Informatica® PowerExchange
10.2

Release Guide

Informatica PowerExchange Release Guide
10.2
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Table of Contents

Preface

The *PowerExchange Release Guide* describes the cumulative changes for Informatica® PowerExchange® releases that are currently supported, beginning with version 9.6.0.

Review this guide to get an overview of the changes in each release. The guide lists new features and enhancements, behavior changes, and new and changed commands and parameters. The guide also covers any removed functionality and dropped versions of data sources or operating systems.

This guide pertains to the following operating systems and databases that PowerExchange supports:

- DB2 for i5/OS and flat files on i5/OS
- Linux, UNIX, and Windows data sources:
  - DB2 for Linux, UNIX, and Windows
  - Flat files on Linux, UNIX, and Windows
  - Microsoft SQL Server
  - Oracle
- z/OS data sources:
  - Adabas
  - CA Datacom
  - CA IDMS
  - DB2 for z/OS
  - IMS
  - VSAM and sequential data sets

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CHAPTER 1

Summary of PowerExchange New Features and Changes

This chapter includes the following topics:

About This Summary

This chapter summarizes the new features and changes in supported PowerExchange releases and hotfixes.

For each release or hotfix, the following types of changes are described:

- New features
- New, changed, and deleted commands
- New, changed, and deleted parameters and options
- Changes to supported versions of operating systems and data sources
- Significant behavior changes
- Significant documentation changes

For more information about these changes, see the chapters for specific components and data sources.

The following supported releases and hotfixes are covered:

Version	Release Date
10.2	September 2017
10.1.1 HotFix 1	June 2017
10.1.1	December 2016
10.1	June 2016
9.6.1 HotFix 4	April 2016
10.0	November 2015
9.6.1 HotFix 3	June 2015
9.6.1 HotFix 2	January 2015
9.6.1 HotFix 1	September 2014
9.6.1	August 2014
9.6.0	January 2014

PowerExchange 10.2

This section lists the new features and changes in PowerExchange 10.2.

New Features in 10.2

The following table lists PowerExchange 10.2 new features by PowerExchange component or data source:

Component or Data Source	Feature Reference
DB2 for z/OS	"DB2 12 for z/OS Support" on page 152 "Support for Image Copy Data Sources That Include Inline LOB Columns" on page 153 "Support for LOBs in DB2 for z/OS CDC Sources" on page 153
IMS	"Updated Components in the PowerExchange ECCR CRG.LOAD Library for IMS Synchronous CDC" on page 172
Microsoft SQL Server	"Microsoft SQL Server NTLM and Active Directory Authentication for Access to SQL Server Sources" on page 181
Monitoring and tuning	"Improvements to SMF Statistics Records and Documentation" on page 120

Component or Data Source	Feature Reference
Oracle	"Reporting DDL Operations on Registered Oracle Source Tables" on page 192
PowerExchange Navigator	"PowerExchange Navigator Overrides for the DBMOVER Configuration File and PowerExchange License Key File" on page 112

Parameter and Option Changes in 10.2

PowerExchange 10.2 includes parameter and option changes.

DBMOVER Configuration File Statements

The following table identifies new, changed, or deprecated statements in the DBMOVER configuration file:

Statement	New, Changed, or Deprecated
CONSOLE_MSG	New
ENCRYPT	Changed
ENCRYPTLEVEL	Changed
MSQL CAPI_CONNECTION	Changed - New LOCKAVOIDANCE, RECONNTRIES, and RECONNWAIT parameters
UDB CAPI_CONNECTION	Changed - New AGEOUTPERIOD parameter

For more information, see "DBMOVER Configuration File Statements" on page 74.

PowerExchange Express CDC for Oracle Configuration File Parameter

The following table identifies a new parameter in the OPTIONS statement in the PowerExchange Express CDC for Oracle configuration file, pwxorad.cfg:

Statement	Parameter	New, Changed, or Deprecated
OPTIONS	REPORTDDL	New

For more information, see "PowerExchange Express CDC for Oracle Configuration File" on page 193.

DB2 for z/OS ECCR Statements in the REPL2OPT DD Data Set

The following table identifies a changed configuration statement in the data set or RUNLIB member that is allocated by the REPL2OPT DD statement in the DB2 for z/OS ECCR JCL:

Statement	New, Changed, or Deprecated
IFI306	Changed - New NDWAIT parameter

For more information, see "DB2 ECCR Configuration Statements in the REPL2OPT DD Data Set" on page 154.

PWXPC Connection Attributes

The following table identifies changed PWXPC connection attributes:

Attribute	New, Changed, or Deprecated
Array Size	Changed
Encryption Level	Changed
Encryption Type	Changed

For more information, see "PWXPC Connection Attributes" on page 61.

PowerExchange ODBC Data Source Properties

The following table identifies a changed parameter option for the PowerExchange ODBC driver:

Property	New, Changed, or Deprecated
LEVEL	Changed
OPTION	Changed
PWXOVERRIDES	Changed

For more information, see "Parameter and Option Changes in 10.2" on page 219.

DTLUTSK Utility Parameter

The following table identifies a new parameter for the DTLUTSK utility:

Statement	New, Changed, or Deprecated
NODETYPE	New

For more information, see "DTLUTSK Utility Parameter" on page 131.

PowerExchange Navigator Parameter for Issuing the LISTLOCATIONS Command

The following table identifies a new parameter that you can enter in the **Database Row Test** dialog box when you issue the LISTLOCATIONS command:

Parameter	New, Changed, or Deprecated	Reference
NODETYPE	New	"Parameter for Issuing the LISTLOCATIONS Command" on page 113

Behavior Changes in 10.2

The following table lists PowerExchange 10.2 behavior changes by PowerExchange component or data source or target:

Component or Data Source/Target Type	Reference
CICS/VSAM	"Improved CICS/VSAM ECCR Reporting of Data Sets with CDC Disabled" on page 210
IMS	"Support for IMS Command Code A" on page 173
Microsoft SQL Server	"Ability to Change the Registration Status from History to Active When the Database Is Not Active" on page 183 "Improved Handling of Capture Registration Deletions" on page 183

Changes to Supported Operating Systems and Data Sources in 10.2

PowerExchange 10.2 introduces the following changes to the operating systems and data sources that PowerExchange supports.

For more information about version and maintenance requirements for operating systems and data sources, see the "Installation Planning" chapter in the *PowerExchange Installation and Upgrade Guide*.

Data Sources

The following table identifies added, dropped, or deferred data source or target versions in PowerExchange 10.2:

Data Source	Version	Operating System	Bulk	CDC	Added, Dropped, or Deferred
Adabas[1]	8.3.4	z/OS	Supported - sources and targets	Supported - sources	Certified
DB2 for z/OS	12	z/OS	Supported - sources and targets	Supported - sources	Added
1. PowerExchange 10.0 introduced support for Adabas 8.3.*x*. In PowerExchange 10.2, bulk data movement and CDC have been certified with Adabas 8.3.4.					

