible for configuring server including installation of OS

1.5.2   Licence Requirements

There is no need 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 PIC is provided by functionality resident upon the xMFs working in conjunction with a **Acquisition Data Feed** that resides on a customer provided server with specifications as identified in Section 6.10. The high-level architecture is depicted in Figure 1.
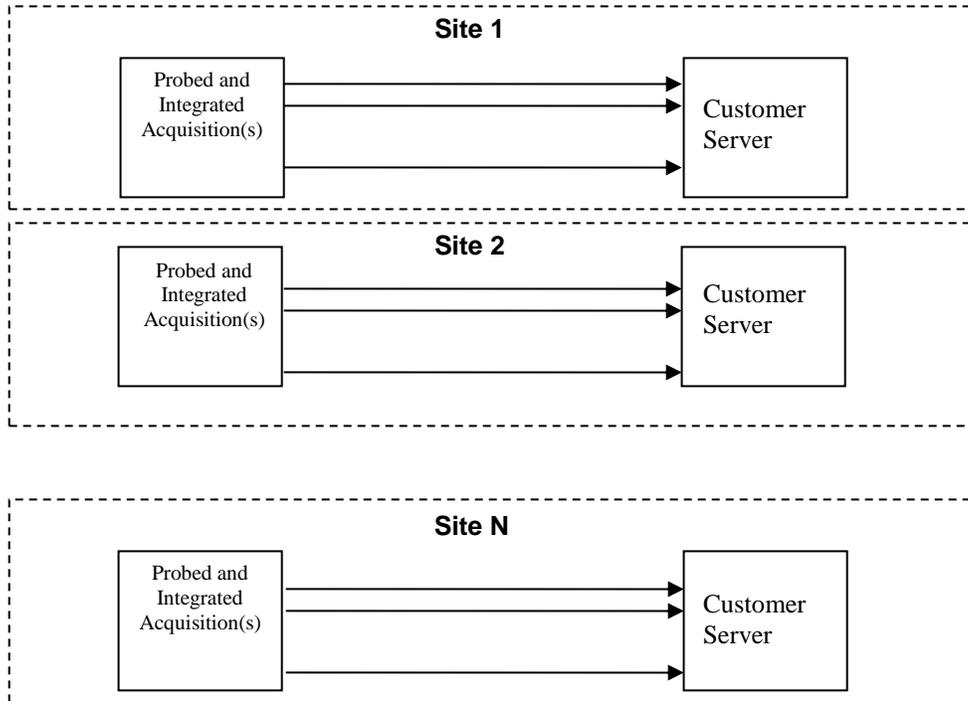
Figure 1High-Level Architecture Diagram

2.2   **Acquisition Data Feed**

Acquisition Data Feed is Oracle provided software which establishes a Linux process that, after loading on the customer provided server, allows for the establishment of a LAN/WAN connection from all Probe and Integrated Acquisition servers at a site to the customer (provided) server. The customer server can be located at the site with the Probe and Integrated Acquisition server or may be located remotely.

The Acquisition Data Feed function will, 1)establish and maintain the connection(s) between Probe and Integrated Acquisition server(s) and customer provided server(s), 2) aggregate the MSU streams into files, 3) write these files to local disk in a user specified directory, and 4) provide an alarm mechanism in the event that the connection is lost. Figure 2 provides the high-level overview.

