

Data Acquisition Tools 7.1 for Motorola CDMA/AMPS/ EVDO R22/S19/R8



DATA ACQUISITION TOOLS GUIDE

Data Acquisition Tools 7.1 for Motorola CDMA/AMPS/EVDO R22/S19/R8

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1 About This Documentation

The *Data Acquisition Tools Guide* provides instructions for configuring and supporting this feature of Prospect® software. This guide is customized to support Prospect Data Acquisition Tools 7.1 for Motorola CDMA/AMPS/EVDO R22/S19/R8 (Release Point 4.2).

This toolset acquires data for processing, helping you analyze the performance of the network and carry out other network or database management tasks. For the latest information pertaining to your network configuration, please see the Release Notes.

This guide was last updated November 27, 2008.

Please see the current release notes on this product for a list of revision dates for all Prospect publications.

Audience

The intended audience for this guide are those with a working knowledge of UNIX, and include experienced system administrators, database administrators, installers, or supervisors who are responsible for setting up and configuring Data Acquisition tools. In general, the reader of this guide is referred to as "you." By contrast, "we" refers to the Prospect development and technical staff who support this product.

Required Skills and Knowledge

This guide assumes that you are familiar with the following:

- UNIX basics (such as file structures, text editing, and permissions).
- A UNIX-based text editor, such as *vi* or *emacs*.
- Shell and awk scripting.
- UNIX system administration.

This guide also assumes that you are familiar with your company's network and with procedures for configuring, monitoring, and solving problems on your network.

Document Conventions

This document uses the typographical conventions shown in the following table:

Table 1: General Document Conventions

Format	Examples	Description
ALL UPPERCASE	<ul style="list-style-type: none"> • GPS • NULL • MYWEBSERVER 	Acronyms, device names, logical operators, registry keys, and some data structures.
<u>Underscore</u>	See Document Conventions	For links within a document or to the Internet. Note that TOC and index links are not underscored. Color of text is determined by browser settings.
Bold	<ul style="list-style-type: none"> • Note: The busy hour determiner is... 	Heading text for Notes, Tips, and Warnings.
SMALL CAPS	<ul style="list-style-type: none"> • The STORED SQL dialog box... • ...click VIEW... • In the main GUI window, select the FILE menu, point to NEW, and then select TRAFFIC TEMPLATE. 	Any text that appears on the GUI.
<i>Italic</i>	<ul style="list-style-type: none"> • A <i>busy hour</i> is... • A web server <i>must</i> be installed... • See the <i>User Guide</i> 	New terms, emphasis, and book titles.
Monospace	<ul style="list-style-type: none"> • <code>./wminstall</code> • <code>\$ cd /cdrom/cdrom0</code> • <code>/xml/dict</code> • <code>http://java.sun.com/products/</code> • <code>addmsc.sh</code> • <code>core.spec</code> • Type OK to continue. 	Code text, command line text, paths, scripts, and file names. Text written in the body of a paragraph that the user is expected to enter.
Monospace Bold	<pre>[root] # pkginfo grep -i perl system Perl5 On-Line Manual Pages system Perl 5.6.1 (POD Documenta- tion) system Perl 5.6.1</pre>	For contrast in a code example to show lines the user is expected to enter.
<Mono-space italics>	<code># cd <oracle_setup></code>	Used in code examples: command-line variables that you replace with a real name or value. These are always marked with arrow brackets.
[square bracket]	<code>log-archiver.sh [-i] [-w] [-t]</code>	Used in code examples: indicates options.

User Publications

Prospect software provides the following user publications in HTML or Adobe Portable Document Format (PDF) formats.

Table 2: Prospect User Documentation

Document	Description
<i>Administration Guide</i>	Helps an administrator configure and support Prospect core server software to analyze network performance and perform other network or database management tasks.
<i>Administrator's Quick Reference Card</i>	Presents the principal tasks of a Prospect core server administrator in an easy-to-use format.
<i>Expressions Technical Reference</i>	Provides detailed information about expressions used in special calculations for reports.
<i>Installation Guide</i>	Instructions for installing and configuring the Prospect software.
<i>Open Interface API Guide</i>	Describes how the Open Interface tool enhances your access to information about database peg counts and scenarios.
<i>Performance Data Reference</i>	Provides detailed information including entity hierarchies, peg counts, primitive calculations, and forecast expressions specific to your organization.
<i>Release Notes</i>	Provides technology-specific and late-breaking information about a given Prospect release and important details about installation and operation.
<i>Server Preparation Guide</i>	Provides instructions for installing and setting up Solaris and Oracle software before you install Prospect software.
<i>Server Sizing Tool Guide</i>	Helps an administrator use the sizing tool to calculate the system space needed for the Prospect software and database.
<i>User Guide</i>	Provides conceptual information and procedures for using Prospect software for performance and trending analysis.

Viewing the Desktop Client Help Publications

To view the desktop client Help publications, select a guide from the HELP menu of the Prospect graphical user interface or press F1 for context-sensitive Help. To update the Help files, click the HELP menu on the Prospect Explorer, and select UPDATE ALL HELP FILES.

When Help files are updated, they are downloaded automatically from the Prospect server to the Prospect client. A message box notifies you when this download occurs.

Viewing the Publications in PDF

All of the user publications are available in Adobe Portable Document Format (PDF). To open a PDF, you need the Adobe Acrobat Reader. You can download Adobe Acrobat Reader free of charge from the Adobe Web site. For more details about the Acrobat Reader, see the Adobe Web site <http://www.adobe.com/>.

Training and Technical Support

Both training and technical support are available for Prospect software. For technical support, contact us at prospect@us.ibm.com. For training, contact us at training@vallent.com.

For more information on product training courses, contact your delivery management team at:

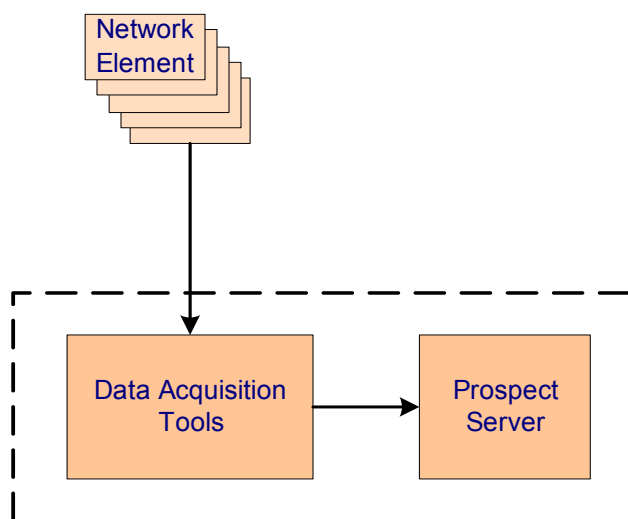
- Americas: tivamedu@us.ibm.com
- Asia Pacific: tivtrainingap@au1.ibm.com
- EMEA: tived@uk.ibm.com

2 Installation and Setup

Data Acquisition tools are programs that collect performance data from network elements, preprocess the data, and then send the data to the Prospect server. The following figure shows a block diagram of the data acquisition process.

Note: In this guide, the term *network element* represents the components of the switching network.

Figure 1: The Data Acquisition Process



Refer to the *Administration Guide* for a description of the data loading process once the data is received by the Prospect server.

Topics

- [Overview](#)
- [Installation and Setup](#)
- [Monitor Process](#)

Overview

The data acquisition process collects data files from the network elements at specific intervals, stores the files on the data acquisition server, and then sends the files to the Prospect server. This data can then be used by the Prospect server to create reports.

Data Acquisition tools enable you to do the following:

- Communicate with network elements
- Collect data from network elements
- Store acquired data on the data acquisition server and send the data to the Prospect server
- Record user-defined events and errors in a log file
- Monitor the condition of all required processes
- Collect data again from network elements after failure

Data Acquisition tools can remotely log on to network elements using provided IP address and security information, receive generated data through network commands or files stored on network elements, and send data to desired locations. You can configure both source and target data locations (directories and file names) and include a time stamp as part of a file name.

Before You Begin

Before you can install the Data Acquisition tool, you need the following information:

- Local host name and IP address
- Destination host name and IP address for the Prospect server
- Destination (target) directory for the Prospect server
- Login user name and password for the destination Prospect server
- Number of days to keep the data files
- Data type (this release supports the pmC_156, pmC_157, pmC_158, AEMS C-4xx tables, AEMS C351 table, AEMS C352 table, AEMS C6xx tables, EVDO PM, pmC_524, pmC_525, ConfigurationDataFile, pmC_160, pmC_161, pmC_162, pmC_170, pmC_171, pmC_172, pmC_173, pmC_86, pmC_52, pmC_80, pmC_81, pmC_85, pmC_214 data types).
- Time adjustment, if the Prospect server is in a different time zone.
- For a Data Acquisition tool supporting SNMP, the IP address, port number (usually 161 for SNMP), community passcode, and SNMP version number (1, 2, or 3) for each network element that is polled.
- For a Data Acquisition tool collecting files from a specific location, the data collection point or network element hostnames and IP addresses and the corresponding login usernames and passwords. Make sure you set the command prompt for the usernames to one of the following patterns:

*\$<space>
*%<space>
*><space>
*#<space>

where * is zero or more of any characters and <space> is one space.

Installation and Setup

You can install the data acquisition scripts either on the computer running the Prospect server or on another computer. To install Data Acquisition tools, you must have a working knowledge of UNIX as well as **root** permission for the server on which the installation takes place.

***#<space> Installing Data Acquisition Tools**

The following describes the steps required to install Data Acquisition tools. This includes setting up a user account and the server environment. Two procedures are listed: one to install the Data Acquisition tool for the first time, another to install the Data Acquisition tool on a multi-DAT environment.

If you are installing Data Acquisition tools for the first time, follow the guidelines and procedures below. If you are upgrading your Data Acquisition tools from a previous release, please see the release notes for complete information on prerequisites and upgrade procedures.

To install Data Acquisition tools for the first time on a server

1. Create a `flexda` user account on the computer where Data Acquisition tools are to be installed. The Korn shell must be the default shell.
2. Log on as `root`, and then create the `flexda` account.
 - a. Add the `flexda` account to the `dba` group. For details on the `dba` group, refer to "Configuring UNIX User Accounts" in the *Server Preparation Guide*.
 - b. Log on as `flexda`.
3. On the *DA Tool Kit* CD, locate the `setup-da` file in the `root` directory.

```
[flexda] $ cd /cdrom/cdrom0
```

Install the Data Acquisition tools as follows.

Example

```
[flexda] $ setup-da -install DA_7.1_Motorola_RP4_Base.tar.gz
```

4. Change directory to user home directory:

```
[flexda] $ cd ~
```
5. Copy the `FlexDA.default.cfg` file to `FlexDA.<hostname>.cfg`. Replace `<hostname>` with the name of your local host which can be derived from command `uname -n`:

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```
[flexda] $ cp INSTALL/ALL/cfg/FlexDA.default.cfg \  
INSTALL/localhost/cfg/FlexDA.<hostname>.cfg
```

6. Copy the `site_opts` file as follows:

```
[flexda] $ cp INSTALL/ALL/cfg/site_opts_mtcdma \  
INSTALL/localhost/cfg/site_opts
```

7. Run the Data Acquisition tools installation script. This creates all directories and links all network element programs.

```
[flexda] $ INSTALL/ALL/scripts/install_flexda.ksh
```

8. Log off and then log on again as `flexda` to reflect the changes.

To install Data Acquisition Tools on a multi-DAT environment

1. Log on as `flexda`.
2. On the *DA Tool Kit* CD, locate the `setup-da` file in the `root` directory.

```
[flexda] $ cd /cdrom/cdrom0
```

Install the Data Acquisition tools as follows.

Example

```
[flexda] $ setup-da -install DA_7.1_Motorola_RP4_Base.tar.gz
```

3. Change directory to user home directory:

```
[flexda] $ cd ~
```

4. Copy the `site_opts` file as follows:

```
[flexda] $ chmod +w INSTALL/localhost/cfg/site_opts  
[flexda] $ cp INSTALL/ALL/cfg/site_opts_mtcdma \  
INSTALL/localhost/cfg/site_opts
```

5. Run the Data Acquisition tools installation script. This creates all directories and links all network element programs.

```
[flexda] $ INSTALL/ALL/scripts/install_flexda.ksh
```

Setting Up Data Acquisition Tools

The following describes the steps required to set up Data Acquisition tools. This includes preparing the configuration file and defining the **cron** job.

Note: The following steps apply to new installations, and to upgrades when the previous installation did not use a configuration file. If you are upgrading a previous installation that used a configuration file, and have already installed the patches as described in the Release Notes, you can skip the setup steps listed below.

To set up Data Acquisition tools

1. Prepare the configuration file, `<hostname>.mtcdma.cfg`, in the `$FLEXDAHOME/INSTALL/localhost/cfg` directory.
 - a. Copy the sample configuration file and update the entries to correspond to your configuration. See [The Host Configuration File](#) on page 19. For example:

```
[flexda] $ cd ~
[flexda] $ cp INSTALL/ALL/doc/host.mtcdma.cfg.sample \
INSTALL/localhost/cfg/<hostname>.mtcdma.cfg
```

where `<hostname>` is the name of your local host.
 - b. Make sure that the host configuration file is writable:

```
[flexda] $ cd ~
[flexda] $ chmod +w \
INSTALL/localhost/cfg/<hostname>.mtcdma.cfg
```
 - c. Modify the host configuration file for each network element from which the data is collected. See [The Host Configuration File](#) on page 19.
 - d. Modify the `DESTHOSTNAME`, `DESTHOSTIP`, `DESTHOSTUSER`, and `DESTHOSTPSWD` entries in the host configuration file, as appropriate.
 - e. Run the install script.

