Solutions

Data Acquisition Tools 7.1 for Openwave CLBS MPC/LM 6.1/HP PDE R6.08

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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 Openwave CLBS MPC/LM 6.1/HP PDE R6.08 (Release Point 1 Patch 01).

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 October 1 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	• GPS • NULL • MYWEBSERVER	Acronyms, device names, logical operators, registry keys, and some data structures.
Underscore	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	• **Note**: The busy hour determiner is...	Heading text for Notes, Tips, and Warnings.
SMALL CAPS	• 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.
Italic	• A *busy hour* is... • A web server *must* be installed... • See the *User Guide*	New terms, emphasis, and book titles.
`Monospace`	• `./wminstall` • `$ cd /cdrom/cdrom0` • `/xml/dict` • `http://java.sun.com/products/` • `addmsc.sh` • `core.spec` • 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`	**`[root] # pkginfo | grep -i perl`**
	`system Perl5 On-Line Manual Pages`
	`system Perl 5.6.1 (POD Documentation)`
	`system Perl 5.6.1`
		For contrast in a code example to show lines the user is expected to enter.

`<Monospace italics>`	`# cd <oracle_setup>`	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]`	`log-archiver.sh [-i][-w][-t]`	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*
Administration Guide	Helps an administrator configure and support Prospect core server software to analyze network performance and perform other network or database management tasks.
Administrator's Quick Reference Card	Presents the principal tasks of a Prospect core server administrator in an easy-to-use format.
Expressions Technical Reference	Provides detailed information about expressions used in special calculations for reports.
Installation Guide	Instructions for installing and configuring the Prospect software.
Open Interface API Guide	Describes how the Open Interface tool enhances your access to information about database peg counts and scenarios.
Performance Data Reference	Provides detailed information including entity hierarchies, peg counts, primitive calculations, and forecast expressions specific to your organization.
Release Notes	Provides technology-specific and late-breaking information about a given Prospect release and important details about installation and operation.
Server Preparation Guide	Provides instructions for installing and setting up Solaris and Oracle software before you install Prospect software.
Server Sizing Tool Guide	Helps an administrator use the sizing tool to calculate the system space needed for the Prospect software and database.
User Guide	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/ .

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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
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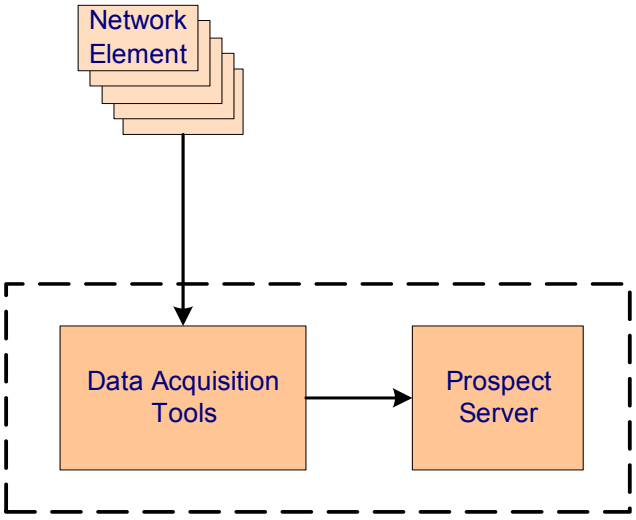
2 Installation and Setup

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

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 **lbs** data type)
- 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 user-names 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.

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_Openwave_CLBS_RP1_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`:

   ```
   [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_openclbs \
   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_Openwave_CLBS_RP1_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_openclbs \
              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
   ```
6. Log off and log on again to reflect the changes.