Clarification of Oracle 12c support: Testing of PowerExchange Express CDC for Oracle with Oracle 12*c* sources indicates that Express CDC works with Oracle 12*c* Release 1 but does not work with Oracle 12*c* Release 2. For more information, contact Informatica Global Customer Support.

Operating Systems

The following table identifies changes to supported operating system versions in PowerExchange 10.2:

Operating System	Version	Added or Dropped
AIX	7.2	Added
AIX	6.1	Dropped
Windows	10	Added for sources and targets
z/OS	2.3	Added
1. PowerExchange 10.1.1 added Windows 10 support for the PowerExchange Navigator client and z/OS Installation Assistant.		

PowerExchange 10.1.1 HotFix 1

This section lists the new features and changes in PowerExchange 10.1.1 HotFix 1.

New Features in 10.1.1 HotFix 1

The following table lists PowerExchange 10.1.1 HotFix 1 new features by PowerExchange component or data source:

Component or Data Source	Feature Reference
DB2 for z/OS	"DB2 12 for z/OS Support" on page 152

Parameter and Option Changes in 10.1.1 HotFix 1

PowerExchange 10.1.1 HotFix 1 introduces parameter and option changes.

DBMOVER Configuration File Statements

The following table identifies new, changed, or deprecated statements in the DBMOVER configuration file:

Statement	New, Changed, or Deprecated
CONSOLE_MSG	New
MSQL CAPI_CONNECTION	Changed - New LOCKAVOIDANCE parameter
LOWVALUES	Changed

For more information, see "DBMOVER Configuration File Statements" on page 77.

DB2 for z/OS ECCR Statements in the REPL2OPT DD Data Set

The following table identifies a changed configuration statement in the data set or RUNLIB member that is allocated by the REPL2OPT DD statement in the DB2 for z/OS ECCR JCL:

Statement	New, Changed, or Deprecated
IFI306	Changed - NDWAIT parameter added

For more information, see "DB2 ECCR Configuration Statements in the REPL2OPT DD Data Set" on page 154.

Changes to Supported Operating Systems and Data Sources in 10.1.1 HotFix 1

PowerExchange 10.1.1 HotFix 1 introduces the following change to a data source that PowerExchange supports.

For more information about version and maintenance requirements for operating systems and data sources, see the "Installation Planning" chapter in the *PowerExchange Installation and Upgrade Guide*.

Data Sources

The following table identifies added, dropped, or deferred data source or target versions in PowerExchange 10.1.1 HotFix 1:

Data Source	Version	Operating System	Bulk	CDC	Added, Dropped, or Deferred
DB2 for z/OS	12	z/OS	Supported - sources and targets	Supported - sources	Added

PowerExchange 10.1.1

This section lists the new features and changes in PowerExchange 10.1.1.

New Features in 10.1.1

The following table lists PowerExchange 10.1.1 new features by PowerExchange component or data source:

Component or Data Source	Feature Reference
Adabas	"Support for Adabas Cipher Codes" on page 138
DB2 for i5/OS	"DB2 for i5/OS Version 7.3 Support" on page 145
DB2 for Linux, UNIX, and Windows	"Support for DB2 for Linux, UNIX, and Windows Version 11.1" on page 150

Component or Data Source	Feature Reference
DB2 for z/OS	"Support for LOB Datatypes in DB2 for z/OS Data Maps" on page 156
Microsoft SQL Server	"SQL Server CDC with a PowerExchange Listener on Linux" on page 185 "Support for Microsoft SQL Server 2016" on page 185
Monitoring and tuning	"Improvements to Statistics Fields in SMF Records" on page 122
PowerExchange Listener	"Expanded OpenLDAP and Oracle LDAP Support for Requests to the PowerExchange Listener" on page 78
PowerExchange Logger for Linux, UNIX, and Windows	"Monitoring Statistics Printed at PowerExchange Logger for Linux, UNIX, and Windows Shutdown" on page 100 "Expanded OpenLDAP and Oracle LDAP Support for Requests to the PowerExchange Logger" on page 101
PowerExchange Navigator	"Support for Multiple Versions of the PowerExchange Navigator" on page 114
PowerExchange Utilities	"Enhancement to the Data Map Creation Utility" on page 132

Parameter and Option Changes in 10.1.1

PowerExchange 10.1.1 includes parameter and option changes.

DBMOVER Configuration File Statements

The following table identifies new, changed, or deprecated statements in the DBMOVER configuration file:

Statement	New, Changed, or Deprecated
PRGIND	Changed
PRGINT	Changed
START_UP_USER_EXIT	New

For more information, see "DBMOVER Configuration File Statements" on page 78.

DB2 for z/OS ECCR Statements in the REPL2OPT DD Data Set

The following table identifies a new configuration statement in the data set or RUNLIB member that is allocated by the REPL2OPT DD statement in the DB2 for z/OS ECCR JCL:

Statement	New, Changed, or Deprecated
SHOWGENERATED	New

For more information, see "DB2 ECCR Configuration Statement in the REPL2OPT DD Data Set" on page 156.

Command Changes in 10.1.1

PowerExchange 10.1.1 introduces a change to a DB2 for z/OS ECCR command.

DB2 for z/OS ECCR Commands

PowerExchange 10.1.1 changes a DB2 for z/OS ECCR command.

The following table identifies the changed command:

Command	New, Changed, or Deprecated
DISPLAY	Changed

For more information, see "DB2 for z/OS ECCR DISPLAY Command" on page 156.

Behavior Changes in 10.1.1

The following table lists PowerExchange 10.1.1 behavior changes by PowerExchange component or data source:

Component or Data Source	Feature Reference
Installation and upgrade	"Installation Change for DB2 for z/OS CDC" on page 54
PowerExchange for DB2 for z/OS	"Improved Support of FlashCopy Image Copies as Sources" on page 158

Changes to Supported Operating Systems and Data Sources in 10.1.1

PowerExchange 10.1.1 introduces the following changes to the operating systems and data sources that PowerExchange supports.

For more information about version and maintenance requirements for operating systems and data sources, see the "Installation Planning" chapter in the *PowerExchange Installation and Upgrade Guide*.

Data Sources

The following table identifies added, dropped, or deferred data source or target versions in PowerExchange 10.1.1:

Data Source	Version	Operating System	Bulk	CDC	Added, Dropped, or Deferred
DB2 for i5/OS	7.3	i5/OS	Supported - sources and targets	Supported - sources	Added
DB2 for i5/OS	6.1	i5/OS	No longer supported	No longer supported	Dropped

Data Source	Version	Operating System	Bulk	CDC	Added, Dropped, or Deferred
DB2 for Linux, UNIX, and Windows	11.1	Linux, UNIX, and Windows, except Solaris[1]	Supported - sources and targets	Supported - sources	Added
Microsoft SQL Server	2016	Windows	Supported - sources and targets	Supported - sources	Added

1. PowerExchange does not support DB2 for Linux, UNIX, and Windows 11.1 on Solaris because IBM does not support this DB2 version on Solaris.