Customer Machine
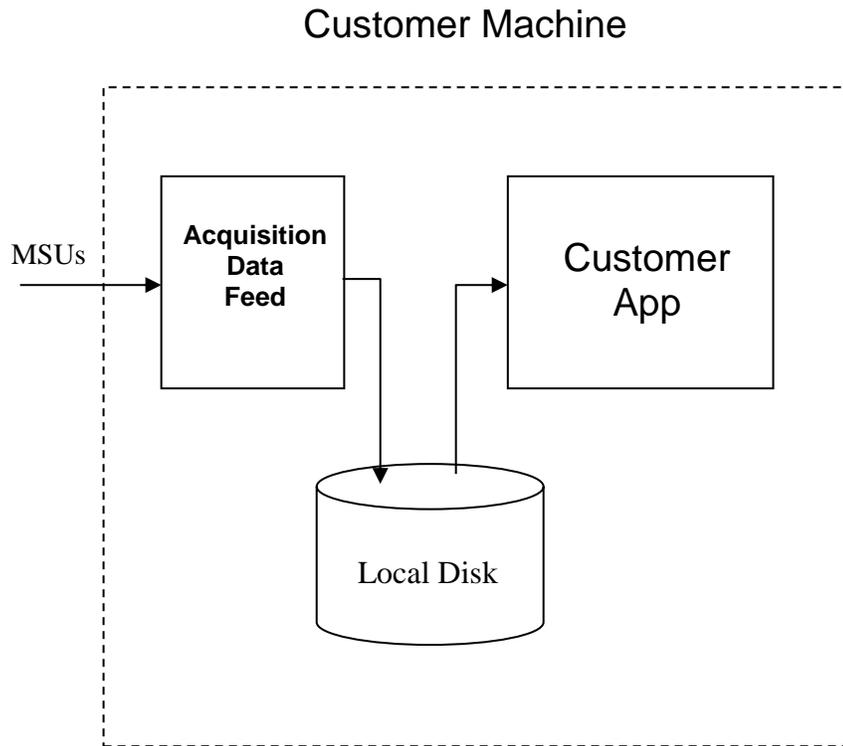
[RS005151.R.163885.FT.0005] PIC INTERFACE SUPPORT

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

- LSL
- HSL
- SigTran
- IP
- Eagle (i.e., TR5008 and FC)

3   INSTALLATION

3.1   Installating Acquisition Data Feed

S T E P #	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 TEKELEC CUSTOMER SUPPORT AND ASK FOR ASSISTANCE.	

1 ☐	**Prepare the rpm**	As user "root" mount the iso containing the tadapt package using:
		`mount –t iso9660 –o loop <ISO NAME> /mnt`
		
		Change directory:
		`cd /mnt/CentOS/`

2 ☐	**Installation of the package**	Run command (replace # with the correct package version)
		`rpm –Uvh tadapt-##.##-##.i386.rpm [↵ ]`
		
		The result might look like this:
		`[root@tadapttest ~]# rpm -Uvh tadapt-##.##-##.i386.rpm`
		
		`Preparing...`
		`######################################## [100%]`
		`   1:TAdapt`
		`######################################## [100%]`

| 3 ☐ | **Creating configuration file** | When the package is installed switch to 'cfguser' with:

`[root@tadapttest ~]# su - cfguser`

`[cfguser@tadapttest ~]$`

Then invoke this command to create the basic configuration. Just a note that before doing this be sure that you know all the configuration parameter values that customer wants to have (target directory, file period, mode). But you can continue and leave default values. Configuration can be changed later.

`[cfguser@tadapttest ~]$ tklc.tadapt_configure`

`No configuration file found`

`Running initial configuration`

Then the configuration script will ask you for settings. If you don't know what should be the right value please leave default (just hit key <enter>). There is only one value that doesn't have a default, it is the target directory where all the data files will be created/stored. Be sure to provide correct path (without typos and that the directory exists)

The configuration steps might look like this (just an example, there is much more values 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 you will see again your command line prompt.

`[cfguser@tadapttest ~]$` |
| 4 ☐ | **Start the tadapt service** | Once configuration is created you can startup the tadapt service. Switch back to 'root' user.