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>*`.openclbs.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 18. For example:

   `[flexda] $ cd ~`

   `[flexda] $ cp INSTALL/ALL/doc/``host.openclbs.cfg`**`.sample \`**
   `INSTALL/localhost/cfg/`*<hostname>*`.openclbs.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>.openclbs.cfg
```

c. Modify the host configuration file for each network element from which the data is collected. See The Host Configuration File on page 18.

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>.openclbs.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 Directory Structure on page 25 for the location of files and directories.

2. The `crontab` files *<hostname>*`.openclbs.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>*`.openclbs.cron` for specific DA Toolkit collection.

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*>.openclbs.cfg, is used to install the data acquisition jobs. This file is created by using the template file host.openclbs.cfg.sample located in $FLEXDAHOME/INSTALL/ALL/doc. See Sample Host Configuration File on page 18.

The file openclbs.cfg.txt, also located in $FLEXDAHOME/INSTALL/ALL/doc, provides descriptions of all the variables defined in <*hostname*>.openclbs.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 29.

The setconfig.ksh script creates a file (<*hostname*>.openclbs.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 21 for a complete list of fields, variables, and descriptions.

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.
#
```

```
#############################################################################
#
# $Id: host.openclbs.cfg.sample,v 1.3 2008/04/23 02:13:14 khalidm 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
#
#
# DETAIL LEVEL: Detailed infomation for each option of Openwave CLBS
#               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 \
    openclbs        $method_dir/set_openclbs.ksh  $optcfg_dir/
$hostname.openclbs.cfg


#   NDAYS
#   -----
set -A  lhost   \
  3


# DESTHOSTNAME   DESTHOSTIP      DESTHOSTUSER   DESTHOSTPSWD
# ------------   ----------      ------------   ------------
set -A  thost   \
```

```
  <DestHostName> <nnn.nn.nnn.nn> <DestHostUser> <DestHostPswd>


#       NTTYPES
#       -------
set -A  openclbs_type \
        clbscp \
        clbsup

#
# CLBSCP
#

# PM target directories
tdir=/u01/apps/WatchMark/FlexPM/Openwave/ProspectBase/vendor/Common/NE/ftpIN/
OpenCLBS/in

# MARKET    TGTDIR     SRCIP             SRCID          SRCUSER
# ------    ------     -----             -----          -------
#           SRCPSWD    SRCDIR    SECURECOLLECT    SECUREDELIVER
#           -------    ------    -------------    -------------
#           TIMEZONE
#           --------
set -A openclbs_clbscp                                          \
  <Market>  $tdir      <nnn.nn.nn.nnn>   <NE_ID>        <username>  \
            <password> <sdir>    1               1                \
            <tz>

#
# CLBSUP
#

# PM target directories
tdir=/u01/apps/WatchMark/FlexPM/Openwave/ProspectBase/vendor/Common/NE/ftpIN/
OpenCLBS/in

# MARKET    TGTDIR     SRCIP             SRCID          SRCUSER
# ------    ------     -----             -----          -------
#           SRCPSWD    SRCDIR    SECURECOLLECT    SECUREDELIVER
#           -------    ------    -------------    -------------
#           TIMEZONE
#           --------
set -A openclbs_clbsup                                          \
  <Market>  $tdir      <nnn.nn.nn.nnn>   <NE_ID>        <username>  \
```

```
<password> <sdir>    1                1                \
<tz>
```

File Structure

See `openclbs_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_openclbs.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 29.
- 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 field descriptions

Variable	*Field*	*Description*
`sysopts`	`SYSOPTNAME`	System option Name, ie. openclbs. (Not a customizable field)
	`OPTMETHOD`	System option setup method (script name). Must have full path. For example: $method_dir/ set_openclbs.ksh. (Not a customizable field)
	`OPTCFGFILE`	System option setup configuration file name. Must have full path. For example: $method_dir/<host-name>.openclbs.cfg. (Not a customizable field)
`lhost`	`NDAYS`	Number of days the data and log files need to be kept. (Customizable field)