Operating Systems

The following table identifies changes to supported operating system versions in PowerExchange 10.1.1:

Operating System	Version	Added or Dropped
i5/OS	7.3	Added
i5/OS	6.1	Dropped
Solaris	11 (64-bit SPARC)	Added back, last supported in 9.6.1 HotFix 4
SUSE Linux	11 (64-bit, Opteron and EM64T)	Added back, last supported in 9.6.1 HotFix 4
Windows	10	Added only for the PowerExchange Navigator client and z/OS Installation Assistant

PowerExchange 10.1

This section lists the new features and changes in PowerExchange 10.1.

New Features in 10.1

The following table lists PowerExchange 10.1 new features by PowerExchange component or data source:

Component or Data Source	Feature Reference
CICS Transaction Server	"Support for CICS Transaction Server Version 5.3" on page 212
DB2 for i5/OS	"Generating SQL Statements for Re-creating Source or Target Objects for Troubleshooting" on page 146
DB2 for z/OS	"Improved Support of DB2 for z/OS Image Copies as Sources" on page 158

Component or Data Source	Feature Reference
IMS	"IMS Version 14 Support" on page 173 "Updated Components in the PowerExchange 10.1 ECCR CRG.LOAD Library for IMS Synchronous CDC" on page 173
Microsoft SQL Server	"PowerExchange CDC No Longer Requires SQL Server Management Objects" on page 185
Oracle	"PowerExchange Express CDC for Oracle Supports Oracle Direct-Path Operations" on page 194 "PowerExchange Express CDC for Oracle Ability to Read Copies of Archived Redo Logs" on page 194 "PowerExchange Express CDC for Oracle Support for Oracle RESETLOGS Operations" on page 195 "PowerExchange Express CDC for Oracle Support for Amazon EC2 Cloud Environments" on page 195
PowerExchange Listener	"OpenLDAP Support for Requests to the PowerExchange Listener" on page 79
PowerExchange Logger for Linux, UNIX, and Windows	"OpenLDAP Support for Requests to the PowerExchange Logger" on page 101
PowerExchange Utilities	"Enhancements to the Data Map Creation Utility" on page 133

Parameter and Option Changes in 10.1

PowerExchange 10.1 includes parameter and option changes.

DBMOVER Configuration File Statements

The following table identifies new, changed, or deprecated statements in the DBMOVER configuration file:

Statement	New, Changed, or Deprecated
ADA_TIMEZONE_CHECK	New
LDAP_OPENSSL	New
LRAP CAPI_CONNECTION	Changed - New UIDFMTIMS parameter
SECURITY	Changed - New fourth positional parameter

For more information, see "DBMOVER Configuration File Statements" on page 80.

PowerExchange Condense Configuration File Parameters

The following table identifies a new parameter in the PowerExchange Condense CAPTPARM configuration member:

Parameter	New, Changed, or Deprecated
OPER_WTOR_ENABLED	New

For more information, see "PowerExchange Condense Configuration File Parameter" on page 69.

Adabas ECCR Parameter

The following table identifies a new optional parameter that you can specify in the RUNLIB(ADAECRP1) member for the Adabas ECCR:

Parameter	New, Changed, or Deprecated
ETID_DATE	New

For more information, see "Adabas ECCR Parameter" on page 139.

DB2 for z/OS ECCR Statements in the REPL2OPT DD Data Set

The following table identifies changes to configuration statements in the data set or RUNLIB member that is allocated by the REPL2OPT DD statement in the DB2 for z/OS ECCR JCL:

Statement	New, Changed, or Deprecated
IFI306 [OPT={N|Y|F}]	Changed - new OPT=F keyword value
SKIPURDML	New

For more information, see "DB2 ECCR Configuration Statements in the REPL2OPT DD Data Set" on page 159.

PowerExchange Express CDC for Oracle Configuration File Parameters

You can specify some new parameters and options in the OPTIONS and READER statements of the PowerExchange Express CDC for Oracle configuration file, pwxorad.cfg.

The following table identifies new parameters in the OPTIONS statement:

OPTIONS Parameter	New, Changed, or Deprecated
LOGARCHIVEWAIT	New
PARTITION_DROP_FAIL	New
RETRYONKILLSESSION	New
SUPPORT_DIRECT_PATH_OPS	New

The following table identifies new parameters and options in the READER statement:

READER Parameter	New, Changed, or Deprecated
MODE > ARCHIVECOPY	New ARCHIVECOPY option
DIR	New
FILE	New

For more information, see "PowerExchange Express CDC for Oracle Configuration File" on page 195.

PWXPC Connection Attributes

The following table identifies changed PWXPC connection attributes:

Attribute	New, Changed, or Deprecated
Array Size	Changed
Offload Processing	Changed

For more information, see "PWXPC Connection Attributes" on page 62.

Changes to Supported Operating Systems and Data Sources in 10.1

PowerExchange 10.1 introduces the following changes to the operating systems and data sources that PowerExchange supports.

For more information about version and maintenance requirements for operating systems and data sources, see the "Installation Planning" chapter in the *PowerExchange Installation and Upgrade Guide*.

Data Sources

The following table identifies added, dropped, or deferred data source or target versions in PowerExchange 10.1:

Data Source	Version	Operating System	Bulk	CDC	Added, Dropped, or Deferred
CICS Transaction Server	5.3	z/OS	Not applicable - Use VSAM bulk data movement instead.	Supported - sources	Added
CICS Transaction Server	3.1, 3.2	z/OS	-	-	Dropped

Data Source	Version	Operating System	Bulk	CDC	Added, Dropped, or Deferred
IMS	14	z/OS	Supported - sources and targets	Supported[1] - sources	Added
IMS	9.1	z/OS	-	-	Dropped
1. Both IMS synchronous CDC and log-based CDC support IMS 14 sources.					

Operating Systems

The following table identifies changes to supported operating system versions in PowerExchange 10.1:

Operating System	Version	Added or Dropped
i5/OS	5.4	Dropped
SUSE Linux	12 (64-bit, Opteron and EM64T)	Added
z/OS	2.2	Added

Documentation Change in 10.1

This section describes changes and enhancements to the PowerExchange 10.1 documentation.

Terminology Change

The term *PowerExchange Logger for MVS* has been changed to *PowerExchange Logger for z/OS* throughout the PowerExchange 10.1 documentation. The only exceptions are topics that pertain to an earlier PowerExchange release in which the term *PowerExchange Logger for MVS* was still in use.

PowerExchange 10.0

This section lists the new features and changes in PowerExchange 10.0.