`[cfguser@tadapttest ~]$ exit`

`logout`

`[root@tadapttest ~]#`

And type this command :

`[root@tadapttest ~]# /etc/init.d/TKLCtadapt start`

`[root@tadapttest ~]#` |

| 5 ☐ | **Check that tadapt service is running** | Switch to 'cfguser' again :

`[root@tadapttest ~]# su - cfguser`

`[cfguser@tadapttest ~]$`

And run the following script :

`[cfguser@tadapttest ~]$ tklc.tadapt_printstats`

The script should give at the end something like this :

`Watchdog statistics:`

             `Name`   `PID`   `Respawn Started on`

           `tadapt`   `18783`   `1 10/06/13 11:04:05`

By invoking the script multiple times check that the value in 'Respawn' column stays at '1' |

3.2 Removal of Acquisition Data Feed

S T E P #	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 TEKELEC CUSTOMER SUPPORT AND ASK FOR ASSISTANCE.
1 ☐	**Login**	Login to a customer server as 'root '
2 ☐	**Uninstalling the package**	As user 'root' do the following command (replace # with the correct package version) `rpm –e tadapt-##.##-##` Package should be uninstalled at this point
3 ☐	**Removing user**	When the package is successfully uninstalled do the following command as 'root' to remove the 'cfguser' environment. `userdel –r cfguser`

3.2.1 Upgrade of Acquisition Data Feed

S T E P #	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 TEKELEC CUSTOMER SUPPORT AND ASK FOR ASSISTANCE.

1 ☐	**Login and prepare**	Login to a customer server as 'root '
		
		As user "root" mount the iso containing the tadapt package using:
		`mount –t iso9660 –o loop <ISO NAME> /mnt`
		Change directory:
		`cd /mnt/CentOS/`

2 ☐	**Upgrade the package**	As user 'root' do the following command (replace # with the correct package version) `rpm –Uvh tadapt-##.##-##.i386.rpm [↵ ]` Package should be upgraded at this moment

3.3   Configuration

Process tadapt has it's configuration stored at `/home/cfguser/tadapt.conf` file. But do not edit the file by hand always use script `tklc.tadapt_configuration` instead.

3.3.1   Available settings

Default values are basically recommended values to use with these exceptions:
MAXFILEOPENSECONDS, MAXFILESIZE, DIRECTORYPATH and MODE. These four parameters are free to use with any allowed value.

Process tadapt has this set of configuration parameters:

Name	Value type (unit)	Default value	Description
`MAXFILEBUFFERKEEP`	Seconds	`1`	tadapt contains internal buffer for each opened file. Here you can specify maximal amount of seconds such buffer can be kept in memory without writing into it. When timeout expires buffer is flushed to the opened file.
`MAXFILEBUFFER`	KB	`100`	The same buffer as mentioned above. This option allows to set the size of the internal buffer.
`STATSFILE`	String, path+file	`/tmp/.tadapt_stat`	Path to file with statistics. Statistics are gathered from all connected peers one time per defined period (STATSPERIOD) and then written to file configured with this option. If possible, should be left with default value.
`DROPDATAONMAXFILESIZE`	0,1	`0`	When MAXFILESIZE is reached but MAXFILEOPENSECONDS not expired yet should data be still written to the file? Or dropped? (In case of 0(false) file could be larger then

			predefined MAXFILESIZE).
`MAXWRITEERROR`	Number of occurences	`0`	Defines how many times i/o error can occur before it become to be treated as serius problem. Value 0 means any i/o error is treated as fatal.
`STATSPERIOD`	Seconds	`1`	How often to gather statistics from each connected peers.
`MAXFILEOPENSECONDS`	Seconds	`10`	This option represents limit/period for each opened file that contains data itself. When this period exceedes new file is opened.
`TRACELEVEL`	Predefined values –> WARNING, TRACE, DEBUG	`WARNING`	Sets the tracelevel of tadapt process. WARNING means that only critical or informative messages are printed into trace file
`ALARMFILE`	String, path+file	`/home/cfguser/` `tadapt.alarms`	Path to file which will contain all important notifications about error or non standart conditions
`MAXFILESIZE`	MB	`10`	As described little bit earlier. This sets maximal size of each file containing the data itself. If DROPDATAONMAXFILESIZE is set to 0 then this MAXFILESIZE could be actually exceeded until MAXFILEOPENSECONDS period is reached for opened file
`DIRECTORYPATH`	String, path only	No default value, has to be defined	This option represents path to directory where tadapt process will try to store all files with data.
`MODE`	Predefined values -> MULTIPLE, STREAMSINGLE, SINGLE	`MULTIPLE`	Three possible modes as required in RS005151.doc