```
[flexda] $ cd ~
[flexda] $ INSTALL/ALL/scripts/setconfig.ksh \
INSTALL/localhost/cfg/<hostname>.mtcdma.cfg
```
 - f. Verify that the data and log directories have been created as well as the Interval Checkpoint Facility (ICF) configuration files (`cfg/*.icf`), checkpoint file (`log/*.chk`), and the `cron` file. See [Monitor Process](#) on page 43 for the location of files and directories.
2. The `crontab` files `<hostname>.mtcdma.cron` and `<hostname>.cron` are created in the `$FLEXDAHOME/cfg` directory. To define job entries in the `cron` job, run the following:

```
[flexda] $ cd ~
[flexda] $ crontab cfg/<hostname>.cron
```

The `<hostname>.cron` file contains cron job entries for all DA Tools installed in a multi-DAT environment.

To modify the behavior of Data Acquisition tools with regard to collecting data, change the `crontab` entry to start Data Acquisition tools at the appropriate time interval.

Note: Use `<hostname>.cron` to enable every installed DA collection and `<hostname>.mtcdma.cron` for specific DA Toolkit collection.
3. Create the file `$FLEXDAHOME/cfg/DB_loading_control.list`. For an example file, see `DB_loading_control.list.sample`.

The following shows the format of `DB_loading_control.list`:

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```
# Filename : DB_loading_control.list
#
# This loading control file is a plain ASCII file with one file name per
line.
# Content in this control file should be treated in case-insensitive man-
ner.
# Line begins with .##. should be treated as comment line.
# Example, lines in the file look like:
# pmCxxx
# aemsCxxx
#
# Note: .xxx. is zero padding expected for two or one digit record number.
# (ex. pmC_52_hr  -> pmC52)
#
# aemsC2_1
# pmC502
# pmC501
# pmC85
# pmC81
# pmC156
```

The FlexDA Configuration File

The FlexDA.<hostname>.cfg file contains the version number, site name, home directory name of the data acquisition system, and configuration file location.

The following is a sample FlexDA.<hostname>.cfg file:

Note: The following FlexDA.<hostname>.cfg file is an example only and may not match the sample file for your software.

```
#
# TITLE:FLEXDA.host.CFG - Site-Specific FlexDA Configuration
#
# ABSTRACT:This script is meant to be sourced into C-shell scripts to
#         define all site-specific FlexDA configuration data.
#
# SITE: Default
#
# HOST: ALL
#
cwd=`pwd`;cd ~`/usr/ucb/whoami`;dahome=`pwd`;cd $cwd
typeset -x FLEXDAVER=7.1
typeset -x FLEXDASITE=`uname -n`
typeset -x FLEXDAHOME=$dahome
```

```
typeset -x FLEXDACFG=$FLEXDAHOME/cfg
```

The Host Configuration File

The host configuration file, `<hostname>.mtcdma.cfg`, is used to install the data acquisition jobs. This file is created by using the template file `host.mtcdma.cfg.sample` located in `$FLEXDAHOME/INSTALL/ALL/doc`. See [Sample Host Configuration File](#) on page 20.

The file `mtcdma.cfg.txt`, also located in `$FLEXDAHOME/INSTALL/ALL/doc`, provides descriptions of all the variables defined in `<hostname>.mtcdma.cfg`.

The host configuration file significantly reduces the effort and time required to set up the data acquisition system. The file also improves the accuracy and reliability of the system. You input the required attributes of the network elements, and then run the `setconfig.ksh` script to generate the necessary components for the data acquisition system, including the directories and ICF files, checkpoint files, and **cron** scripts. For more information about the ICF and checkpoint files, see [Troubleshooting](#) on page 45.

The `setconfig.ksh` script creates a file (`<hostname>.mtcdma.cron`) in the `$FLEXDAHOME/cfg` directory that contains the `crontab` information. Using `setconfig.ksh` to set up the **cron** job enables the data acquisition server to collect network element data automatically.

Refer to [Field Descriptions](#) on page 29 for a complete list of fields, variables, and descriptions.

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Installation and Setup

Sample Host Configuration File

The following is an example of a host configuration file.

```
#####  
#  
# Licensed Materials - Property of IBM  
# 5724-T10  
#  
# (C) Copyright IBM Corp. 2003,2008. All Rights Reserved.  
#  
# US Government Users Restricted Rights - Use, duplication or  
# disclosure restricted by GSA ADP Schedule Contract with IBM Corp.  
#  
#####  
  
# $Header:  
/net/klstor01/datavol/gateways/da/CVSR00T/modules/MOTOROLA/doc/host.mtcdma.cf  
g.sample,v 1.2 2008/06/03 03:10:47 alamshi Exp $  
#  
# TITLE: THIS IS THE FLEXDA SERVER CONFIG FILE USED TO SET UP FLEXDA  
# AND PROCESS CFG FILES  
#  
# THREE LEVELS OF CONFIGURATION:  
#  
# SYSTEM LEVEL: This is the top level configuration.  
# The Following variables must be provided:  
# sysopts  
# lhost  
# thost  
#  
# TYPE LEVEL: MSC, OMCR, SM  
#  
# DETAIL LEVEL: Detailed information for each option such as ane, motorola,  
# nortel..., the ane_detail, motorola_detail, nortel_detail...  
# information must be provided.  
#  
# NOTE: User defined variables can be created in order to shorten  
# the long lines  
#  
#  
#####  
##  
method_dir=$FLEXDAHOME/INSTALL/ALL/scripts  
optcfg_dir=$FLEXDAHOME/INSTALL/localhost/cfg
```

```
hostname=`uname -n`

#   SYSOPTNAME          OPTMETHOD          OPTCFGFILE
#   -----          -
set -A  sysopts \
      mtcdma          $method_dir/set_mtcdma.ksh  $optcfg_dir/$hostname.mtcdma.cfg

#   LOCALHOSTNAME      NDAYS
#   -----          -
set -A  lhost \
      $hostname          34

#   DESTHOSTNAME      DESTHOSTIP      DESTHOSTUSER      DESTHOSTPSWD
#   -----          -
set -A  thost \
      ??????          ????.???.???.???  ???              ???

#   NNTYPES
#   -----
set -A  mtcdma_type \
      omcr          \
      sar          \
      evdoconfigmap \
      sm          \
      evdopm       \
      evdopmemh   \
      pmserver    \
      anpml0min   \
      kcicfg      \
      aemsc10min

#
# OMCR
#

# Block files directory
blockdir=/sc/spool/pmStats

# DB Loading Block File Configuration
dbloadctrl=$FLEXDAHOME/cfg/DB_loading_control.list
```

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Installation and Setup

```
# OMCR CDF Source directory
remotecdfdir=/screl/active/loadable

# OMCR PM Source directory
remotepmdir=/sc/spool/PmTrans

# OMCR Mapping configuration
omcrCFG=$FLEXDAHOME/cfg/OMCR_mapping.cfg

# Prospect Loader target directory
tmdir=/u01/apps/WatchMark/FlexPM/Motorola/x/vendor/Motorola/MSC/ftpIN/R15/in
t16dir=/u01/apps/WatchMark/FlexPM/Motorola/x/vendor/Motorola/MSC/ftpIN/R16/in
t161dir=/u01/apps/WatchMark/FlexPM/Motorola/x/vendor/Motorola/MSC/ftpIN/R161/
in
t17dir=/u01/apps/WatchMark/FlexPM/Motorola/MotoCDMA/vendor/Motorola/MSC/ftpIN
/MotoCDMA/R17/in
t18dir=/u01/apps/WatchMark/FlexPM/Motorola/MotoCDMA/vendor/Motorola/MSC/ftpIN
/MotoCDMA/R18/in

RawDir=/sc/spool/pmStats

# Temp remote directory
omcr_remotedir=/var/tmp/omcr

# MARKET  TGTDIR  SRCIP      SRCID      MMID      SRCUSER  SRCPSWD
#  -----  -----  -----  -----  -----  -----  -----
#          CDFDIR      PMDIR      OMCRCFG
#          -----  -----  -----
#          REMOTEDIR  CDLPORT    DATATYPES      TMADJ  SLEEP  ICFDELAYGAP
#          -----  -----  -----  -----  -----  -----
#          SDUID      SDURECORDS
#          -----  -----
#          VPUID      VPURECORDS
#          -----  -----
#          ANID      ANRECORDS
#          -----  -----
#          SVURECORDS
#          -----
#          PMCFGRECORDS
#          -----
#          SECURECOLLECT  SECUREDELIVER  RAWDIRECTORY  RAWNODAYS
#          -----  -----  -----  -----
#          PAST_DAYS      BLOCKDIR      DBLOADCTRL
```

```

# -----
set -A mtcdma_omcr \
  ??      $t16dir   ??? omcr1      101,105   ???  ??? \
          $remotecdfdir $remotepmdir $omcrcfg \
          $omcr_remotedir/omcr1      10707      PM,CDF,NECF      60  60
600,1800,3600 \
211,212   101,102,103,104,105,106,107,108,109,110,111,112,113,114,115,203,206
\
112,113   140,141,142 \
21,22    150,151,153,154,155 \
160,161,162 \
          52,80,81,85 \
  1  1  $RawDir/PM/omcr1 5 \
          0          $blockdir/omcr1      $dbloadctrl \
          ??      $tdir   ??? omcr2      2,3,4      ???  ??? \
          $remotecdfdir $remotepmdir $omcrcfg \
          $omcr_remotedir/omcr2      10707      PM,CDF,NECF      60  60
600,1800,3600 \
-1 -1 \
-1 -1 \
-1 -1 \
          -1 \
          -1 \
  1  1  -1  0 \
          0          $blockdir/omcr2      $dbloadctrl

#
# AN PM 10 MIN
#

omcrcfg=$FLEXDAHOME/cfg/OMCR_mapping.cfg

# Block files directory
blockdir=/sc/spool/pmStats

# DB Loading Block File Configuration
dbloadctrl=$FLEXDAHOME/cfg/DB_loading_control.list

# AN PM 10 minute data source and target directories
anpm10min_sdir=/sc/spool/PmTrans
anpm10min_tdir=$PROSPECT_HOME/..ftpIN/MotCDMA/R19/in
anpm10min_rawdir=/sc/spool/pmStats

```

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Installation and Setup

```
# Temp local directory
anpml0min_srctmpdir=/sc/spool/PmTrans

# Temp remote directory
anpml0min_remotedir=/var/tmp/anpml0min

# MARKET      TGTDIR          SRCIP          SRCID          SRCUSER      SRCPSWD
#             SRCDIR          OMCRCFG
#             SRCTMPDIR      SERVERNAME     SECURECOLLECT  SECUREDELIVER
#             RAWDIRECTORY   RAWNDAYS
#             ANID          ANRECORDS
#             PAST_DAYS     REMOTEDIR     BLOCKDIR       DBLOADCTRL
# -----
set -A mtcdma_anpml0min
  PL          $anpml0min_tdir  ??.???.???.???  omcr1         ??????       ???         \
  $anpml0min_sdir  $omcrCFG                               \
  $anpml0min_srctmpdir  omcr1          1              1              \
  $anpml0min_rawdir   5
  21,22          156,157,158
  0              $anpml0min_remotedir/omcr1 $blockdir/omcr1  $dbloadctrl

#
# SM
#

# SM directory for TMM report scripts
smscriptsdir=/usr/local/bin

# SM Mapping configuration for TMM report formats
smrepddcfg=$FLEXDAHOME/cfg/SMREPDD_mapping.cfg

# Prospect Loader target directory
t17dir=/u01/apps/WatchMark/FlexPM/Motorola/MotoCDMA/vendor/Motorola/MS/ftpIN
/MotoCDMA/R17/in

# MARKET      TGTDIR  SRCIP          MSCID          SWID          USERNAME      PASSWORD
# -----
#             TIMEOUT  DATATYPES
#             -----
#             ICFBEHIND ICFDELAY ICFIGNBEF ICFIGNAFT EMX_VERSION
#             -----
#             SMREPDDCFG  SMSSCRIPTSDIR
```



```

# -----
# PAST_DAYS
# -----
set -A mtcdma_sm \
    ??? $t17dir ???.???.??.?? ????? ?? ?????? ?????? \
    600 SMTM \
    75 10 -1 -1 7.19 \
    $smrepddcfg $smscriptsdir \
    0 \
    ??? $t17dir ???.???.??.?? ????? ?? ?????? ?????? \
    600 SMTM \
    75 10 -1 -1 7.17 \
    $smrepddcfg $smscriptsdir \
    0

#
# SAR
#

# SAR data source and target directories
sar_sdir=/sc/spool/xc_sar
sar_tdir=/u01/apps/WatchMark/FlexPM//ftpIN/sar

RawDir=/sc/spool/pmStats

# MARKET TGTDIR SRCIP SRCIDSRCUSER SRCPSWD
# SRCDIR ICFBEHIND
# RAWDIRECTORY RAWNODAYS SECURECOLLECT SECUREDELIVER
# PAST_DAYS
# -----
set -A mtcdma_sar \
    PL $sar_tdir ???.???.??.?? OMCR01 username password \
    $sar_sdir 0 \
    $RawDir/SAR/omcr01 5 1 1 \
    0

#
# EVDO CONFIG MAP
#

# EVDO CONFIG data source and target directories
evdoconfig_sdir=/omcr/evdoconfig
    
```