New Features in 10.0

The following table lists PowerExchange 10.0 new features by PowerExchange component or data source:

Component or Data Source	Feature Reference
DB2 for i5/OS	"Support for LOB Datatypes" on page 146
DB2 for z/OS	"Support for LOB Datatypes" on page 160

Component or Data Source	Feature Reference
IMS	"Updated Components in the PowerExchange 10.0 ECCR CRG.LOAD Library for IMS Synchronous CDC" on page 175
Oracle	"PowerExchange Express CDC for Oracle Supports Oracle Index-Organized Tables" on page 198 "PowerExchange Express CDC for Oracle Supports Oracle 12c Multitenant Pluggable Databases" on page 198
PowerExchange Logger for Linux, UNIX, and Windows	"Enhanced Monitoring Statistics for the PowerExchange Logger for Linux, UNIX, and Windows" on page 102
PowerExchange Navigator	"Ability to Specify Restart Tokens for a Database Row Test" on page 114
PowerExchange Utilities	"Enhancements to the Data Map Creation Utility" on page 133
VSAM	"CICS/VSAM ECCR Support for VSAM ESDS Data Sets" on page 213

Parameter and Option Changes in 10.0

PowerExchange 10.0 introduces parameter and option changes.

DBMOVER Configuration File Statements

The following table identifies new, changed, or deprecated statements in the DBMOVER configuration file:

Statement	New, Changed, or Deprecated
GDGLOCATE	Changed
MSSQL_SERVER_CONNECT_TIMEOUT	New
MSSQL_SERVER_STATEMENT_TIMEOUT	New
SECURITY_MSGSUPP	New

For more information, see "DBMOVER Configuration File Statements" on page 82.

PowerExchange Logger for Linux, UNIX, and Windows Parameters

The following table identifies a new parameter in the PowerExchange Logger configuration file, pwxccl.cfg:

Parameter	New, Changed, or Deprecated
STATS	New

For more information about these parameters, see "PowerExchange Logger Configuration File Parameter" on page 103.

PowerExchange Express CDC for Oracle Configuration Parameter

The following table identifies changes to statements in the PowerExchange Express CDC for Oracle configuration file, pwxorad.cfg:

Statement	New, Changed, or Deprecated
OPTIONS	Changed - New TRUNCINVALIDCHARS parameter

For more information, see "PowerExchange Express CDC for Oracle Configuration File" on page 199.

CICS/VSAM CDC Override Options

The following table identifies the CICS/VSAM CDC override options that you can specify in the new //EDMKOVRD DD statement in the CICS startup procedure or in the data set to which this DD points:

Option	New, Changed, or Deprecated
CAPTURE_ESDS	New
CAPTURE_KSDS	New
CAPTURE_RRDS	New
CAPTURE_CMDT	New
BACKOUTRC	New
ESDSFAIL	New
DSN	New

For more information, see "CDC Override Options in the EDMKOVRD DD Data Set" on page 214.

PWXPC Connection Attributes

The following table identifies changed PWXPC connection attributes:

Attribute	New, Changed, or Deprecated
Location	Changed
PWX Override	Changed

For more information, see "PWXPC Connection Attributes" on page 63.

PowerExchange ODBC Data Source Properties

The following table identifies a changed property for PowerExchange ODBC data sources:

Property	New, Changed, or Deprecated
Location	Changed

For more information, see "Location Property" on page 221.

Command Changes in 10.0

PowerExchange 10.0 introduces changes to PowerExchange Logger for Linux, UNIX, and Windows command-line commands and PWXUCDCT utility commands.

PowerExchange Logger for Linux, UNIX, and Windows Commands

PowerExchange 10.0 adds commands for producing monitoring statistics for the PowerExchange Logger for Linux, UNIX, and Windows.

The following table identifies the commands:

Command	New, Changed, or Deprecated
DG	New
DL (or DS)	New
pwxcmd displaystats -type {logger|groups}	Changed - New -type (-tp) option and arguments

For more information, see "Command Changes in 10.0" on page 104.

CICS/VSAM ECCR Commands

PowerExchange 10.0 adds commands for the CICS/VSAM ECCR.

The following table identifies the new and changed commands:

Command	New, Changed, or Deprecated
DISPLAY	Changed to also cover ESDS data sets.
EXITPGMS	New
OPTIONS	New
REFRESH	New
RESTART	New

For more information, see "CICS/VSAM ECCR Commands" on page 216.

Behavior Changes in 10.0

The following table lists PowerExchange 10.0 behavior changes by PowerExchange component or data source:

Component or Data Source	Reference
Installation and upgrade	"Changes to PowerExchange Installation and Functionality on Windows" on page 55
Microsoft SQL Server CDC	"Installation of the DataDirect ODBC Driver for SQL Server" on page 187

Changes to Supported Operating Systems and Data Sources in 10.0

PowerExchange 10.0 introduces the following changes to the operating systems and data sources that PowerExchange supports.

For more information about version and maintenance requirements for operating systems and data sources, see the *PowerExchange Installation and Upgrade Guide*.

Data Sources

The following table identifies new, changed, or deprecated data source versions in PowerExchange 10.0:

Data Source	Version	Operating System	Bulk	CDC	New, Changed, or Deprecated
Adabas	All	Linux, UNIX, or Windows	No longer supported	-	Deprecated
Adabas	8.3.*x*	z/OS	X	X	New
Adabas unload files	-	z/OS	No longer supported	-	Deprecated
CA Datacom	15	z/OS	X	X	New
CA Datacom	11	z/OS	No longer supported	No longer supported	Deprecated
CA IDMS	19	z/OS	X	X	New
C-ISAM	-	AIX, HP-UX, Red Hat Linux, SUSE Linux, Solaris, and Windows	No longer supported	-	Deprecated
Microsoft SQL Server	2008, 2012[1]	Windows	No longer supported	No longer supported	Deprecated

1. Microsoft SQL Server 2008 and 2012 are no longer supported. However, Microsoft SQL Server 2008 R2 and 2012 R2 are supported for bulk data movement and CDC.

Operating Systems

The following table identifies changes to supported operating system versions in PowerExchange 10.0:

Operating System	Version	New or Deprecated
HP-UX	Any	Deprecated
Redhat Enterprise Linux	6.5, 7.0 (64-bit, Opteron, EM64T)	New
Redhat Enterprise Linux	5.9, 6.4 (64-bit, Opteron, EM64T)	Deprecated
Redhat Enterprise Linux	5.3, 6.1 (64-bit, IBM System z)	Deferred. To be reinstated in a future 10.*x* release.
Solaris SPARC	10	Deprecated
Solaris SPARC	11	Deferred. To be reinstated in a future 10.*x* release.
SUSE Linux	11 (64-bit, Opteron, EM64T and IBM System z)	Deferred. To be reinstated in a future 10.*x* release.
Windows Server 2012 (64-bit)[1]	-	Deprecated
Windows Server 2008 SP2 (32-bit, 64-bit)	-	Deprecated

1. Windows Server 2012 is no longer supported for sources, targets, the PowerExchange Navigator, and client environments in which PowerExchange runs. However, Windows Server 2012 R2 is still supported.

2. Windows Server 2008 (32-bit, 64-bit), with or without SP2, is no longer supported for sources, targets, the PowerExchange Navigator, and client environments. However, Windows Server 2008 R2 (64-bit) is still supported.

PowerExchange 9.6.1 HotFix 4

This section lists the new features and changes in PowerExchange 9.6.1 HotFix 4.