3.3.2 Listing the current settings

With script `tklc.tadapt_configure` you can list available settings. List could be done in two different modes.

First mode is brief listing. Just invoke the script with parameter `-l`. Result could look like this :

```
[cfguser@tadapttest ~]$ 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
[cfguser@tadapttest ~]$
```

Second mode is detailed listing. To see detailed listing invoke the script with parameter **–p**. Result could look like this :

```
[cfguser@tadapttest ~]$ 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.
```

With the second mode there is also option to list details only for one specific configuration parameter. To do that invoke the script with **–p <PARAMNAME>**. The result then could look like this :

```
[cfguser@tadapttest ~]$ tklc.tadapt_configure -p MODE
Name:    Running mode
Key:     MODE
Value:   SINGLE
Default: MULTIPLE
Hint:    Modes MULTIPLE, SINGLE, STREAMSINGLE

[cfguser@tadapttest ~]$
```

3.3.3 Changing current settings

Changing the configuration parameter is then achieved with parameter **-s** followed by this format <NAME>=<VALUE> where NAME represents the configuration parameter name and VALUE the new value to be set.

Example :

```
[cfguser@tadapttest ~]$ tklc.tadapt_configure -p MODE
Name:    Running mode
Key:     MODE
Value:   SINGLE
Default: MULTIPLE
Hint:    Modes MULTIPLE, SINGLE, STREAMSINGLE

[cfguser@tadapttest ~]$ tklc.tadapt_configure -s MODE=MULTIPLE
[cfguser@tadapttest ~]$ tklc.tadapt_configure -p MODE
Name:    Running mode
Key:     MODE
Value:   MULTIPLE
Default: MULTIPLE
Hint:    Modes MULTIPLE, SINGLE, STREAMSINGLE

[cfguser@tadapttest ~]$ 
```

After all parameters (those that you wanted to change) were changed you need to apply the changes. Apply changes in this case means that running instance of tadapt process is informed to reload current settings. It could be achieved by running the configuration script with parameter **-a**.

Example :

```
[cfguser@tadapttest ~]$ tklc.tadapt_configure -a
Settings applied
[cfguser@tadapttest ~]$ 
```

4   MONITORING & TROUBLESHOOTING

Processes tadapt and watchdog create trace files. These trace files contain warning messages or in case of higher tracing level also some detailed information. Both trace files could be found in **/home/cfguser** directory. Trace file for the tadapt process is called **tadapt.trace**. Trace file for the watchdog process is called **watchdog.trace**. These files could be listed with '**tail -f <filename>**' command (to see the continuously added lines) or by simply using '**cat <filename>**' command.

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 could give you such details as:

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

Also it provides information about the watchdog. So you can see if tadapt is running without restarts. Provided fields are:

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 the output is here:

```
[cfguser@tadapttest data]$ 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 15:52:25
                TADAPT_IS41_Raman_2_MG2_TADAPT       810   10/06/13 15:42:08          213        7566  10/06/13 15:52:25
                TADAPT_IS41_Raman_3_MG2_TADAPT       596   10/06/13 15:42:07          223        1900  10/06/13 15:52:25
                TADAPT_IS41_Raman_4_MG2_TADAPT       189   10/06/13 15:42:07          214        1897  10/06/13 15:52:25
                     TADAPT_Raman_IS41_MG2_TADAPT    105   10/06/13 15:42:07          219        1896  10/06/13 15:52:25
              TADAPT_Raman_ISUP_A_1_MG1_TADAPT     15628   10/06/13 15:42:07           91       96433  10/06/13 15:52:25
              TADAPT_Raman_ISUP_A_2_MG1_TADAPT     15390   10/06/13 15:42:07           91       96430  10/06/13 15:52:25
              TADAPT_Raman_ISUP_A_3_MG1_TADAPT     15628   10/06/13 15:42:07           81       96433  10/06/13 15:52:25
              TADAPT_Raman_ISUP_A_4_MG1_TADAPT     15528   10/06/13 15:42:07           95       96434  10/06/13 15:52:25
                TADAPT_Raman_ISUP_A_MG1_TADAPT     15628   10/06/13 15:42:07           86       96433  10/06/13 15:52:25
           sjs_tadapt_teamtest_PMF1001-OA_TADAPT        0   10/06/13 15:42:17            0           0  0
         sjs_tadaptteamtest_3_PMF1001-OA_TADAPT        0   10/06/13 15:42:17            0           0  0
         sjs_tadaptteamtest_4_PMF1001-OA_TADAPT        0   10/06/13 15:42:17            0           0  0
             sjs_tadapttest_2_PMF1001-OA_TADAPT        0   10/06/13 15:42:17            0           0  0



Watchdog statistics:
         Name         PID     Respawn Started on
        tadapt       19451          1 10/06/13 15:41:40
[cfguser@tadapttest data]$
```

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

Please follow CCM's user manual (available by default in CCM). These two chapters are important:

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

6 DATA RECORD FORMAT

Each record is stored as a binary record that consists in a MSU Record Header and the MSU itself with format as described in Section 6.4.1 and 6.4.2.

byte	LSB 0	1	2	3 MSB
0	Seconds			
4	Miliseconds		Body Length	
8	Frame Source / Channel (xMF)			
12				
16	Type	Way		
20	SS7 or IP DATA			
…..				

Field	Type	Description
Seconds	unsigned long	Timestamp of the MSU in GMT in seconds since 1/1/1970.
Miliseconds	unsigned short	Miliseconds part of the MSU timestamp.
Body Length	unisgned 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 remain 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.
Miliseconds	unsigned short	Miliseconds part of the MSU timestamp.
Body Length	unisgned 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
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) is 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 for A links, 1 otherwise

PC Type	4 bits	0 for 14bit PCs (ITU-I), 1 for 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.
Miliseconds	unsigned short	Miliseconds part of the MSU timestamp.
Body Length	unisgned short	Length of the body part (in bytes)
Channel	char[8]	Short Name of the Link or Traffic Classification (indentifier of the Db)
Type	unsigned char	• 90 (IP): MSU Data starts with IPv4 header
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 your initial point of contact for all product support and training needs. A representative at Customer Access Support (CAS) can assist you with 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 New Service Request

2. Select 3 for Hardware, Networking and Solaris Operating System Support

3. Select 2 for Non-technical issue

You will be connected to a live agent who can assist you with MOS registration and provide Support Identifiers. Simply mention you are a Tekelec Customer new to MOS.

MOS is available 24 hours a day, 7 days a week, 365 days a year.

Appendix B: Locate Product Documentation on the Oracle Technology Network Site

Oracle customer documentation is available on the web at the Oracle Technology Network (OTN) site, http://docs.oracle.com. You do not have to register to access these documents. Viewing these files requires Adobe Acrobat Reader, which can be downloaded at www.adobe.com.

1. Log into the Oracle Technology Network site at http://docs.oracle.com.

2. Under Applications, click the link for Communications.

   The Oracle Communications Documentation window opens with Tekelec shown near the top.

3. Click Oracle Communications Documentation for Tekelec Products.

4. Navigate to your Product and then the Release Number, and click the View link (the Download link will retrieve the entire documentation set).

5. To download a file to your location, right-click the PDF link and select Save Target As.