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```
evdoconfig_tdir=/u01/apps/WatchMark/FlexPM//ftpIN/evdoconfigmap
evdoconfig_spooldir=/sc/spool/pmStats/RAW_DO_CONFIGMAP

# MARKET    TGTDIR    SRCIP          SRCID          SRCUSER        SRCPSWD
#           SRCDIR    SERVERNAME     ICFBEHIND
#           SECURECOLLECT    SECUREDELIVER  SPOOLDIR SPOOL
#           INNERFILEDIR_F
# -----
set -A mtcdma_evdoconfigmap \
  PL  $evdoconfig_tdir  ????.????.????.??? OMCR01      ???  ???? \
      $evdoconfig_sdir  SVR01      0      \
      1      1      $evdoconfig_spooldir  on \
      0

#
# EVDO PM
#
# EVDO PM data source and target directories
evdopm_sdir=/omcr/evdopm
evdopm_tdir=/u01/apps/WatchMark/FlexPM//ftpIN/evdopm
evdopm_spooldir=/sc/spool/pmStats/RAW_DO_PM

# MARKET    TGTDIR    SRCIP          SRCIDSRCUSER    SRCPSWD
#           SRCDIR    SERVERNAME     FILEDELAY    EXPORTCYCLE ICFBEHIND
#           SECURECOLLECT    SECUREDELIVER  SPOOLDIR SPOOL
#           FODELAY    FOSERVER
#           REDUNIP  REDUNUSER      REDUNPASWD  REDUNDIR
#           PAST_DAYS
# -----
set -A mtcdma_evdopm \
  PL  $evdopm_tdir  ???.????.??.??  OMCR01      ???  ???  \
      $evdopm_sdir  SVR01  5  10  0  \
      1  1  $evdopm_spooldir  on  \
      300  OMCR0Z \
      ???.????.??.??  redunusername redunpasswd $evdopm_sdir  \
      0

#
# EVDO PM EMH
#
# EVDO PM EMH data source and target directories
```

```

emh_sdir=/data/PM
emh_tdir=$PROSPECT_HOME/./ftpIN/MotEVDO/R6.1/in
emh_spooldir=/sc/spool/pmStats/RAW_DO_PM

# MARKET    TGTDIR    SRCIP          SRCID          SRCUSER    SRCPSWD
#          SRCDIR          EMHNAME
#          FILEDELAY EXPORTCYCLE  ICFBEHIND SECURECOLLECT SECUREDELIVER
#          SPOOLDIR          SPOOL PAST_DAYS
# -----
set -A mtcdma_evdopmemh \
  PL $emh_tdir    ??.???.?.??    emh1          ???          ???          \
    $emh_sdir          SVR01          \
    0          10          0          1          1          \
    $emh_spooldir    on    0

#
# PM SERVER
#

# Block files directory
blockdir=/sc/spool/pmStats

# DB Loading Block File Configuration
dbloadctrl=$FLEXDAHOME/cfg/DB_loading_control.list

pmserver_sdir=/sc/spool/pmStats
pmserver_tdir=/u01/apps/WatchMark/FlexPM/Motorola/x/vendor/Motorola/MSC/ftpIN
/pmserver

# Temp remote directory
pmserver_remotedir=/var/tmp/pmserver

# MARKET    TGTDIR    SRCIP    SRCIDSRCUSER    SRCPSWD
#          PMDIR    REMOTEDIR    ICFBEHIND
#          DATATYPES    SECURECOLLECT    SECUREDELIVER
#          PAST_DAYS    BLOCKDIR    DBLOADCTRL
# -----
set -A mtcdma_pmserver \
  PL $pmserver_tdir ??.???.?.??    pms1          ???          ???          \
    $pmserver_sdir $pmserver_remotedir/pms1    0          \
    PMSERVER,AEMSC13,AEMSC2,AEMSC4    1    1 \
    0          $blockdir/pms1    $dbloadctrl

```

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Installation and Setup

```
#
# KCICFG data source and target directories
#

kcicfg_sdir=/data/spool/cm
kcicfg_tdir=/u01/apps/WatchMark/FlexPM/Motorola/x/vendor/Motorola/MSC/ftpIN/p
mserver
kcicfg_spooldir=/sc/spool/kcicfg
#MARKET      TGTDIR          SRCIP          SRCID          SRCUSER      SRCPSWD
#            SRCDIR          CFGNAME          SPOOL          SPOOLDIR
#            SECURECOLLECT SECUREDELIVER  COLLMINUTE     COLLHOUR      NDAYS
#            PAST_DAYS
#-----
--
set -A mtcdma_kcicfg
  PL      $kcicfg_tdir  ??.???.?.???  OMCRO1          ???  ???  \
          $kcicfg_sdir  "KCIConfigurationDataFile"  on
$kcicfg_spooldir
          1            1            0            4            3            \
          0

#
# PM SERVER AEMS C 10 MIN
#

# Block files directory
blockdir=/sc/spool/pmStats

# DB Loading Block File Configuration
dbloadctrl=$FLEXDAHOME/cfg/DB_loading_control.list

aemsc10min_sdir=/sc/spool/pmStats
aemsc10min_tdir=$PROSPECT_HOME/./ftpIN/MotEVDO/aemsC/in

# Temp remote directory
aemsc10min_rdir=/var/tmp/aemsc10min
# MARKET TGTDIR          SRCIP          SRCID          SRCUSER      SRCPSWD
#            SRCDIR          REMOTEDIR          ICFBEHIND
#            DATATYPES      SECURECOLLECT      SECUREDELIVER
#            PAST_DAYS      BLOCKDIR          DBLOADCTRL
# -----
set -A mtcdma_aemsc10min
  PL      $aemsc10min_tdir  ??.???.?.???  pms1          ???  ???  \
          $aemsc10min_sdir  $aemsc10min_rdir/pms1  0            \
```