New Features in 9.6.1 HotFix 4

The following table lists PowerExchange 9.6.1 HotFix 4 new features by PowerExchange component or data source:

Component or Data Source	Feature Reference
IMS	"Updated Components in the PowerExchange 9.6.1 HotFix 4 ECCR CRG.LOAD Library for IMS Synchronous CDC" on page 175
Oracle	"PowerExchange Express CDC for Oracle Supports Oracle Direct-Path Operations" on page 200

Parameter and Option Changes in 9.6.1 HotFix 4

PowerExchange 9.6.1 HotFix 4 introduces parameter and option changes.

DBMOVER Configuration File Statements

The following table identifies new, changed, or deprecated statements in the DBMOVER configuration file:

Statement	New, Changed, or Deprecated
LRAP CAPI_CONNECTION	Changed - New UIDFMTIMS parameter
MSSQL_SERVER_CONNECT_TIMEOUT	New
MSSQL_SERVER_STATEMENT_TIMEOUT	New

For more information, see "DBMOVER Configuration File Statements" on page 83.

PowerExchange Condense Configuration File Parameters

The following table identifies a new parameter in the PowerExchange Condense CAPTPARM configuration member:

Parameter	New, Changed, or Deprecated	Reference
OPER_WTOR_ENABLED	New	"PowerExchange Condense Configuration File Parameter" on page 71

Adabas ECCR Parameter

The following table identifies a new optional parameter that you can specify in the RUNLIB(ADAECRP1) member for the Adabas ECCR:

Parameter	New, Changed, or Deprecated	Reference
ETID_DATE	New	"Adabas ECCR Parameter" on page 139

DB2 for z/OS ECCR Statements in the REPL2OPT DD Data Set

The following table identifies changes to configuration statements in the data set or RUNLIB member that is allocated by the REPL2OPT DD statement in the DB2 for z/OS ECCR JCL:

Statement	New, Changed, or Deprecated
IFI306 [OPT={N|Y|F}]	Changed - new OPT=F keyword value
SKIPURDML	New

For more information, see "DB2 ECCR Configuration Statements in the REPL2OPT DD Data Set" on page 161.

PowerExchange Express CDC for Oracle Configuration File Parameters

The following table identifies new and changed parameters for statements in the PowerExchange Express CDC for Oracle configuration file, pwxorad.cfg:

Statement	Parameter	New, Changed, or Deprecated
OPTIONS	LOGARCHIVEWAIT RETRYONKILLSESSION SUPPORT_DIRECT_PATH_OPS TRUNCINVALIDCHARS	New
RAC	MEMBERS	Changed

For more information, see "PowerExchange Express CDC for Oracle Configuration File" on page 200.

Changes to Supported Operating Systems and Data Sources in 9.6.1 HotFix 4

PowerExchange 9.6.1 HotFix 4 introduces a change to the operating system versions that PowerExchange supports.

For more information about supported operating systems and database versions, see the *PowerExchange 9.6.1 HotFix 4 Installation and Upgrade Guide*.

Operating Systems

The following table identifies changes to supported operating system versions in PowerExchange 9.6.1 HotFix 4:

Operating System	Version	Added, Dropped, or Deferred
z/OS	2.2	Added

PowerExchange 9.6.1 HotFix 3

This section lists the new features and changes in PowerExchange 9.6.1 HotFix 3.

New Features in 9.6.1 HotFix 3

The following table lists PowerExchange 9.6.1 HotFix 3 new features by PowerExchange component or data source:

Component or Data Source	Feature Reference
DB2 for Linux, UNIX, and Windows	"Support for IBM DB2 for Linux, UNIX, and Windows Version 10.5" on page 150
Microsoft SQL Server	"CDC Support for SQL Server Databases That Use TDE" on page 188
PowerExchange Listener	"Enhancements to LDAP User Authentication in PowerExchange" on page 84
PowerExchange Logger for Linux, UNIX, and Windows	"PowerExchange Logger Support for LDAP User Authentication" on page 106

Parameter and Option Changes in 9.6.1 HotFix 3

PowerExchange 9.6.1 HotFix 3 introduces parameter and option changes.

DBMOVER Configuration File Statements

The following table identifies new, changed, or deprecated statements in the DBMOVER configuration file:

Statement	New, Changed, or Deprecated
CAPX CAPI_CONNECTION	Changed - Parameter behavior change
LDAP_BIND_TIMEOUT	New
LDAP_TLS	Changed - New parameters
SSL	Changed - New parameter

For more information, see "DBMOVER Configuration File Statements" on page 84.

IDMS Log-Based ECCR Parameter

The following table identifies a new optional parameter that you can specify in the RUNLIB(ECCRIDLP) member for the IDMS log-based ECCR:

Parameter	New, Changed, or Deprecated	Reference
ABRT_TERMINATION_BLOCK_COUNT	New	"IDMS Log-Based ECCR Parameter" on page 170

PowerCenter Session Properties

The following table identifies a new PowerCenter® session property for PowerExchange nonrelational targets:

Property	New, Changed, or Deprecated	Reference
Pre SQL run once per Connection	New	"Session Properties" on page 63

Changes to Supported Operating Systems and Data Sources in 9.6.1 HotFix 3

PowerExchange 9.6.1 HotFix 3 introduces the following changes to the operating systems and data sources that PowerExchange supports.

For more information about version and maintenance requirements for operating systems and data sources, see the *PowerExchange 9.6.1 HotFix 3 Installation and Upgrade Guide*.

Data Sources

The following table identifies new, changed, or deprecated data source versions in PowerExchange 9.6.1 HotFix 3:

Data Source	Version	Operating System	Bulk	CDC	New, Changed, or Deprecated
DB2 for Linux, UNIX, and Windows	10.5	Supported on Linux, UNIX, and Windows systems Not supported on zLinux systems	Supported	Supported	New

Also, in PowerExchange 9.6.1 HotFix 3, PowerExchange Express CDC for Oracle has completed certification testing with Oracle 12*c* sources.

Operating Systems

PowerExchange 9.6.1 HotFix 3 requires Windows Service Pack 2 (SP2) on Windows Server 2008 systems. If you run data sources, data targets, or the PowerExchange Navigator on Windows Server 2008 systems, ensure that SP2 is installed.

Upgrade Consideration in 9.6.1 HotFix 3

PowerExchange 9.6.1 HotFix 3 has the following upgrade consideration related to the DB2 for z/OS ECCR component:

Component	Reference
DB2 for z/OS ECCR	"Requirements for Upgrading the DB2 for z/OS ECCR to 9.6.1 HotFix 3" on page 162

Documentation Changes in 9.6.1 HotFix 3

This section describes changes and enhancements to the PowerExchange 9.6.1 HotFix 3 documentation.

Data Map Creation Utility

The documentation for the data map creation utility, createdatamaps, has been moved from the *PowerExchange Bulk Data Movement Guide* to the *PowerExchange Utilities Guide*.