Table 3: Host configuration file field descriptions

Variable	*Field*	*Description*
thost	DESTHOSTNAME	Destination host name for the Prospect server. (Customizable field)
	DESTHOSTIP	Destination IP address for the Prospect server. (Customizable field)
	DESTHOSTUSER	Destination login user name on the Prospect server. (Customizable field)
	DESTHOSTPSWD	Destination login password on the Prospect server use single code to enclose password if password contains character such as $, for example 'a$c'. (Customizable field)
openclbs_type	NTTYPES	Openwave option name. Note: The available options for this release: CLBS. (Not a customizable field)
clbscp	MARKET	Market ID is usually the area name where the LBS Control Plane is located. This field is alphanumeric with a maximum of 8 characters. (Customizable field)
	TGTDIR	Target directory on the Prospect server to which the data is to be transferred. If the default directory doesn't match your environment, change the variable $tdir definition.
	SRCIP	Remote source IP address of data collection point, ie. OAMP network element. (Customizable field)
	SRCID	Unique name for the LBS Control Plane. (Customizable field)
	SRCUSER	Remote source login username of OAMP network element. (Customizable field)
	SRCPSWD	Remote source login password for user id SRCUSER on OAMP network element. Use single quote to enclose password if password contains character such as $, for example 'a$c'. (Customizable field)
	SRCDIR	Remote source data directory in OAMP network element where raw data is stored. Change the <sdir> with absolute path according to the setup in the network element. For example: /meas/pm.SSDATA. Note that the source data directory may vary from system to system and the format for data source is either m<JulianDay><EndTime> or M<JulianDay><EndTime>. Use single quote to enclose the path if the path contains character such as $, for example 'a$c' (Customizable field).

Table 3: Host configuration file field descriptions

Variable	*Field*	*Description*
	SECURECOLLECT	Indicates whether or not to use secure SFTP for data collection from the OAMP network element. Allowable entry is 0 (use normal FTP) or 1 (use SFTP). The default is 1. (Customizable field)
	SECUREDELIVER	Indicates whether or not to use secure SFTP for delivering data to Prospect server. Allowable entry is 0 (use FTP) or 1 (use SFTP). The default is 1. (Customizable field)
	TIMEZONE	Description= Unix Standard Time Zone for the Remote source server. The entry for this field should follow Unix Standard Time Zone Format. Example Europe/Paris (Customizable field)
clbsup	MARKET	Market ID is usually the area name where the LBS User Plane is located. This field is alphanumeric with a maximum of 8 characters. (Customizable field)
	TGTDIR	Target directory on the Prospect server to which the data is to be transferred. If the default directory doesn't match your environment, change the variable $tdir definition.
	SRCIP	Remote source IP address of data collection point, ie. OAMP network element. (Customizable field)
	SRCID	Unique name for the LBS User Plane. (Customizable field)
	SRCUSER	Remote source login username of OAMP network element. (Customizable field)
	SRCPSWD	Remote source login password for user id SRCUSER on OAMP network element. Use single quote to enclose password if password contains character such as $, for example 'a$c'. (Customizable field)
	SRCDIR	Remote source data directory in OAMP network element where raw data is stored. Change the <sdir> with absolute path according to the setup in the network element. For example: /meas/pm.SSDATA. Note that the source data directory may vary from system to system and the format for data source is either m<JulianDay><EndTime> or M<JulianDay><EndTime>. Use single quote to enclose the path if the path contains character such as $, for example 'a$c' (Customizable field).

Table 3: Host configuration file field descriptions

Variable	*Field*	*Description*
	SECURECOLLECT	Indicates whether or not to use secure SFTP for data collection from the OAMP network element. Allowable entry is 0 (use normal FTP) or 1 (use SFTP). The default is 1. (Customizable field)
	SECUREDELIVER	Indicates whether or not to use secure SFTP for delivering data to Prospect server. Allowable entry is 0 (use FTP) or 1 (use SFTP). The default is 1. (Customizable field)
	TIMEZONE	Unix Standard Time Zone for the Remote source server. The entry for this field should follow Unix Standard Time Zone Format. Example Europe/Paris (Customizable field)

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:

Field	*Value*
MARKET	ATL
TGTDIR	$tdir
SRCIP	<nnn.nn.nn.nnn>
SRCID	<NE_ID>
SRCUSER	<username>
SRCPSWD	<password>
SRCDIR	$sdir
SECURECOLLECT	1
SECUREDELIVER	1
TIMEZONE	America/Anchorage