```
AEMSC10MIN      1          1          \
0                $blockdir/pms1    $dbloadctrl
```

File Structure

See `mtcdma_cfg.txt` for the description of each field. The host configuration file has a top-down structure. You provide the information for each configuration level—no empty fields are allowed in the file. You also must use a backslash (\) at the end of a line except for the last line of a section.

A *system-level configuration* contains system option, local host, and destination host sections.

- The system option section provides the vendor types of data acquisition system to be installed, the setup script to be used, and the location of the configuration file. The top-level setup script (`setconfig.ksh`) uses the individual setup scripts, `set_mtcdma.ksh`, to generate the data and log directories, and the ICF, checkpoint, monitoring, and **cron** files. For more information about these files, see [Troubleshooting](#) on page 45.
- The local host section provides the data acquisition server name and determines how many dates the collected files should be kept in the system (`NDAYS`).
- The destination host section provides the host name, the IP address, and the sign-on user ID and password.

The *option-level configuration* contains a single section that defines the data types for the data acquisition system to be installed.

The *detail-level configuration* section is needed for each data type collected by the system. The section contains data type definitions for the market, source user name, source password, source ID, source IP address, and target file directories.

Field Descriptions

The following table describes the fields of the host configuration file.

Table 3: Host Configuration File Fields

<i>Variable</i>	<i>Field</i>	<i>Description</i>
sysopts	SYSOPTNAME	System option name.
	OPTMETHOD	System option setup method (script name). Must have full path. For example: \$method_dir/set_mtcdma.ksh
	OPTCFGFILE	System option setup configuration file name. Must have full path. For example: \$method_dir/<host-name>.cfg
lhost	LOCALHOSTNAME	Machine host name.
	NDAYS	Number of days the data and log files need to be kept.
thost	DESTHOSTNAME	Destination host name on the Prospect server.
	DESTHOSTIP	Destination IP address on the Prospect server.

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Table 3: Host Configuration File Fields

<i>Variable</i>	<i>Field</i>	<i>Description</i>
	DESTHOSTUSER	Destination login user name on the Prospect server.
	DESTHOSTPSWD	Destination login password on the Prospect server.
mtcdma_type	NTTYPES	Motorola Type. For example: omcr, msc
mtcdma_omcr	MARKET	Market ID with which the data source is associated. For data collection from AEMS platform, the Market ID is the OMCR's Market ID.
	TGTDIR	Target directory on the Prospect server to which the data is to be transferred.
	SRCIP	Source IP address on the network element. For data collection from AEMS platform, the Source IP address is the AEMS platform's Source IP address.
	SRCID	Source ID on the network element. For data collection from AEMS platform, the Source ID is the OMCR's Source ID.
	MMID	CBSC IDs of the OMCR, separated by comma (,).
	SRCUSER	Source login user on the network element. For data collection from AEMS platform, the login user is the AEMS platform's login user.
	SRCPSWD	Source login password on the network element. For data collection from AEMS platform, the login password is the AEMS platform's login password. Leave SRCPSWD as default (???) when SECURECOLLECT set to option 3.
	CDFDIR	CDF data directory on OMCR. For e.g., /screl/active/loadable. For data collection from AEMS platform, the CDF data directory is on AEMS platform. For e.g., /sc/spool/pmStats/PM/<omcr_name>
	PMDIR	PM data directory on OMCR. For e.g., /sc/spool/PmTrans. For data collection from AEMS platform, the PM data directory is on AEMS platform. For e.g., /sc/spool/pmStats/PM/<omcr_name>
	OMCRCFG	OMCR mapping file.
	REMOTEDIR	Directory of remote host to place created tar file.
	CDLPORT	cdl_browse client port number.
	DATATYPES	OMCR Data types that need to be collected, separated by comma (,). Example: PM,CDF,NECF,CDL

DATA ACQUISITION TOOLS GUIDE

Table 3: Host Configuration File Fields

<i>Variable</i>	<i>Field</i>	<i>Description</i>
	TMADJ	Time adjustment. If the source and DA server are in the same timezone, then set it to "0". Otherwise, DA time is 8am, source time is 7am, set TMADJ to "60". DA time is 8am, source time is 9am, set TMADJ to "-60".
	SLEEP	Sleep seconds between cdl_browse_client retries. Default is 60.
	ICFDELAYGAP	Gaps in seconds between cdl_browse_client retries separated by comma (.). Example: 600,1800,3600. The above string specifies wait for 600 seconds before first retry; wait for 1800 seconds before second retry; wait for 3600 seconds before third retry. The gaps between all the remaining retries will use 3600 seconds (the last one given). No gap if there is no numbers in between, like 600,,1800.
	SDUID	SDU IDs of the OMCR, separated by comma (.). Default is -1 (no SDU).
	SDURECORDS	All the SDU record numbers, separated by comma (.). Default is 101,102,103,104,105,106,107,108,109,110,111,112,113,114,115.
	VPUID	VPU IDs of the OMCR, separated by comma (.). Default is -1 (no VPU).
	VPURECORDS	All the VPU record numbers, separated by comma (.). Default is 140,141.
	ANID	AN IDs of the OMCR, separated by comma (.). Default is -1 (no AN).
	ANRECORDS	All the AN record numbers, separated by comma (.). Default is 150,151,153,154,155.
	SVURECORDS	All the SVU record numbers, separated by comma (.). Default is 160,161,162.
	PMCFGRECORDS	PMCFG Record Numbers.
	SECURECOLLECT	Whether to use secure SFTP/SCP/SFTP with key-based authentication for data collection from OMCR/AEMS platform. FTP is 0, SCP is 1 (default), SFTP is 2, SFTP with key-based authentication is 3.
	SECUREDELIVER	Whether to use secure SFTP/SCP/SFTP with key-based authentication for delivering data to Prospect. FTP is 0, SCP is 1 (default), SFTP is 2, SFTP with key-based authentication is 3.

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Installation and Setup

Table 3: Host Configuration File Fields

<i>Variable</i>	<i>Field</i>	<i>Description</i>
	RAWDIRECTORY	Local directory to store a copy of the raw data files from OMCR/AEMS. The base directory (/sc/spool/pmStats/PM, for example) should be created already with read and write permissions for flexda account. Use -1 if no copy of raw data files are needed.
	RAWNODAYS	Number of days to keep the raw data files in RAW-DIRECTORY.
	PAST_DAYS	Number of days to start collecting data file. Allows user to collect data starting from a time before the time setup is done. For example, the setup was done at 3 pm on 2/07 and PAST_DAYS is set to 2. So the data collection will start from 2 days ago.
	BLOCKDIR	DB loading control block directory.
	DBLOADCTRL	DB loading control block list file name.
mtcdma_sm	MARKET	Market ID with which the data source is associated.
	TGTDIR	Target directory on the Prospect server to which the data is to be transferred.
	SRCIP	Source IP address on the network element.
	MSCID	Switch ID (e.g. emx18, emx11).
	SWID	Switch ID (e.g. 20, 11).
	USERNAME	Source login user on the network element.
	PASSWORD	Source login password on the network element.
	TIMEOUT	Number of seconds to wait for TMM scripts to finish.
	DATATYPES	MSC Data types that need to be collected, separated by comma (.). Example: SMTM.
	ICFBEHIND	Minutes the remote host is behind the current time.
	ICFDELAY	Seconds to wait between intervals.
	ICFIGNBEF	Don't collect TMM data before this hour.
	ICFIGNAFT	Don't collect TMM data after this hour.
	EMX_VERSION	The version of EMX (e.g. 7.17).
	SMREPDDCFG	SM TMM report mapping file.
	SMSRIPTSDIR	Directory location of SM TMM report scripts.

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Table 3: Host Configuration File Fields

<i>Variable</i>	<i>Field</i>	<i>Description</i>
	C04DCOLLHRS	C04D TMM records special collection periods (hh00, hh30) "period1 period2 period3 period4" Default is "0530 1130 1730 2330" period1: range [0500-1030] period2: range [1100-1630] period3: range [1700-2230] period4: range [2300-2330]
	TMMRECORDS	All the TMM record numbers, seperated by <sp> or <\>. If on next line (Note: ca60 and c060 needs to be labeled as ca060) Default: ca20 ca21 ca23 ca30 ca31 ca32 ca35 ca50 ca51 ca53 ca060 \ ca40 ca45 ca47 ca48 ca49 ca4a ca4b ca4c ca80 ca90 ca91 ca96 ca97 \ caa0 caa1 caa2 c021 c085 c086 c087 c088 c096 c04b c04e c04d
mtcdma_sar	MARKET	Market ID with which the data source is associated. For data collection from AEMS platform, the Market ID is the OMCR's Market ID.
	TGTDIR	Target directory on the Prospect server to which the data is to be transferred.
	SRCIP	Source IP address on the network element. For data collection from AEMS platform, the Source IP address is the AEMS platform's Source IP address.
	SRCID	Source ID on the network element. For data collection from AEMS platform, the Source ID is the OMCR's Source ID.
	SRCUSER	Source login user on the network element. For data collection from AEMS platform, the login user is the AEMS platform's login user.
	SRCPSWD	Source login password on the network element. For data collection from AEMS platform, the login password is the AEMS platform's login password. Leave SRCPSWD as default (???) when SECURECOLLECT set to option 3.
	SRCDIR	Source data directory on OMCR. For e.g., /sc/spool/xc_sar . For data collection from AEMS platform, the source directory is on AEMS platform. For e.g., /sc/spool/pmStats/SAR/<omcr_name>

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Installation and Setup

Table 3: Host Configuration File Fields

<i>Variable</i>	<i>Field</i>	<i>Description</i>
	ICFBEHIND	Minutes the remote host is behind the current time.
	SECURECOLLECT	Whether to use secure SFTP/SCP/SFTP with key-based authentication for data collection . FTP is 0, SCP is 1 (default), SFTP is 2, SFTP with key-based authentication is 3.
	SECUREDELIVER	Whether to use secure SFTP/SCP/SFTP with key-based authentication for delivering data to. FTP is 0, SCP is 1 (default), SFTP is 2, SFTP with key-based authentication is 3.
	RAWDIRECTORY	Local directory to store a copy of the raw data files . The base directory (/sc/spool/pmStats/SAR, for example) should be created already with read and write permissions for flexda account. Use -1 if no copy of raw data files are needed.
	RAWNODAYS	Number of days to keep the raw data files in RAW-DIRECTORY.
	PAST_DAYS	Number of days to start collecting data file. Allows user to collect data starting from a time before the time setup is done. For example, the setup was done at 3 pm on 2/07 and PAST_DAYS is set to 2. So the data collection will start from 2 days ago.
mtdma_evdomp	MARKET	Market ID with which the data source is associated . For data collection from AEMS platform, the Market ID is the OMC-DO's Market ID.
	TGTDIR	Target directory on the Prospect server to which the data is to be transferred.
	SRCIP	Source IP address of the OMC-DO. For data collection from AEMS platform, the Source IP address is the AEMS platform's Source IP address.
	SRCID	OMC-DO ID. For data collection from AEMS platform, the Source ID is the OMC-DO's Source ID.
	SRCUSER	Source login user on the OMC-DO. For data collection from AEMS platform, the login user is the AEMS platform's login user.
	SRCPSWD	Source login password on the OMC-DO. For data collection from AEMS platform, the login password is the AEMS platform's login password. Leave SRCPSWD as default (???) when SECURECOLLECT set to option 3.

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Table 3: Host Configuration File Fields

<i>Variable</i>	<i>Field</i>	<i>Description</i>
	SRCDIR	Source data directory of EVDOPM files on the OMC-DO. For e.g., /omcr/evdopm . For data collection from AEMS platform, the source directory is on AEMS platform. For e.g., /sc/spool/pmStats/RAW_DO_PM
	SERVERNAME	Server name from the EVDOPM file name STS_<SERVERNAME>_yyyymmddhhmm.tgz
	FILEDELAY	Delay in minutes from the ending time of export cycle. This will come from the EVDOPM file name. For example: STS_<SERVERNAME>_200502010815.tgz contains data for period 08:00 and 08:05, the ending time would be 08:10. So, the FILEDELAY will be 5.
	EXPORTCYCLE	Data export cycle in minutes on the OMC-DO. Only 10, 20 or 30 are supported.
	ICFBEHIND	Minutes the remote host is behind the current time.
	SECURECOLLECT	Whether to use secure SFTP/SCP/SFTP with key-based authentication for data collection . FTP is 0, SCP is 1 (default), SFTP is 2, SFTP with key-based authentication is 3.
	SECUREDELIVER	Whether to use secure SFTP/SCP/SFTP with key-based authentication for delivering data to Prospect. FTP is 0, SCP is 1 (default), SFTP is 2, SFTP with key-based authentication is 3.
	SPOOLDIR	The directory where the raw data will be moved to. Default is /sc/spool/pmStats/RAW_DO_PM.
	SPOOL	To turn on/off spooling functionality, default is on.
	FODELAY	DELAY in seconds for file generation after failover. Default is 300s.
	FOSERVER	The server name after Fail-over happens. STS_<FOSERVER>_yyyymmddhhmm.tgz
	REDUNIP	The redundant server IP address. For data collection from AEMS platform, the redundant server IP address is the AEMS platform's Source IP address (duplicate of SRCIP).
	REDUNUSER	The redundant server username. For data collection from AEMS platform, the redundant server username is the AEMS platform's login user (duplicate of SRCUSER).

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Table 3: Host Configuration File Fields

<i>Variable</i>	<i>Field</i>	<i>Description</i>
	REDUNDIR	The redundant server source directory. For e.g., /omcr/evdopm. For data collection from AEMS platform, the redundant server source directory is on AEMS platform (duplicate of SRCDIR). For e.g., /sc/spool/pmStats/RAW_DO_PM
	PAST_DAYS	Number of days to start collecting data file. Allows user to collect data starting from a time before the time setup is done. For example, the setup was done at 3 pm on 2/07 and PAST_DAYS is set to 2. So the data collection will start from 2 days ago.
mtcdma_evdopm emh	MARKET	Market ID with which the data source is associated. For data collection from AEMS platform, the Market ID is the OMC-DO's Market ID.
	TGTDIR	Target directory on the Prospect server to which the data is to be transferred.
	SRCIP	Source IP address of the OMC-DO. For data collection from AEMS platform, the Source IP address is the AEMS platform's Source IP address.
	SRCID	OMC-DO ID. For data collection from AEMS platform, the Source ID is the OMC-DO's Source ID.
	SRCUSER	Source login user on the OMC-DO. For data collection from AEMS platform, the login user is the AEMS platform's login user.
	SRCPSWD	Source login password on the OMC-DO. For data collection from AEMS platform, the login password is the AEMS platform's login password. Leave SRCPSWD as default (???) when SECURECOLLECT set to option 3.
	SRCDIR	Source data directory of EVDOPM files on the OMC-DO. For e.g., /data/PM. For data collection from AEMS platform, the sourcedirectory is on AEMS platform. For e.g., /sc/spool/pmStats/RAW_DO_PM
	EMHNAME	Server name from the EVDOPM file name STS_EMH<EMH-NAME>_yyymmddhhmm_<DST>.tgz
	FILEDELAY	Delay in minutes from the ending time of export cycle. This will come from the EVDOPM file name. For example: STS_<SERVER-NAME>_200502010815.tgz contains data for period 08:00 and 08:05, the ending time would be 08:10. So, the FILEDELAY will be 5.

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Table 3: Host Configuration File Fields

<i>Variable</i>	<i>Field</i>	<i>Description</i>
	EXPORTCYCLE	Data export cycle in minutes on the OMC-DO. Only 10, 20 or 30 are supported.
	ICFBEHIND	Minutes the remote host is behind the current time.
	SECURECOLLECT	Whether to use secure SFTP/SCP/SFTP with key-based authentication for data collection . FTP is 0, SCP is 1 (default), SFTP is 2, SFTP with key-based authentication is 3.
	SECUREDELIVER	Whether to use secure SFTP/SCP/SFTP with key-based authentication for delivering data to Prospect . FTP is 0, SCP is 1 (default), SFTP is 2, SFTP with key-based authentication is 3.
	SPOOLDIR	The directory where the raw data will be moved to. Default is /sc/spool/pmStats/RAW_DO_PM
	SPOOL	To turn on/off spooling functionality, default is on.
	PAST_DAYS	Number of days to start collecting data file. Allows user to collect data starting from a time before the time setup is done. For example, the setup was done at 3 pm on 2/07 and PAST_DAYS is set to 2. So the data collection will start from 2 days ago.
mtcdma_pmserv er	MARKET	Market ID with which the data source is associated.
	TGTDIR	Target directory on the Prospect server to which the data is to be transferred.
	SRCIP	Source IP address of the PM Server.
	SRCID	PM Server name.
	SRCUSER	Source login user on the PM Server.
	SRCPSWD	Source login password on the PM Server. Leave SRCPSWD as default (???) when SECURECOLLECT set to option 3.
	PMDIR	Source data directory of PM Server files on the PM Server.
	REMOTEDIR	Temporary directory on PM Server to place created tar file.
	ICFBEHIND	Minutes the remote host is behind the current time.
	DATATYPES	PM Server Data types that need to be collected, separated by comma (.). Example: PM,AEMSC13,AEMSC2,AEMSC4

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Table 3: Host Configuration File Fields

<i>Variable</i>	<i>Field</i>	<i>Description</i>
	SECURECOLLECT	Whether to use secure SFTP/SCP/SFTP with key-based authentication for data collection . FTP is 0, SCP is 1 (default), SFTP is 2, SFTP with key-based authentication is 3.
	SECUREDELIVER	Whether to use secure SFTP/SCP/SFTP with key-based authentication for delivering data to Prospect . FTP is 0, SCP is 1 (default), SFTP is 2, SFTP with key-based authentication is 3.
	PAST_DAYS	Number of days to start collecting data file. Allows user to collect data starting from a time before the time setup is done. For example, the setup was done at 3 pm on 2/07 and PAST_DAYS is set to 2. So the data collection will start from 2 days ago.
	BLOCKDIR	DB loading control block directory.
	DBLOADCTRL	DB loading control block list file name
mtcdma_anpm10 min	MARKET	Market ID with which the data source is associated. For data collection from AEMS platform, the Market ID is the OMCR's Market ID.
	TGTDIR	Target directory on the Prospect server to which the data is to be transferred.
	SRCIP	Source IP address on the network element. For data collection from AEMS platform, the Source IP address is the AEMS platform's Source IP address.
	SRCID	Source ID on the network element. For data collection from AEMS platform, the Source ID is the OMCR's Source ID.
	SRCUSER	Source login user on the network element. For data collection from AEMS platform, the login user is the AEMS platform's login user.
	SRCPSWD	Source login password on the network element. For data collection from AEMS platform, the login password is the AEMS platform's login password. Leave SRCPSWD as default (???) when SECURECOLLECT set to option 3.
	OMCRCFG	OMCR mapping file.
	SRCDIR	Local directory for the collected data. For e.g., /sc/spool/PmTrans. For data collection from AEMS platform, the source directory is on AEMS platform. For e.g., /sc/spool/pmStats/PM/<omcr_name>
	SERVERNAME	OMC Server host name.

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Table 3: Host Configuration File Fields

<i>Variable</i>	<i>Field</i>	<i>Description</i>
	SECURECOLLECT	Whether to use secure SFTP/SCP/SFTP with key-based authentication for data collection from OMCR/AEMS. FTP is 0, SCP is 1 (default), SFTP is 2, SFTP with key-based authentication is 3.
	SECUREDELIVER	Whether to use secure SFTP/SCP/SFTP with key-based authentication for delivering data to Prospect. FTP is 0, SCP is 1 (default), SFTP is 2, SFTP with key-based authentication is 3.
	RAWDIRECTORY	Local directory to store a copy of the raw data files from OMCR. The base directory (/sc/spool/pmStats/PM, for example) should be created already with read and write permissions for flexda account. Use -1 if no copy of raw data files are needed.
	RAWNDAYS	Number of days to keep the raw data files in RAW-DIRECTORY.
	ANID	AN IDs of the OMCR, separated by comma (.). Default is -1 (no AN).
	ANRECORDS	All the AN record numbers, separated by comma (.). Default is 156,157,158.
	PAST_DAYS	Number of days to start collecting data file. Allows user to collect data starting from a time before the time setup is done. For example, the setup was done at 3 pm on 2/07 and PAST_DAYS is set to 2. So the data collection will start from 2 days ago.
	BLOCKDIR	DB loading control block directory.
	DBLOADCTRL	DB loading control block list file name.
mtcdma_evdoco nfigmap	MARKET	Market ID with which the data source is associated. For data collection from AEMS platform, the Market ID is the OMC-DO's Market ID.
	TGTDIR	Target directory on the Prospect server to which the data is to be transferred.
	SRCIP	Source IP address of the OMC-DO. For data collection from AEMS platform, the Source IP address is the AEMS platform's Source IP address.
	SRCID	OMC-DO ID. For data collection from AEMS platform, the Source ID is the OMC-DO's Source ID.
	SRCUSER	Source login user on the OMC-DO. For data collection from AEMS platform, the login user is the AEMS platform's login user.

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Table 3: Host Configuration File Fields

<i>Variable</i>	<i>Field</i>	<i>Description</i>
	SRCPSWD	Source login password on the OMC-DO. For data collection from AEMS platform, the login password is the AEMS platform's login password. Leave SRCPSWD as default (???) when SECURECOLLECT set to option 3.
	SRCDIR	Source data directory of EVDOCONFIGMAP files on the OMC-DO. For e.g., /omcr/evdoconfig. For data collection from AEMS platform, the source directory is on AEMS platform. For e.g., /sc/spool/pmStats/RAW_DO_CONFIGMAP
	SERVERNAME	Server name of the EVDOCONFIGMAP file name that will be delivered to prospect <SERVER-NAME>.BSCDO<NNNNN>.<YYYYM-MDD>.cfgmap[.gz]
	ICFBEHIND	Minutes the remote host is behind the current time.
	SECURECOLLECT	Whether to use secure SFTP/SCP/SFTP with key-based authentication for data collection . FTP is 0, SCP is 1 (default), SFTP is 2, SFTP with key-based authentication is 3.
	SECUREDELIVER	Whether to use secure SFTP/SCP/SFTP with key-based authentication for delivering data to Prospect . FTP is 0, SCP is 1 (default), SFTP is 2, SFTP with key-based authentication is 3.
	SPOOLDIR	The directory in which spool files is stored.
	SPOOL	To turn on/off spooling functionality, default is on.
	INNERFILEDIR_F	Flag to collect config map from \$SRCDIR/<date>/, where <date> is in format "yyyymmdd". Set '1' if DA needs to collect config map from \$SRCDIR/<date>/ directory. Set '0' if DA needs to collect config map from \$SRCDIR/ directory. Default value is '0'. (Parameter is configurable)
mtcdma_aemsc10min	MARKET	Market ID with which the data source is associated.
	TGTDIR	Target directory on the Prospect server to which the data is to be transferred.
	SRCIP	Source IP address on the network element.
	SRCID	Source ID on the network element.
	SRCUSER	Source login user on the network element.
	SRCDIR	PM data directory on AEMS.
	REMOTEDIR	OMCR mapping file.
	ICFBEHIND	Minutes the remote host is behind the current time.

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Table 3: Host Configuration File Fields

<i>Variable</i>	<i>Field</i>	<i>Description</i>
	DATATYPES	PM Server Data types that need to be collected (AEMSC10MIN).
	SECURECOLLECT	Whether to use secure SFTP/SCP/SFTP with key-based authentication for data collection from AEMS. FTP is 0, SCP is 1 (default), SFTP is 2, SFTP with key-based authentication is 3.
	SECUREDELIVER	Whether to use secure SFTP/SCP/SFTP with key-based authentication for delivering data to Prospect. FTP is 0, SCP is 1 (default), SFTP is 2, SFTP with key-based authentication is 3.
	PAST_DAYS	Number of days to start collecting data file. Allows user to collect data starting from a time before the time setup is done. For example, the setup was done at 3 pm on 2/07 and PAST_DAYS is set to 2. So the data collection will start from 2 days ago.
	BLOCKDIR	DB loading control block directory.
	DBLOADCTRL	DB loading control block list file name.
mtcdma_kcicfg	MARKET	Market ID with which the data source is associated.
	TGTDIR	Target directory on the Prospect server to which the data is to be transferred.
	SRCIP	Source IP address on the network element.
	SRCID	Source ID on the network element.
	SRCUSER	Source login user on the network element.
	SRCDIR	PM data directory on AEMS platform.
	CFGNAME	Configuration Data filename. Default "KCIConfigurationDataFile".
	SPOOL	To turn on/off spooling functionality, default is on.
	SPOOLDIR	The directory where the raw data will be moved to.
	LOCALDIR	Destination directory for data.
	SECURECOLLECT	Whether to use secure SFTP/SCP/SFTP with key-based authentication for data collection from AEMS platform. FTP is 0, SCP is 1 (default), SFTP is 2, SFTP with key-based authentication is 3.
	SECUREDELIVER	Whether to use secure SFTP/SCPSFTP with key-based authentication for delivering data to Prospect. FTP is 0, SCP is 1 (default), SFTP is 2, SFTP with key-based authentication is 3.
	COLLMINUTE	Time (in minutes) to collect the data from the remote host.

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Table 3: Host Configuration File Fields

<i>Variable</i>	<i>Field</i>	<i>Description</i>
	COLLHOUR	Time (in hours) to collect the data from the remote host.
	NDAYS	Number of days to keep files in FlexDA server.
	PAST_DAYS	Number of days to start collecting data file. Allows user to collect data starting from a time before the time setup is done. For example, the setup was done at 3 pm on 2/07 and PAST_DAYS is set to 2. So the data collection will start from 2 days ago.

Adding Collection Sources After Installation

This section provides an example of how to add a new collection source after installation.

The following table shows example values for a new Atlanta collection source:

<i>Field</i>	<i>Value</i>
MARKET	ATL
TGTDIR	\$aemsc10min_tdir
SRCIP	<???.???.?.???.>
SRCID	pms1
SRCUSER	<???.>
SRCPSWD	<???.>
SRCDIR	\$aemsc10min_sdir
REMOTEDIR	\$aemsc10min_rdir/pms1
ICFBEHIND	0
DATATYPES	AEMSC10MIN
SECURECOLLECT	1
SECUREDELIVER	1
PAST_DAYS	0
BLOCKDIR	\$blockdir/pms1
DBLOADCTRL	\$dbloadctrl

To add a new collection source, locate the detail variables in the host configuration file. Add the variables for the new source at the end. Make sure to add a continuation mark (\) at the end of

the previous line if necessary. The following sample shows the section of the host configuration file with the Atlanta information added.