PowerExchange 9.6.1 HotFix 2

This section lists the new features and changes in PowerExchange 9.6.1 HotFix 2.

New Features in 9.6.1 HotFix 2

The following table lists PowerExchange 9.6.1 HotFix 2 new features by PowerExchange component or data source:

Component or Data Source	Feature Reference
DB2 for i5/OS	"DB2 for i5/OS Version 7.2 Support" on page 147
IMS	"Updated Components in the PowerExchange 9.6.1 HotFix 2 ECCR CRG.LOAD Library for IMS Synchronous CDC" on page 176
Microsoft SQL Server	"PowerExchange 32-bit Windows Installation Delivers 64-bit SQL Server Client and SMO Objects" on page 188
Monitoring and tuning	"Monitoring Statistics for PowerExchange Listeners on i5/OS" on page 86
Oracle	"PowerExchange Express CDC for Oracle Support for TDE-encrypted Tablespaces" on page 203 "PowerExchange Express CDC for Oracle Support for Oracle Database 12c " on page 203 "PowerExchange Express CDC for Oracle Support for TIMESTAMP WITH TIME ZONE Datatypes" on page 203
PowerExchange Listener	"PowerExchange LDAP User Authentication" on page 86 "Support for Increased Record Sizes" on page 87
PowerExchange Logger for Linux, UNIX, and Windows	"Encryption of PowerExchange Logger Log Files" on page 107
PowerExchange Navigator	"Connection Timeout Interval for Database Row Tests" on page 115 "Support for PIC G Clause in COBOL Copybook Import" on page 115

Parameter and Option Changes in 9.6.1 HotFix 2

PowerExchange 9.6.1 HotFix 2 introduces parameter and option changes.

DBMOVER Configuration File Statements

The following table identifies new, changed, or deprecated statements in the DBMOVER configuration file:

Statement	New, Changed, or Deprecated
AS4J CAPI_CONNECTION	Changed - Changed ALWCLRPFM parameter
ENCRYPT	Changed - Supports DES and RC2 on all operating systems
HOSTNAME	New
LDAP_BASE	New
LDAP_BIND_DN	New
LDAP_BIND_EPWD	New
LDAP_BIND_PWD	New
LDAP_FILTER	New
LDAP_HOST	New
LDAP_LOGIN_ATTRIBUTE	New
LDAP_PORT	New
LDAP_SASL_MECH	New
LDAP_SCOPE	New
LDAP_SEARCH_TIMEOUT	New
LDAP_TLS	New
SECURITY	Changed - New third positional parameter
SSL_CONTEXT_METHOD	Changed - Changed supported values
STATS	Changed - Changed MONITOR parameter
USE_DB_AUTH	New

For more information, see "DBMOVER Configuration File Statements" on page 87.

PowerExchange Express CDC for Oracle Configuration File Parameters

The following table identifies new parameters for the DATABASE statement in the PowerExchange Express CDC for Oracle configuration file, pwxorad.cfg:

DATABASE Parameter	New, Changed, or Deprecated
TDEWALLETEPWD	New
TDEWALLETPWD	New

For more information, see "PowerExchange Express CDC for Oracle Configuration File" on page 204.

PowerExchange Logger for Linux, UNIX, and Windows Parameters

The following table identifies new parameters in the PowerExchange Logger configuration file, pwxccl.cfg:

Parameter	New, Changed, or Deprecated
ENCRYPTEPWD	New
ENCRYPTOPT	New
ENCRYPTPWD	New

For more information about these parameters, see "PowerExchange Logger Configuration File Parameters" on page 107.

PowerExchange Client for PowerCenter Connection Attributes

The following table identifies changed PowerCenter connection attributes:

Attribute	New, Changed, or Deprecated
Encryption Type	Changed - Support for DES and RC2 encryption types on all operating systems
PWX Override	Changed - New LOWVALUES and RETLOGINFOMSG overrides

For more information, see "PWXPC Connection Attributes" on page 64.

Command Changes in 9.6.1 HotFix 2

PowerExchange 9.6.1 HotFix 2 introduces changes to PowerExchange Logger for Linux, UNIX, and Windows command-line commands and PWXUCDCT utility commands.

PowerExchange Logger for Linux, UNIX, and Windows Startup Command

PowerExchange 9.6.1 HotFix 2 adds parameters to the pwxccl command for cold starting the PowerExchange Logger for Linux, UNIX, and Windows.

The following table identifies the command and its new parameters:

Command	New, Changed, or Deprecated
pwxccl	Changed - New encryptepwd parameter

For more information, see "Command Changes in 9.6.1 HotFix 2" on page 109.

PWXUCDCT Utility Command

The following table identifies a changed PWXUCDCT utility command for the PowerExchange Logger for Linux, UNIX, and Windows:

Command	New, Changed, or Deprecated
RESTORE_CDCT	Changed

For more information, see "PWXUCDCT Utility Command Change" on page 135.

pwxcmd Commands

PowerExchange 9.6.1 HotFix 2 enhances a command to enable you to print monitoring statistics for a PowerExchange Listener on i5/OS on demand from a remote Linux, UNIX, or Windows system.

The following table identifies the enhanced command:

Command	New, Changed, or Deprecated
pwxcmd displaystats	Changed - Available for Listeners on i5/OS

For more information, see "pwxcmd displaystats Command Supports PowerExchange Listeners on i5/OS" on page 90.

Changes to Supported Operating Systems and Data Sources in 9.6.1 HotFix 2

PowerExchange 9.6.1 HotFix 2 introduces the following changes to the operating systems and data sources that PowerExchange supports.

For more information about version and maintenance requirements for operating systems and data sources, see the *PowerExchange 9.6.1 HotFix 2 Installation and Upgrade Guide*.

Data Sources

The following table identifies new, changed, or deprecated data source versions in PowerExchange 9.6.1 HotFix 2:

Data Source	Version	Operating System	Bulk	CDC	New, Changed, or Deprecated
DB2 for i5/OS	7.2	i5/OS	Supported	Supported	New
Oracle	12*c*[1]	Linux, UNIX, and Windows	Previously supported	Newly supported for PowerExchange Express CDC for Oracle. Previously supported for PowerExchange Oracle CDC with LogMiner.	New for Express CDC for Oracle

1. As of the PowerExchange 9.6.1 HotFix 2 release in January 2015, PowerExchange Express CDC for Oracle had not completed certification testing with Oracle 12*c* sources. For information about the availability of this feature, contact Informatica Global Customer Support.

PowerExchange 9.6.1 HotFix 1

This section lists the new features and changes in PowerExchange 9.6.1 HotFix 1.