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 openclbs_clbsup                                          \
  <Market>  $tdir      <nnn.nn.nn.nnn>   <NE_ID>        <username>  \
            <password> <sdir>    1                1                \
            <tz>
```

Directory Structure

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

Table 4: Directory Structure

Directory	*Description*
$FLEXDAHOME	Home directory for the flexda account
$FLEXDAHOME/COMMON/bin $FLEXDAHOME/COMMON/scripts	Contains common installation programs
$FLEXDAHOME/<*vendor*>/scripts $FLEXDAHOME/<*vendor*>/cfg	Contains Data Acquisition tools collection programs
$FLEXDAHOME/INSTALL/ALL/scripts	Contains installation scripts. For example: install_flexda.ksh and setconfig.ksh
$FLEXDAHOME/INSTALL/ALL/cfg	Contains default configuration file. For example: FlexDA.default.cfg
$FLEXDAHOME/INSTALL/ALL/doc	Contains sample documents. For example, <hostname>.<*vendor_abbrev*> <*technology*>.cfg.sample
$FLEXDAHOME/INSTALL/localhost/cfg	Contains the local host configuration files. For example: FlexDA.<*hostname*>.cfg and <*hostname*>.<*vendor_abbrev*> <*technology*>.cfg
$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): <*market_name*>. <*network_element_name*>.<*datatype*>. <*direction*>.icf
$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): <*market_name*>. <*network_element_name*>.<*datatype*>. <*direction*>.chk
$FLEXDAHOME/bin	Contains program binaries

Table 4: Directory Structure (Continued)

Directory	***Description***
$FLEXDAHOME/`scripts`	Contains Expect scripts or link files to the scripts in the $FLEXDAHOME/`COMMON/scripts` and/or $FLEXDAHOME/<*vendor*>/`scripts` 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 33 lists error messages, describes them, and tells you which corrective actions to take.

Topics

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

Field	*Description*
`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

Status	*Description*
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 an SSH 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 sftp command manually:

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

To run the ssh command manually:

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

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*
clbsdist.exp	No response to login for $SRCUSER	Remote server not response to SSH request.	Check connection to remote server is up.
	No response to password for $SRCUSER	Remote server not response to password.	Check connection to remote server is up.
	Password for command ssh denied with $SRCUSER@$REMOTEHOST	Remote server reject the given password.	Check remote server password in config file is correct.
	Connection to $REMOTEHOST failed	Unable to establish connection with remote server.	Check connection to remote server is up.
	No response to telnet login for $TELUSER	No response on login id.	Check connection to remote server is up.
	No response to password for $TELUSER	No response on password.	Check connection to remote server is up.
	Login failed	Remote server reject the given password.	Check remote server password in config file is correct.
	Time out waiting for remote date	Remote server not response to date request.	Check connection to remote server is up.
	Error occurred retrieving files from $SRCIP	Cannot establish connection to the $SRCIP or file not exists	Check that ip is correct and data file exist exists in SRCDIR
	Unable to concatenate files "<file list>" to <newf>	Fail to concatenate raw files to Prospect file.	Check cat is installed in DA server.

Updated: 2008-10-01

Table 7: Error Messages (Continued)

Application	*Error*	*Cause*	*Action*
	Unable to create .gz file: <file>	Fail to compress one or more files.	Check gzip is installed in DA server.
	No complete data set found.	None of the data set have the complete set of files available to DAT	Check the SRCDIR for the missing files
	Error occurred transfering $ofile to $FLEXPMHOST	There is a problem attempting to transfer file to prospect host	Check FLEXPMHOST is correct and FLEXUSER and FLEXPSWD is valid
	Error occurred while purging files in $LOCALDIR	There is a problem while DA trying to cleanup collected files	Make sure that $LOCALDIR has execute, write permission for flexda
	Error(s) encountered while creating Prospect file	Fail to concatenate raw files to Prospect file.	Check cat is installed in DA server.
	Error(s) encountered while creating .gz file	Fail to compress one or more files.	Check gzip is installed in DA server.
	Partial data set detected. Will retry until max retry count or complete set is received	Some data files are suspect file or missing from SRCDIR	Check the SRCDIR for the missing files
	Remote date not received: $rdate	Either the time zone is not set properly or the system is not able to get the date.	Check the time zone setting in host configuration file <host>.opencclbs.cfg.

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