```

set -A mtcdma_aemsc10min                                     \
    PL      $aemsc10min_tdir  ??.???.?.???  pms1      ???      ???      \
           $aemsc10min_sdir  $aemsc10min_rdir/pms1  0      \
    AEMSC10MIN      1      1      \
    0                $blockdir/pms1      $dbloadctrl
    
```

Monitor Process

The purpose of the monitor process is to start/stop and monitor processes that must run continuously (for example, the collection of SNMP data requires an SNMP parser to run constantly).

The setup of Data Acquisition tools creates the monitor file (*<vendor><technology>.mon*) in the `$FLEXDAHOME/cfg` directory.

To start the monitor process, run the following command after setup is complete:

```

$ flexda stop mtcdma.mon
$ flexda start mtcdma.mon
    
```

If you do not know if the monitor process is already running, do not start the process without stopping it first.

In an environment with multiple Data Acquisition tools, you might find multiple monitor files in the `$FLEXDAHOME/cfg` directory. To stop and start all monitor processes, run the following commands:

```

$ flexda stop all
$ flexda start all
    
```

Directory Structure

The following table describes the directory structure for Data Acquisition tools files.

Table 4: Directory Structure

<i>Directory</i>	<i>Description</i>
<code>\$FLEXDAHOME</code>	Home directory for the flexda account
<code>\$FLEXDAHOME/COMMON/bin</code> <code>\$FLEXDAHOME/COMMON/scripts</code>	Contains common installation programs
<code>\$FLEXDAHOME/<vendor>/scripts</code> <code>\$FLEXDAHOME/<vendor>/cfg</code>	Contains Data Acquisition tools collection programs

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Table 4: Directory Structure (Continued)

Directory	Description
\$FLEXDAHOME/INSTALL/ALL/scripts	Contains installation scripts. For example: <code>install_flexda.ksh</code> and <code>setconfig.ksh</code>
\$FLEXDAHOME/INSTALL/ALL/cfg	Contains default configuration file. For example: <code>FlexDA.default.cfg</code>
\$FLEXDAHOME/INSTALL/ALL/doc	Contains sample documents. For example, <code><hostname>.<vendor_abbrev><technology>.cfg.sample</code>
\$FLEXDAHOME/INSTALL/localhost/cfg	Contains the local host configuration files. For example: <code>FlexDA.<hostname>.cfg</code> and <code><hostname>.<vendor_abbrev><technology>.cfg</code>
\$FLEXDAHOME/flexpkg	Contains scripting tools as required, such as TCL
\$FLEXDAHOME/cfg	Contains the ICF file, where applicable. The format is as follows (note that all variable values are lower case): <code><market_name>.<network_element_name>.<datatype>.<direction>.icf</code>
\$FLEXDAHOME/data	Contains the data files
\$FLEXDAHOME/log	Contains the checkpointlog files. The format is as follows (note that all variable values are lower case): <code><market_name>.<network_element_name>.<datatype>.<direction>.chk</code>
\$FLEXDAHOME/bin	Contains program binaries
\$FLEXDAHOME/scripts	Contains Expect scripts or link files to the scripts in the <code>\$FLEXDAHOME/COMMON/scripts</code> and/or <code>\$FLEXDAHOME/<vendor>/scripts</code> folders
\$FLEXDAHOME/local	Contains user-defined files

3 Troubleshooting

Data Acquisition tools produce detailed log files that you can use to monitor the data-acquisition process. The log files must be checked for the cause of a problem, which then needs to be resolved. If an error occurs, you are notified within the **cron** job cycle time that is set as long as your e-mail address is listed in `$FLEXDAHOME/.email/email.list`.

[Error Messages](#) on page 49 lists error messages, describes them, and tells you which corrective actions to take.

Topics

[Using E-mail for Error Notification](#)

[Using Paging for Error Notification](#)

[Recovering Data](#)

[Testing a Secure Connection](#)

Using E-mail for Error Notification

The script `check_error.pl` is run every 30 minutes and checks all log files for errors. If an error is found, the script sends notification e-mail to pertinent addresses in the mail list, `$FLEXDAHOME/.email/email.list`. You add e-mail addresses to `$FLEXDAHOME/.email/email.list`, one address on each line.

Using Paging for Error Notification

The paging function is designed to quickly notify you of any errors that occur in the data acquisition server. The function uses a paging script, `page_error.pl`, which runs every 30 minutes and checks all log files for Fatal and/or Error messages. The paging function sends a short message to pager numbers listed in the `$FLEXDAHOME/.email/pager.list` file. This file contains entries similar to the following:

```
1234567@alphapage.acme.com
```

To be immediately notified of a fatal error, you can add `FATAL` to the end of the entry as follows:

```
1234567@alphapage.acme.com<Tab>FATAL
```

Recovering Data

You might need to retrieve data from previous intervals, troubleshoot failed data transmissions, or check on the status of retrieved data. Data Acquisition tools use checkpoint files to log the status of data transferred to the data acquisition server.

The Interval Checkpoint Facility (ICF)

Data Acquisition tools use the Interval Checkpoint Facility (ICF) process to manage data files that are created at predetermined time intervals. Checkpoint files are maintained to track files that have been processed. An ICF package provides commands to create, access, and update a checkpoint file. Using ICF commands, scripts can be written to perform, retry and log the status of an action that is repeated at regular intervals. This capability enables ICF to perform activities such as producing reports and retrieving data files at regular intervals.

Checkpoint File Format

Checkpoint files contain the default retry and entries information for the network elements or data collection points. You can modify the checkpoint files as needed. The checkpoint files are located in `$FLEXDAHOME/log` and are in the following format:

```
PERIOD=3600
ENTRIES=96
RETRIES=9
010906120000 3b97c7b0 s 010906140024 0000
```

The first three lines determine the period length in seconds, the number of entries in the checkpoint file, and the number of times a failed transfer is retried. The fourth line and all subsequent lines contain information about a specific data transfer attempt. The format of the fourth line is shown in the following table.

Table 5: Format of the Data Transfer Attempt for the Fourth and Subsequent Lines

<i>Field</i>	<i>Description</i>
010906120000	Data time interval
3b97c7b0	Numerical representation of date and time.
s	Status of file transfer
010906140024	Time when script was run
0000	Number of transfer attempts

The file transfer status can be one of the following shown in the following table.

Table 6: File Transfer Status Descriptions

<i>Status</i>	<i>Description</i>
n	New file

Table 6: File Transfer Status Descriptions

Status	Description
s	Successful file transmission
r	Failed file transfer will be retried
x	Failed file transfer and retries have exceeded the maximum limit
a	Start over

You can retrieve a file for a previous interval by changing the status field to **a**. You can also change the number of entries each checkpoint file contains by changing the `ENTRIES` value in the second line. Once the checkpoint file contains the maximum number of entries, new entries replace the oldest ones.

Note: Make sure that source data exists for each data type collected by the data acquisition process. If source data consistently arrives late, you should adjust the value of the `TMADJ` field in the host configuration file accordingly. For example, if data regularly arrives 30 minutes late, and the value of `TMADJ` is 15, then add 30 to this value so that `TMADJ` becomes 45.

The Data Retrieval Process

The steps involved in the data retrieval process are as follows:

1. The time information is compared between the network element and the entries in the checkpoint file. If there is any new time interval data that can be retrieved, a new entry is created in the checkpoint file and is given a status of **n**. If the total entries in the checkpoint file exceed the number of entries defined in the `ENTRIES` parameter, the oldest entry in the file is deleted.
2. Starting at the top of the checkpoint file, each entry is read to see if it needs to be processed (that is, if it has **n** or **r** status). If such an entry is found, the data retrieval process begins.
3. If the data retrieval process completes successfully, the status is updated to **s**; Otherwise, the status is set to **r** and the retry count increments by 1. If the retry count reaches its maximum (defined by the `RETRIES` parameter), the status changes to **x**.
4. The process of looking for entries appropriate for data retrieval continues until all the entries in the checkpoint file are read.

Testing a Secure Connection

This section describes how you can manually test the SSH connection between the Data Acquisition tools and a data collection point.

To run the `scp` command manually:

```
$ scp -S $FLEXDAHOME/flexpkg/bin/ssh <SOURCEDIR/file> \  
<user_id>@<server_name/IP>:<DESTDIR>
```

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Troubleshooting

The remote host will prompt for password.

To run the sftp command manually:

```
$ sftp -S $FLEXDAHOME/flexpkg/bin/ssh <user_id>@<server_name/IP>
```

The remote host will prompt for password.

To run the sftp command with key-based authentication manually:

```
$ sftp -S $FLEXDAHOME/flexpkg/bin/ssh <user_id>@<server_name/IP>
```

The remote host will NOT prompt for password. The connection will establish automatically.

To run the ssh command with key-based authentication manually:

```
$ ssh <user_id>@<server_name/IP>
```

The remote host will NOT prompt for password. The connection will establish automatically, where <user_id> is the login username and <server_name/IP> is the server name or IP address for the data collection point.

Appendix A: Error Messages

This section lists error messages, describes them, and tells you which actions to take to correct them.

Table 7: Error Messages

Application	Error	Cause	Action
pm.exp	Connection to \$REMOTEHOST failed	Cannot establish connection to the \$REMOTEHOST	Check REMOTEHOST in .icf file. If SECURECOLLECT/ SECUREDELIVER set to 3, please check the key-based authentication is configured for the \$REMOTEHOST.
	No response to telnet login for \$USERNAME	telnet session timed out after sending \$USERNAME	Check USERNAME in .icf file
	No response to password for \$USERNAME	telnet session timed out after sending \$PASSWORD	Check PASSWORD in .icf file
	Time out waiting for remote date	telnet session timed out after sending date command	Make sure date command is valid on the OMCR
	End-of-File on connection to OMCR	telnet session to OMCR terminated	Manually run telnet to OMCR to find out the problem
	Remote date not received	Cannot get the time on OMCR	Login to OMCR and run date +begin%y%m%d07/25/04M%Send command
	Invalid remote directory: \$REMOTEPMDIR	Cannot cd to the \$REMOTEPMDIR directory on OMCR	Check the .icf file to make sure REMOTEPMDIR is specified correctly.

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Table 7: Error Messages (Continued)

Application	Error	Cause	Action
	(tar -cfh \$REMOTEDIR/\$pmfile \$files; compress \$REMOTEDIR/\$pmfile) timed out	The tar and compress command timed out (15 minutes)	Check the pmC* files on the OMCR; make sure compress command exists on the OMCR
	No pmC files on OMCR for \$prefix\$interval	No PM files exist on the OMCR for this period	Make sure \$interval is valid; Check OMCR to see if pmC*.\$prefix\$interval files exist; If the files come in later, modify crontab to get PM files several minutes later.
	An error occurred retrieving files from \$REMOTEHOST	Failed to ftp \$prefix\$interval.PM.tar.Z from OMCR	Make sure the .Z file can be ftped in 15 minutes
	Could not unpack new PM files in \$SRCDIR: \$result	gtar -xzpf \$prefix\$interval.PM.tar.Z command failed	Make sure gtar command can be executed; Make sure there is enough disk space
	An error occurred while copying files for SDU \$sduid	Cannot find pmC files for \$sduid	Check SDUID in .icf file to make sure the SDURECORDS are present on the OMCR
	An error occurred while removing SDU files for \$sduid	Cannot remove pmC*.\$sduid.\$TIME-STAMP files from src directory	Make sure files can be removed from src directory
	An error occurred while compressing SDU files for \$sduid	gzip -9 -f \$omcr-name.\$sduid.\$TIME-STAMP.SDUpm command failed	Make sure gzip command is in the PATH
	Could not move SDU files to \$DESTDIR: \$result	Cannot move .gz file from src to dest directory	Check disk space
	An error occurred while copying files for VPU \$vpuid	Cannot find pmC files for \$vpuid	Check VPUID in .icf file to make sure the VPURECORDS are present on the OMCR
	An error occurred while removing VPU files for \$vpuid	Cannot remove pmC*.\$vpuid.\$TIME-STAMP files from src directory	Make sure files can be removed from src directory

Table 7: Error Messages (Continued)

Application	Error	Cause	Action
	An error occurred while compressing VPU files for \$vpuid	gzip -9 -f \$omcr-name.\$vpuid.\$TIME-STAMP.VPUpm command failed	Make sure gzip command is in the PATH
	Could not move VPU files to \$DESTDIR: \$result	Cannot move .gz file from src to dest directory	Check disk space
	An error occurred while copying files for AN \$anid	Cannot find pmC files for \$anid	Check ANID in .icf file to make sure the ANRECORDS are present on the OMCR
	An error occurred while removing AN files for \$anid	Cannot remove pmC*.\$anid.\$TIME-STAMP files from src directory	Make sure files can be removed from src directory
	An error occurred while compressing AN files for \$anid	gzip -9 -f \$omcr-name.\$anid.\$TIME-STAMP.ANpm command failed	Make sure gzip command is in the PATH
	Could not move AN files to \$DESTDIR: \$result	Cannot move .gz file from src to dest directory	Check disk space
	An error occurred while copying files for BSC \$extbsc	Cannot find pmC files for \$extbsc	Check MMID in .icf file to make sure they are present on the OMCR
	An error occurred while removing files	Cannot remove pmC*\$extbsc.\$TIME-STAMP files from src directory	Make sure files can be removed from src directory
	An error occurred while compressing files	gzip -9 -f \$msc-name.\$extbsc.\$TIME-STAMP.PM command failed	Make sure gzip command is in the PATH
	An error occurred transferring files to \$FLEXP-MHOST	Cannot ftp the .gz file to \$FLEXP-MHOST	Make sure \$FLEXP-MHOST is alive and there is enough disk space
	Could not move PM files to \$DESTDIR: \$result	Cannot move .gz file from src to dest directory	Check disk space
	An error occurred removing files from \$DESTDIR: \$output	Cannot remove old files from dest directory	Make sure files can be removed from dest directory

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Table 7: Error Messages (Continued)

Application	Error	Cause	Action
	Could not cp raw data files to \$RAWDIRECTORY: \$result	cp pmC*.\$TIME-STAMP \$RAWDIRECTORY command failed	Check RAWDIRECTORY to make sure flexda account has write permission
	An error occurred in splitting pmC171 files \$output	Error from invoking split_pmC171.pl	Check whether the split_pmC171.pl exist in the \$ICFSCRIPT directory
	An error occurred while removing pmC171 files	Could not delete pmC171 data file	Make sure that the pmC171 file exist
	Permission denied to create remote directory: \$REMOTEDIR	Don't have permission to create remote directory	Make sure you have permission to create directory
	Invalid value for SECUREDELIVER/ SECURECOLLECT (\$SECUREDELIVER/ \$SECURECOLLECT).	Incorrect value for SECUREDELIVER/ SECURECOLLECT	Make sure the value is only 0, 1, 2, or 3
cdf.exp	Connection to \$REMOTEHOST failed	Cannot establish connection to the \$REMOTEHOST	Check REMOTEHOST in .icf file. If SECURECOLLECT/ SECUREDELIVER set to 3, please check the key-based authentication is configured for the \$REMOTEHOST.
	No response to telnet login for \$USERNAME	telnet session timed out after sending \$USERNAME	Check USERNAME in .icf file
	No response to password for \$USERNAME	telnet session timed out after sending \$PASSWORD	Check PASSWORD in .icf file
	Time out waiting for remote date	telnet session timed out after sending date command	Make sure date command is valid on the OMCR
	Invalid remote directory: \$REMOTECDFDIR	Cannot cd to the \$REMOTECDFDIR directory on OMCR	Check the .icf file to make sure REMOTECDFDIR is specified correctly.
	Could not access \$LOCALDIR: \$result	Cannot cd to \$LOCALDIR	Check \$LOCALDIR in .icf file

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Table 7: Error Messages (Continued)

Application	Error	Cause	Action
	Could not retrieve new CDF files from \$REMOTEHOST: \$result	Cannot ftp yym-mdd.CDF.tar.Z file from OMCR	Manually run ftp command to make sure the file can be ftped in 25 minutes
	Could not write to \$LOCALDIR: \$result	mkdir old new command failed	Make sure new directories can be created in src directory
	Could not save old CDF files in \$LOCALDIR: \$result	Cannot move old files into old directory	Make sure file can be moved
	Could not unpack new CDF files in \$LOCALDIR/new: \$result	gtar -xzipf yym-mdd.CDF.tar.Z command failed	Make sure the gtar command is in PATH
	No CDF files found on \$REMOTEHOST	No new cdf files from OMCR	Login to OMCR to check cdf files
	ERROR: An error occurred in merging the CDF files, \$output	mergeCDF.pl command failed	Manually run mergeCDF.pl command from src directory
	ERROR: An error occurred while compressing files, \$output	gzip -9 -f *.CDF command failed	Make sure gzip command is in PATH
	ERROR: An error occurred in transferring files to \$FLEXPMHOST, \$output	Cannot ftp the .gz file to \$FLEXPMHOST	Make sure \$FLEXPMHOST is alive and there is enough disk space
	ERROR: an error occurred in moving the files to \$DESTDIR, \$output	Cannot move .gz file from src to dest directory	Manually move the .gz file from src to dest directory
	An error occurred removing files from \$DESTDIR: \$output	Cannot remove old files from dest directory	Make sure files can be removed from dest directory
	Invalid value for SECUREDELIVER/ SECURECOLLECT (\$SECUREDELIVER/ \$SECURECOLLECT).	Incorrect value for SECUREDELIVER/ SECURECOLLECT	Make sure the value is only 0, 1, 2, or 3
mergeCDF.pl	ERROR: OMCRHOST \$OMCRHOST is not defined in mapping file!	Invalid OMCR_mapping.cfg	Make sure OMCR_mapping.cfg is valid, with all the required fields.

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Table 7: Error Messages (Continued)

Application	Error	Cause	Action
	No MSC name found in \$MAPPINGFILE for internal BSC \$INT_BSC in OMCR \$OMCR-NAME!	No entry for BSC \$INT_BSC in \$OMCR-NAME in OMCR_mapping.cfg	Make sure OMCR_mapping.cfg has an entry for each BSC.
tmm.exp	Unable to quit telnet session	Cannot quit telnet session to switch	Ignore
	Invalid host \$REMOTEHOST	Cannot telnet to \$REMOTEHOST	Make sure REMOTEHOST and PORT are right in .icf file
	Connection refused	Connect to switch refused	Make sure there are no other connections to the switch running
	Switch not responding	Switch is not responding when trying to set up connection	Manually run telnet session to switch
	User already logged into \$mscid	Another use already logged into the switch	Make sure there is no other process running
	DIS DAC DATA command timed out	The command timed out	Increase TIMEOUT in .icf file
motcfgdist.exp	Invalid host \$hostname	Cannot telnet to REMOTEHOST PORT	Check .icf file for REMOTEHOST and PORT
	Switch not responding	Switch is not responding to telnet commands	Manually run telnet \$REMOTEHOST \$PORT to find the problem
	User already logged into \$mxname	Another user already logged on	There can be only one user logged onto \$REMOTEHOST \$PORT
	Error while collecting \$d_name data	DISPLAY \$d_name command timedout	Increase TIMEOUT in .icf file
	An error occurred while compressing files	gzip command failed	Make sure gzip command is in PATH
	Error occurred while distributing file to \$FLEXP-MHOST: \$out1	ftp/scp files to Prospect server failed	Check \$FLEXP-MHOST in .icf file
	Error occurred in moving the files to \$DESTDIR, \$output	Cannot move files to \$DESTDIR	Check \$DESTDIR in .icf file

Table 7: Error Messages (Continued)

Application	Error	Cause	Action
	Error occurred while purging files in \$LOCALDIR: \$out1	Cannot remove files from \$LOCALDIR	Make sure file can be removed from \$LOCALDIR
mp_emis_reader	Error writing output file - %d	Cannot write to the output file	Check ServerStoreFile in .cfg file
	EMiS_Initialize failed:	Cannot initialize EMIS	Make sure EMiS is sending data to this server at LocalPort
	Error accessing EMiS config file: %d	Cannot read .cfg file	Make sure config_file given in command line is correct
	Invalid command-line option	Invalid command line option	Use mp_emis_reader -h to get help
smtm.exp	Connection to \$REMOTEHOST failed	Cannot establish connection to the \$REMOTEHOST	Check REMOTEHOST in .icf file
	No response to Rsh login for \$USERNAME	rsh session timed out after sending \$USERNAME	Check USERNAME in .icf file
	No response to Rsh password for \$USERNAME	rsh session timed out after sending \$PASSWORD	Check PASSWORD in .icf file
	Invalid SMREPDDCFG file	Config file missing or not readable	Check SMREPDDMAP in .icf file
	Switch ID mismatch between SWID and report output SMINFO(swid)	The SWID in .icf is different from what is being collected in the reports	Check SWID in .icf file
	"TMM report script" command timed out	The command timed out	Increase TIMEOUT in .icf file
	"TMM report script" command not found	The command could not be found	Check SMSCRIPTSDIR in .icf file and verify script exists in that location
	Invalid ...:<error msg> or Could not determine ...:<error msg>	Error while parsing reports which may be incomplete during capture	Allow retries to re-generate reports and parse. If you continue to see the error(s), check the report file in \$SRCDIR for that interval for completeness.

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Table 7: Error Messages (Continued)

Application	Error	Cause	Action
	Could not open TMMF-MTFILE: <error msg>	Could not open file for writing	Check permissions on directory LOCALDIR
	Could not open TMMC04DFMTFILE: <error msg>	Could not open file for writing	Check permissions on directory LOCALDIR
	rec(\$rec): ERROR: <errormsg>	Possible parsing error or report output error	If ERROR: No records found for specified Report, this is valid. For all others, allow retries to re-generate reports and parse. If you continue to see the error(s), check the report file in \$SRCDIR for that interval for completeness.
	Record mis-alignment(\$ca_rec): <keys>	Possible parsing error or report output	Allow retries to re-generate reports and parse. If you continue to see the error(s), check the report file in \$SRCDIR for that interval for completeness.
	No write_tmmfile_\$carec procedure defined	A report was generated for a record for which there is no procedure to process it	Contact IBM.
	No records found in reports for this interval	There was no data found in the report outputs.	Verify report file in \$SRCDIR for that interval to see if there is any data. Allow retries in next interval to re-generate reports and parse. If you continue to see the errors, data may not be in SwitchMate DB. Contact your administrator.
	Error occurred while compressing TMM files	gzip -9 -f \$files command failed	Make sure gzip command is in the PATH
	An error occurred distributing files to Prospect \$REMOTEHOST	Failed to ftp .gz files	Make sure the .icf parameters for the FLEXP are correct
	Could not move TMM files to \$DESTDIR: \$result	Cannot move .gz file from fnt to dest directory	Check disk space

Table 7: Error Messages (Continued)

Application	Error	Cause	Action
	Could not remove old files from \$SRCDIR: \$result	Cannot remove old files from src directory	Make sure files can be removed from src directory
	Could not remove old files from \$LOCALDIR: \$result	Cannot remove old files from fnt directory	Make sure files can be removed from fnt directory
	Could not remove old files from \$DESTDIR: \$result	Cannot remove old files from dest directory	Make sure files can be removed from dest directory
motsardist.exp	Error occurred while retrieving file from \$REMOTEHOST	batchftp.exp/batchscp.exp failed when retrieving files from remote host	Log on to remote host, verify source files exist in source directory in .icf file
	Error occurred while compressing file	Unable to compress data file	Check if gzip is installed
	Error occurred in transferring file to \$FLEXP-MHOST	batchftp.exp/batchscp.exp failed when transferring files to \$FLEXP-MHOST	Check FLEXP-MHOST, FLEXP-MUSER, FLEXP-MPWD in .icf file. Use ping to check if connection is available.
	Error occurred while purging files in \$DIR	Purging files failed on local mediation server	Contact IBM Technical Support for help
	Could not cp raw data files to \$RAWDIRECTORY: \$result	cp sar* \$RAWDIRECTORY command failed	Check \$RAWDIRECTORY to make sure flexda account has write permission
	Invalid value for SECUREDELIVER/ SECURECOLLECT (\$SECUREDELIVER/ \$SECURECOLLECT)	Incorrect value for SECUREDELIVER/ SECURECOLLECT	Make sure the value is only 0, 1, 2, or 3
motevdopm-dist.exp	Source file \$sf1 or \$sf2 not present	Cannot find one of the two files from the source directory	Check the .icf file to make sure SERVER-NAME is specified correctly. The file name should be STS_\$SERVERNAME_<timestamp>_[S D].tgz
	Error occurred while retrieving file from \$REMOTEHOST	batchftp.exp/batchscp.exp failed when retrieving files from remote host	Log on to remote host, verify source files exist in source directory in .icf file

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Table 7: Error Messages (Continued)

Application	Error	Cause	Action
	Error occurred while unpacking PM tgz file	Unable to uncompress data file	Check if gzip is installed
	Source tar file \$sfile contains invalid data directory.	The source tgz file does not contain CSV directory	Make sure the .tgz file contains CSV/yyyymmddhhmi directories.
	Not enough directory under CSV	The source tgz file does not contain enough directories under CSV	Make sure the .tgz file has EXPORTCYCLE/5 directories under CSV. <ul style="list-style-type: none"> • For 10 minutes export cycle, there should be 2 directories. • For 20 minutes export cycle, there should be 4 directories. • For 30 minutes export cycle, there should be 6 directories.
	Data export cycle not starting on the hour	The source tgz file does not start on the hour	Make sure the data export on the OMC-DO starts on the hour. <ul style="list-style-type: none"> • For 10 minutes export cycle, it should start at 0, 10, 20, 30, 40, 50 minutes of the hour • For 20 minutes export cycle, it should start at 0, 20, 40 minutes of the hour • For 30 minutes export cycle, it should start at 0, 30 minutes of the hour
	No BSC-DO file in this interval	No STS_BS_<bsc-doid>_yyyymmddhhmm.csv file under CSV/yyyymmddhhmm	Make sure data export on OMC-DO is setup correctly
	Error occurred while packing output PM tgz file	Unable to compress data files	Check if gtar is installed
	Error occurred delivering files to \$FLEXPM-HOST: \$output	batchftp.exp/batchscp.exp failed when transferring files to \$FLEXPMHOST	Check FLEXPMHOST, FLEXPMUSER, FLEXPWD in .icf file. Use ping to check if connection is available.

Table 7: Error Messages (Continued)

Application	Error	Cause	Action
	Error occurred while purging files in \$DIR	Purging files failed on local mediation server	Please ignore if the purging is the spool directory only if these two conditions are true:- 1) SPOOL parameter is set to 'off' 2) the server directory inside the spool directory does not exist Otherwise, please contact IBM Technical Support for help.
	Invalid value for SECUREDELIVER/ SECURECOLLECT (\$SECUREDELIVER/ \$SECURECOLLECT)	Incorrect value for SECUREDELIVER/ SECURECOLLECT	Make sure the value is only 0, 1, 2, or 3
motpmserved-ist.exp	Connection to \$REMOTEHOST failed	Cannot establish connection to the \$REMOTEHOST	Check REMOTEHOST in .icf file. If SECURECOLLECT/ SECUREDELIVER set to 3, please check the key-based authentication is configured for the \$REMOTEHOST.
	No response to telnet login for \$USERNAME	telnet session timed out after sending \$USERNAME	Check USERNAME in .icf file
	No response to password for \$USERNAME	telnet session timed out after sending \$PASSWORD	Check PASSWORD in .icf file
	Time out waiting for remote date	telnet session timed out after sending date command	Make sure date command is valid on the PM Server
	End-of-File on connection to PM Server	telnet session to PM Server terminated	Manually run telnet to PM Server to find out the problem
	Remote date not received	Cannot get the time on PM Server	Login to PM Server and run date +begin%y%m%d%H%M%Send command

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Table 7: Error Messages (Continued)

Application	Error	Cause	Action
	Invalid remote directory: \$REMOTEPMDIR	Cannot cd to the \$REMOTEPMDIR directory on PM Server	Check the .icf file to make sure REMOTEPM-DIR is specified correctly.
	(tar -cfh \$REMOTEDIR/\$pmfile \$files; compress \$REMOTEDIR/\$pmfile) timed out	The tar and compress command timed out (15 minutes)	Check the pmC* files on the OMCR; make sure compress command exists on the OMCR
	No pmC files on PM Server for \$prefix\$interval	No PM files exist on the PM Server for this period	Make sure \$interval is valid; Check PM Server to see if pmC*.\$prefix\$interval files exist; If the files come in later, modify crontab to get PM files several minutes later.
	An error occurred retrieving files from \$REMOTEHOST	Failed to scp/ftp \$prefix\$interval.PM.tar.Z from PM Server	Make sure the .Z file can be ftped/scped in 15 minutes
	Could not unpack new PM files in \$SRCDIR: \$result	gtar -xzpf \$prefix\$interval.PM.tar.Z command failed	Make sure gtar command can be executed; Make sure there is enough disk space
	An error occurred while copying files for \$omcr-\$mm	Cannot find pmC files for OMCR \$omcr, MM \$mm	PM records should be pmC5??.Somcr.\$mm.\$TIMESTAMP on the PM Server
	An error occurred while removing files	Cannot remove pmC5??.Somcr.\$mm.\$TIMESTAMP files from src directory	Make sure files can be removed from src directory
	An error occurred while compressing files	gzip -9 -f \$PMSEVER.\$omcr.\$mm.\$TIMESTAMP.CDLpm command failed	Make sure gzip command is in the PATH
	An error occurred transferring files to \$FLEXP-MHOST	Cannot scp/ftp the .gz file to \$FLEXP-MHOST	Make sure \$FLEXP-MHOST is alive and there is enough disk space
	Could not move PM Server files to \$DEST-DIR: \$result	Cannot move .gz file from src to dest directory	Check disk space

Table 7: Error Messages (Continued)

Application	Error	Cause	Action
	An error occurred removing files from \$DESTDIR: \$output	Cannot remove old files from dest directory	Make sure files can be removed from dest directory
	Invalid value for SECUREDELIVER/ SECURECOLLECT (\$SECUREDELIVER/ \$SECURECOLLECT)	Incorrect value for SECUREDELIVER/ SECURECOLLECT	Make sure the value is only 0, 1, 2, or 3
motaemsdist.exp	Connection to \$REMOTEHOST failed	Cannot establish connection to the \$REMOTEHOST	Check REMOTEHOST in .icf file. If SECURECOLLECT/ SECUREDELIVER set to 3, please check the key-based authentication is configured for the \$REMOTEHOST.
	No response to telnet login for \$USERNAME	telnet session timed out after sending \$USERNAME	Check USERNAME in .icf file
	No response to password for \$USERNAME	telnet session timed out after sending \$PASSWORD	Check PASSWORD in .icf file
	Time out waiting for remote date	telnet session timed out after sending date command	Make sure date command is valid on the PM Server
	End-of-File on connection to PM Server	telnet session to PM Server terminated	Manually run telnet to PM Server to find out the problem
	Remote date not received	Cannot get the time on PM Server	Login to PM Server and run date +begin%y%m%d%H%M%Send command
	Invalid remote directory: \$REMOTEPMDIR	Cannot cd to the \$REMOTEPMDIR directory on PM Server	Check the .icf file to make sure REMOTEPM-DIR is specified correctly.
	(tar -cfh \$REMOTEDIR/ \$pmfile \$files; compress \$REMOTEDIR/\$pmfile) timed out	The tar and compress command timed out (15 minutes)	Check the aemsC files on the PM Server. Make sure compress command exists on the PM Server

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Table 7: Error Messages (Continued)

Application	Error	Cause	Action
	No AEMSC13/AEMSC2 files on PM Server for \$TIMESTAMP	No AEMSC13/AEMSC2 files exist on the PM Server for this period	Check PM Server to see if aemsC[1 2 3]_xx/aemsC*.\$TIMESTAMP files exist; If the files come in later, modify crontab to get AEMS files several minutes later.
	Could not access \$SRCDIR: \$result	Cannot cd to \$SRCDIR	The \$SRCDIR should be automatically created by the setup script. Check .icf file to make sure \$SRCDIR is specified correctly and the directory exists
	Could not retrieve AEMS files from \$REMOTEHOST: \$result	Failed to scp/ftp \$prefix\$interval.AEMSC13/AEMSC2.tar.Z from PM Server	Make sure the .Z file can be ftped/scped in 15 minutes.
	Could not unpack \$DTYPE files in \$SRCDIR: \$result	gtar -xzpf \$prefix\$interval.\$DTYPE.tar.Z command failed	Make sure gtar command can be executed; Make sure there is enough disk space.
	An error occurred while taring files for OMCR \$omcrdir	tar command failed	Make sure tar command is available and \$SRCDIR is writable
	An error occurred while removing files for OMCR \$omcrdir	Cannot remove aemsC_.\$TIMESTAMP files from src directory	Make sure files can be removed from src directory
	An error occurred while compressing files	gzip command failed	Make sure gzip command is in the PATH
	An error occurred transferring files to \$FLEXP-MHOST	Cannot scp/ftp the .gz file to \$FLEXP-MHOST	Make sure \$FLEXP-MHOST is alive and there is enough disk space
	Could not move AEMS files to \$DESTDIR: \$result	Cannot move .gz file from src to dest directory	Check disk space
	An error occurred removing files from \$DESTDIR: \$output	Cannot remove old files from dest directory	Make sure files can be removed from dest directory
	Permission denied to create remote directory: \$REMOTEDIR	Don't have permission to create remote directory	Make sure you have permission to create directory

Table 7: Error Messages (Continued)

Application	Error	Cause	Action
	Invalid value for SECUREDELIVER/ SECURECOLLECT (\$SECUREDELIVER/ \$SECURECOLLECT).	Incorrect value for SECUREDELIVER/ SECURECOLLECT	Make sure the value is only 0, 1, 2, or 3
necf.exp	Connection to \$REMOTEHOST failed	Cannot establish connection to the \$REMOTEHOST	Check REMOTEHOST in .icf file. If SECURECOLLECT/ SECUREDELIVER set to 3, please check the key-based authentication is configured for the \$REMOTEHOST.
	No response to login for \$USERNAME	telnet session timed out after sending \$USERNAME	Check USERNAME in .icf file
	No response to password for \$USERNAME	telnet session timed out after sending \$PASSWORD	Check PASSWORD in .icf file
	Time out waiting for remote date	telnet session timed out after sending date command	Make sure date command is valid on the OMCR
	Invalid remote directory: \$REMOTENECFDIR	Cannot cd to the \$REMOTENECFDIR directory on OMCR	Check the .icf file to make sure REMOTENECFDIR is specified correctly.
	No NECF files on OMCR	No NECF files from OMCR	Login to OMCR to check NECF files under /screl/active/loadable/mm-x
	Could not access \$LOCALDIR: \$result	Cannot cd to \$LOCALDIR	Check \$LOCALDIR in .icf file
	Could not retrieve NECF files from \$REMOTEHOST: \$result	Cannot ftp yym-mdd.NECF.tar.Z file from OMCR	Manually run ftp command to make sure the file can be ftped in 25 minutes
	Could not unpack NECF files in \$LOCALDIR: \$result	gtar -xzipf yym-mdd.NECF.tar.Z command failed	Make sure the gtar command is in PATH
	An error occurred while taring files for BSC \$ext- bsc	tar command failed	Make sure tar command is in PATH

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Table 7: Error Messages (Continued)

Application	Error	Cause	Action
	An error occurred while removing NECF files for BSC \$mmid	Failed to remove the NEC*.xml files from the \$LOCALDIR	cd to \$LOCALDIR and make sure the xml files can be deleted
	An error occurred while compressing files, \$output	gzip -9 -f *.NECF command failed, \$output is the command output	Make sure the gtar command is in PATH
	An error occurred transferring files to \$FLEXP-MHOST, \$output	Cannot ftp the .gz file to \$FLEXP-MHOST	Make sure \$FLEXP-MHOST is alive and there is enough disk space
	Could not move NECF files to \$DESTDIR: result	Cannot move .gz file from src to dest directory	Manually move the .gz file from src to dest directory
	An error occurred removing files from \$DESTDIR: \$output	Cannot remove old files from dest directory	Make sure files can be removed from dest directory
	Permission denied to create remote directory: \$REMOTEDIR	Don't have permission to create remote directory	Make sure you have permission to create directory
	Invalid value for SECUREDELIVER/ SECURECOLLECT (\$SECUREDELIVER/ \$SECURECOLLECT).	Incorrect value for SECUREDELIVER/ SECURECOLLECT	Make sure the value is only 0, 1, 2, or 3
motevdopmemh-dist.exp	Invalid CYCLE value : \$CYCLE. Only CYCLE 10 is supported	This datatype only support 10-minute cycle	Check the <host-name>.mtdma.cfg file to make sure that parameter CYCLE for the EVDO PM EMH datatype is set to 10
	Error clearing directory \$LOCALDIR/tmp : \$out	Temporary directory \$LOCALDIR/tmp failed to be cleared	Make sure the directory is accessible and FLEXDA has full access to it
	Could not retrieve EVDO PM EMH files from \$REMOTEHOST: \$result	The source file is not available on the remote host, the file search filter is incorrect or the user/ password supplied to access the remote host is invalid	Make sure that the filename is correct, STS_EMH<id>_<timestamp>_<DST>.tgz, is available on the remote server and the user/password is correct
	Error occurred while unpacking source PM EMH tgz file: \$out	The source file cannot be unpacked	Make sure that the source file is in the correct format (*.tgz)

Table 7: Error Messages (Continued)

Application	Error	Cause	Action
	An error occurred while removing source PM EMH tgz file for \$EMH-NAME	The source file cannot be removed from \$LOCALDIR/src to \$LOCALDIR/tmp tmp directory	Make sure the directory and the source file is accessible and FLEXDA has full access to it
	Directory CSV is missing from the source tar file \$sfile.	After unpacking, the CSV directory is not available	Check that the source file is in the correct format and structure (with CSV directory)
	Directories \${tsdir1}_\${ext} and/or \${tsdir2}_\${ext} is/are missing from the source tar file \$sfile	After unpacking, the \${tsdir1}_\${ext} and/or \${tsdir2}_\${ext} directories is/are not available inside the CSV directory	Check that the source file is in the correct format and structure
	Error occurred while packing output PM tgz file: \$out	The source file cannot be repacked	Make sure the directory and the source file is accessible and FLEXDA has full access to it
	Error occurred delivering files to \$FLEXPM-HOST: \$output	The DA output cannot be transferred to the destination server	Make sure that the target directory is specified correctly and the user/password for the remote server is correct
	Error occurred while purging files in \$LOCALDIR: \$out1	Old files from directory \$LOCALDIR failed to be purged	Make sure the directory is accessible and FLEXDA has full access to it
	Invalid value for SECUREDELIVER/ SECURECOLLECT (\$SECUREDELIVER/ \$SECURECOLLECT).	Incorrect value for SECUREDELIVER/ SECURECOLLECT	Make sure the value is only 0, 1, 2, or 3
motevdocfgmap-dist.exp	Invalid value for INNERFILEDIR_F (\$INNERFILEDIR_F)	The INNERFILEDIR_F parameter was set with unrecognize value. The valid value is either 1 or 0.	Correct the value for INNERFILEDIR_F.
	Invalid value for SECURECOLLECT (\$SECURECOLLECT)	The SECURECOLLECT parameter was set with unrecognize value. The valid value are 0, 1, 2, or 3.	Correct the value for SECURECOLLECT.

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Table 7: Error Messages (Continued)

Application	Error	Cause	Action
	FTP output: \$out	Failed to transfer the file from remote NE to DA server. Possibly cause by connection failure or target file not exist.	Check the connection is ok and the file exist by manually FTP/SFTP/SCP the remote file.
	source file \$sfile not present	The source file was missing after the transfer.	Make sure no other process is using or deleting the respecting \$FLEX-DAHOME/data directory.
	Error occurred move \$infiles to \$ofile: \$out	Unable to move \$infiles to \$ofile.	Make sure the files and the permission is valid.
	Error occurred while packing output CDL tgz file: \$out	Cannot gzip file.	Check the gzip is accessible.
	Invalid value for SECUREDELIVER (\$SECUREDELIVER)	The SECUREDELIVER parameter was set with unrecognize value. The valid value are 0, 1, 2, or 3.	Correct the value for SECUREDELIVER.
	Error occurred delivering files to \$FLEXPM-HOST: \$output	Failed to transfer the file from DA server to Prospect server. Possibly cause by connection failure or target file not exist.	Check the connection is ok and the file exist by manually FTP/SFTP/SCP the remote file.
	Error occurred while purging files in \$LOCALDIR: \$out1	Old files from directory \$LOCALDIR failed to be purged	Make sure the directory is accessible and FLEXDA has full access to it.

Appendix B: Secure Connections Setup

This appendix describes how to setup secure connections among the Data Acquisition server, Prospect server, and network elements for key-based authentication.

Configuring SSH on Remote Network Elements

Perform this task if the Data Acquisition server must have secure connections with remote network elements. This is required if the SECURECOLLECT parameter in the `icf` file is set to '3'. When this happens, the Data Acquisition server retrieves data from the remote network elements using the `sftp` command with key-based authentication.

To set up secure connections with remote network elements do as follows:

1. Log on to the DA server as `flexda`.

2. Run the command `ls` on the directory `.ssh` to verify that the directory exists:

```
[flexda] $ ls .ssh
```

If the directory does not exist, an error message is shown and you must create the directory by entering the command:

```
[flexda] $ mkdir .ssh
```

3. Go to the `~/ssh` directory:

```
[flexda] $ cd ~/.ssh
```

4. Enter the following command:

```
[flexda] $ ssh-keygen -t rsa
```

Press Enter when prompted for default directory and filename. Leave `passphrase` blank when prompted and press Enter.

5. Log on to the remote network element as a user (`<ne_user>`) that the Data Acquisition tool can access.

6. Run the command `ls` on the directory `.ssh` to verify that the directory exists:

```
[ne_user] $ ls .ssh
```

If the directory does not exist, an error message is shown and you must create the directory by entering the command:

```
[ne_user] $ mkdir .ssh
```

7. Log off from the remote network element.
8. On the DA server, use FTP to copy the file `id_rsa.pub` in the directory `<home_directory>/.ssh` on the network element from which the Data Acquisition tool is supposed to collect data.
9. Enter the following command for the remote network element using an authorized user:

```
$ ssh -l <ne_user> <ne_server>
```
10. If you receive a message similar to the following, type `Yes` and press Enter:
The authenticity of host '`<hostname> (<ip>)`' can't be established.
RSA key fingerprint is `54:1d:4b:44:e1:2e:ae:48:b1:34:7f:ee:c5:13:95:85`.
Are you sure you want to continue connecting (yes/no)?
11. Go to the directory `<home_directory>/.ssh` and use the `cat` command to concatenate the content of file `id_rsa.pub` into file `authorized_keys`:

```
$ cd ~/.ssh  
$ cat id_rsa.pub >> authorized_keys
```
12. Change the permission of `authorized_keys` to 600 and delete `id_rsa.pub`:

```
$ chmod 600 authorized_keys  
$ rm -f id_rsa.pub
```
13. Log off from the remote network element.
14. Repeat Steps 3 through 13 on all other remote network elements from which the Data Acquisition tool is supposed to collect data.
15. To test the `ssh` command with key-based authentication to the Remote Network Element, run this command:

```
$ ssh <ne_user>@<ne_server>
```

The remote host will NOT prompt for password. The connection will establish automatically.

Configuring SSH on the Prospect Server

Perform this task if the Data Acquisition server must have secure connections with the Prospect server. This is required if the `SECUREDELIVER` parameter in the `icf` file is set to '3'. When this happens, the Data Acquisition server exchanges data with the Prospect server using the `sftp` command with key-based authentication.

To set up secure connections with the Prospect server do as follows:

1. Log on to the DA server as `flexda`.
2. Go to the `~/.ssh` directory:

```
[flexda] $ cd ~/.ssh
```
3. The directory should contain a file called `id_rsa.pub`. If not, follow the steps documented in [Configuring SSH on Remote Network Elements](#) on page 67.

4. Log on to the Prospect server as user `<prospect_user>`.
5. Run the command `ls` on the directory `.ssh` to verify that the directory exists:

```
[prospect_user] $ ls .ssh
```

If the directory does not exist, an error message is shown and you must create the directory by entering the command:

```
[prospect_user] $ mkdir .ssh
```
6. Log off from the Prospect server.
7. On the DA server, use FTP to copy the file `id_rsa.pub` in the directory `<home_directory>/.ssh` on the Prospect server on which the OM files are located.
8. Enter the following command for the Prospect server using an authorized user:

```
$ ssh -l <prospect_user> <prospect_server>
```
9. If you receive a message similar to the following, type `Yes` and press Enter:

```
The authenticity of host '<hostname> (<ip>)' can't be established.  
RSA key fingerprint is 54:1d:4b:44:e1:2e:ae:48:b1:34:7f:ee:c5:13:95:85.  
Are you sure you want to continue connecting (yes/no)?
```
10. Go to the directory `<home_directory>/.ssh` and use the `cat` command to concatenate the content of file `id_rsa.pub` into file `authorized_keys`:

```
$ cd ~/.ssh  
$ cat id_rsa.pub >> authorized_keys
```
11. Change the permission of `authorized_keys` to 600 and delete `id_rsa.pub`:

```
$ chmod 600 authorized_keys  
$ rm -f id_rsa.pub
```
12. Log off from the Prospect server.
13. To test the `ssh` command with key-based authentication to the Prospect Server, run this command:

```
$ ssh <prospect_user>@<prospect_server>
```

The Prospect Server will NOT prompt for password. The connection will establish automatically.

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