New Features in 9.6.1 HotFix 1

The following table lists PowerExchange 9.6.1 HotFix 1 new features by PowerExchange component or data source:

Component or Data Source	Feature Reference
CICS Transaction Server	"Support for CICS Transaction Server Version 5.2" on page 217
IMS	"Enhancements to the Data Map Creation Utility" on page 177
Monitoring and tuning	"Monitoring Statistics for PowerExchange Listeners on Linux and UNIX" on page 90
PowerExchange Navigator	"Instance Field for Microsoft SQL Server Registration Groups" on page 116
PowerExchange Utilities	"Microsoft SQL Server Instance Identifier for the DTLUCBRG and DTLURDMO Utilities" on page 135
VSAM and sequential or flat files	"Enhancement to the Data Map Creation Utility" on page 217

Parameter and Option Changes in 9.6.1 HotFix 1

PowerExchange 9.6.1 HotFix 1 introduces parameter and option changes.

DBMOVER Configuration File Statements

The following table identifies new, changed, or deprecated statements in the DBMOVER configuration file:

Statement	New, Changed, or Deprecated
MSQL CAPI_CONNECTION	Changed - New ENABLELWM parameter

For more information, see "DBMOVER Configuration File Statements" on page 91.

Changes to Supported Operating Systems and Data Sources in 9.6.1 HotFix 1

PowerExchange 9.6.1 HotFix 1 introduces the following changes to the operating systems and data sources that PowerExchange supports.

Note: The term *data source* refers generically to the DBMSs, VSAM data sets, sequential files, and flat files from which PowerExchange reads data or to which PowerExchange writes data.

For more information about version and maintenance requirements for operating systems and data sources, see the *PowerExchange 9.6.1 HotFix 1 Installation and Upgrade Guide*.

Data Sources

The following table identifies new, changed, or deprecated data source versions in PowerExchange 9.6.1 HotFix 1:

Data Source	Version	Operating System	Bulk	CDC	New, Changed, or Deprecated
CICS Transaction Server	5.2	z/OS	Not applicable - Use VSAM bulk data movement instead.	Supported	New
Microsoft SQL Server	2014	Windows	Supported	Supported	New

PowerExchange 9.6.1

This section lists the new features and changes in PowerExchange 9.6.1.

New Features in 9.6.1

The following table lists PowerExchange 9.6.1 new features by PowerExchange component or data source:

Component or Data Source	Feature Reference
DB2 for Linux, UNIX, and Windows	"CDC Support for DB2 for Linux, UNIX, and Windows Version 10.1" on page 151
IDMS	"PowerExchange Functions that Preserve IDMS Set Relationships" on page 170 "Automatic Generation of Expression Fields that Preserve IDMS Set Relationships" on page 171
IMS	"IMS Version 13 Support for Synchronous CDC" on page 177 "Updated Components in the PowerExchange 9.6.1 ECCR CRG.LOAD Library for IMS Synchronous CDC" on page 178
Monitoring and tuning	"Monitoring Statistics for PowerExchange Listeners on Windows and z/OS" on page 92
Oracle	"Support for Oracle Data Guard Physical Standy Databases as Sources" on page 205
PowerExchange Navigator	"Skipping a Specific Number of Initial Rows for a Database Row Test" on page 116

Parameter and Option Changes in 9.6.1

PowerExchange 9.6.1 introduces some parameter and option changes.

DBMOVER Configuration File Statements

The following table identifies new, changed, or deprecated statements in the DBMOVER configuration file:

Statement	New, Changed, or Deprecated
APPBUFSIZEDYN	Changed
MSQL CAPI_CONNECTION	Changed - new parameter
STATS	Changed - new parameter

For more information, see "DBMOVER Configuration File Statements" on page 93.

EDMLUCTR Utility Parameter

The following table identifies a new parameter for the EDMLUCTR utility:

Statement	New, Changed, or Deprecated
ENDRBA	New

For more information, see "EDMLUCTR Utility Parameter" on page 136.

PowerCenter Connection Attributes

The following table identifies changed PowerCenter connection attributes:

Attribute	New, Changed, or Deprecated
Load Options	Changed
PWX Override	Changed

For more information, see "DB2 Relational Connections for Bulk Data Movement" on page 65.

PowerExchange Express CDC for Oracle Configuration Statements and Parameters

The following table identifies changes to statements in the PowerExchange Express CDC for Oracle configuration file, pwxorad.cfg:

Statement	New, Changed, or Deprecated
DATABASE	Changed
OPTIONS	Changed - New AGEOUTPERIOD parameter
READER	Changed - Dropped ASM_DBREADER parameter
STANDBY	New

For more information, see "PowerExchange Express CDC for Oracle Configuration File" on page 206.

PowerExchange Navigator Parameter for Generating DB2 Restart Tokens

The following table identifies a new parameter that you can enter in the **Database Row Test** dialog box when you generate current restart tokens for a DB2 for Linux, UNIX, and Windows source:

Parameter	New, Changed, or Deprecated	Reference
INSTANCE	New	" Parameter for Generating DB2 for Linux, UNIX, and Windows Restart Tokens" on page 117

PowerExchange ODBC Parameters

The following table identifies changed PowerExchange ODBC driver parameter:

Parameter	New, Changed, or Deprecated	Reference
Load Options	Changed	"DB2 for z/OS Load Options" on page 221

Command Changes in 9.6.1

PowerExchange 9.6.1 introduces a new command for PowerExchange Listeners on Windows and z/OS.

The following table identifies this command:

Command	New, Changed, or Deprecated	Reference
DISPLAYSTATS	New	"DISPLAYSTATS Command for the PowerExchange Listener" on page 94

Behavior Changes in 9.6.1

The following table lists PowerExchange 9.6.1 behavior changes by PowerExchange component or data source:

Component or Data Source	Reference
Installation and upgrade	"Java Requirements on AIX, HP-UX, and z/Linux" on page 56
Microsoft SQL Server	"PowerExchange Handling of SQL Server Date Columns" on page 191
PowerExchange Agent	"Expanded PowerExchange Agent Buffer Size for DB2 for z/OS ECCR Processing" on page 60
PowerExchange Navigator	"Change to the Maximum Rows That a Row Test Can Fetch" on page 117 "Change to the Refresh Configuration Command" on page 118 "Change to Valid Values for a Data Map Preference" on page 117

Changes to Supported Operating Systems and Data Sources in 9.6.1

PowerExchange 9.6.1 introduces the following changes to the operating systems and data sources that PowerExchange supports.

Note: The term *data source* refers generically to the DBMSs, VSAM data sets, sequential files, and flat files from which PowerExchange reads data or to which PowerExchange writes data.

For more information about version and maintenance requirements for operating systems and data sources, see the *PowerExchange 9.6.1 Installation and Upgrade Guide*.

Data Sources

The following table identifies new, changed, or deprecated data source versions in PowerExchange 9.6.1:

Data Source	Version	Operating System	Bulk	CDC	New, Changed, or Deprecated
DB2 for Linux, UNIX, and Windows	10.1 with Fix Pack 3	Linux, UNIX, and Windows	Previously supported	Supported on Linux, UNIX, and Windows. Not supported on zLinux.	New for CDC
DB2 for Linux, UNIX, and Windows	9.5	Linux, UNIX, and Windows	_	_	Deprecated
IMS	13	z/OS	Previously supported	Supported for synchronous CDC. Previously supported for log-based CDC.	New for synchronous CDC
Oracle	12c	Linux, UNIX, and Windows	Supported	Supported for PowerExchange Oracle CDC with LogMiner. Not supported for PowerExchange Express CDC for Oracle.	New for Oracle CDC with LogMiner

Supported Windows Versions for the PowerExchange Navigator

The following table identifies a change to the Windows versions that the PowerExchange Navigator supports:

Windows Version	Processor Type	New or Deprecated
Windows 8.1	32-bit and 64-bit	New

PowerExchange 9.6.0

This section lists the new features and changes in PowerExchange 9.6.0.

New Features in 9.6.0

The following table lists PowerExchange 9.6.0 new features by PowerExchange component or data source:

Component or Data Source	Feature Reference
Adabas	"Support for Adabas Spanned Records" on page 142 "Adabas Version 8.2.4, 8.2.5, and 8.2.6 Support" on page 143
CICS/VSAM CDC	"Support for CICS Transaction Server Version 5.1 " on page 218
DB2 for z/OS	"DB2 11 for z/OS Support" on page 164
IMS	"Data Map Creation Utility" on page 178 "IMS Version 13 Support" on page 180 "Overrides for the IMS Access Method and Related Properties" on page 179 "Updated Components in the IMS Synchronous ECCR CRG.LOAD Library" on page 180
Oracle	"PowerExchange Express CDC Capture Across Heterogeneous Platforms" on page 208
PowerExchange Client for PowerCenter	"Uncached Lookups for Datacom and IDMS Data Sources" on page 66 "PowerCenter and PWXPC Support for PowerExchange Passphrases" on page 66 "Overriding the IMS Access Method and Related Properties for a PowerCenter Session" on page 66
PowerExchange Logger for Linux, UNIX, and Windows	"Ability to Special Start the PowerExchange Logger " on page 110
PowerExchange Navigator	"PowerExchange Navigator Support for PowerExchange Passphrases" on page 119 "Overriding the IMS Access Method and Related Parameters for a Database Row Test" on page 118
PowerExchange ODBC	"Passphrase Support in PowerExchange ODBC Connections" on page 222
PowerExchange Utilities	"PowerExchange Utility Support for PowerExchange Passphrases" on page 137
VSAM and sequential or flat files	"Data Map Creation Utility" on page 217

Parameter and Option Changes in 9.6.0

PowerExchange 9.6.0 introduces some parameter and option changes.

DBMOVER Configuration File Statements

The following table identifies new, changed, or deprecated statements in the DBMOVER configuration file:

Statement	New, Changed, or Deprecated
APPBUFSIZE	Changed
APPBUFSIZEDYN	New

Statement	New, Changed, or Deprecated
DB2CODEPAGE	Changed - new defaults for the EBCDIC_CCSID and ASCII_CCSID parameters and new DB2TRANS, PLAN_CCSID, and REMAP*n* parameters
DB2ID	Changed - new default
EXT_CP_SUPPT	Changed
LOG_LINE_LIMIT	New

For more information, see "DBMOVER Configuration File Statements" on page 96.

PowerExchange Logger for Linux, UNIX, and Windows Startup Parameter

The following table identifies a new parameter that you can enter in the pwxccl command when you start the PowerExchange Logger from the command line:

Parameter	New, Changed, or Deprecated
specialstart	New

For more information, see "Ability to Special Start the PowerExchange Logger " on page 110.

PowerExchange Express CDC for Oracle Configuration Statements and Parameters

The following table identifies changes to statements in the PowerExchange Express CDC for Oracle configuration file, pwxorad.cfg:

Statement	New, Changed, or Deprecated
OPTIONS	Changed - MEMOPS parameter
READER	Behavior change - ASM_DBREADER parameter

For more information, see "PowerExchange Express CDC for Oracle Configuration File" on page 208.

DB2 ECCR Control Statements in the REPL2CTL DD Data Set

The following table identifies changes to configuration statements that you can specify in the data set or RUNLIB member that is allocated by the REPL2CTL DD statement in the DB2 for z/OS ECCR JCL:

Statement	New, Changed, or Deprecated
STOPAFT LOGLOC=*rba*	Changed
UOWPREFIX=*xx*	New

For more information, see "DB2 ECCR Control Statements in the REPL2CTL DD Data Set" on page 166.

DB2 for z/OS ECCR Statements in the REPL2OPT DD Data Set

The following table identifies changes to configuration statements that you can specify in the data set or RUNLIB member that is allocated by the REPL2OPT DD statement in the DB2 for z/OS ECCR JCL:

Statement	New, Changed, or Deprecated
IFI306OPT	Deprecated
IFI306 [OPT={N|Y}] [4KPAGES=*nnn*|15]	New
START STARTLOC=*rba*	Changed
TRACE	Changed

For more information, see "DB2 ECCR Configuration Statements in the REPL2OPT DD Data Set" on page 167.

PowerCenter Connection Attributes

The following table identifies a changed PowerCenter connection attribute:

Attribute	New, Changed, or Deprecated	Reference
Password	Changed - For DB2 for i5/OS and data sources and targets on z/OS	"PowerCenter and PWXPC Support for PowerExchange Passphrases" on page 66
PWX Override	Changed - New CONNSHARE override	"PWXPC Connection Attribute" on page 67

PowerCenter Session-Level Properties

PowerCenter session properties for an IMS source or target now include properties for overriding the IMS access method and related information, such as the IMS SSID, PSB name, PCB name, and PCB number.

The following table identifies the override properties that are available for an IMS source or target on the **Mapping** tab of the **Edit Tasks** dialog box:

Property	New, Changed, or Deprecated
IMS AM Override	New
IMS SSID Override	New
IMS PSBNAME Override	New
IMS PCBNAME Override	New
IMS PCBNUMBER Override	New

For more information, see "Overriding the IMS Access Method and Related Properties for a PowerCenter Session" on page 66.

Command Changes in 9.6.0

PowerExchange 9.6.0 introduces changes to pwxcmd commands for PowerExchange Condense and the PowerExchange Listener.

pwxcmd Commands

PowerExchange 9.6.0 provides support for passphrases in pwxcmd commands for PowerExchange Condense and PowerExchange Listener processes on z/OS or i5/OS.

The following table identifies the commands that accept a passphrase or encrypted passhprase:

Command	New, Changed, or Deprecated	Reference
PowerExchange Condense pwxcmd commands: condense, displaystatus, fileswitch, shutcond, and shutdown	Changed	"Passphrases in pwxcmd Commands for PowerExchange Condense" on page 72
PowerExchange Listener pwxcmd commands: close, closeforce, listtask, stoptask	Changed	"Passphrases in pwxcmd Commands for the PowerExchange Listener" on page 98

Changes to Supported Operating Systems and Data Sources in 9.6.0

PowerExchange 9.6.0 introduces the following changes to the operating systems and data sources that PowerExchange supports.

Note: The term *data source* refers generically to the DBMSs, VSAM data sets, sequential files, and flat files from which PowerExchange reads data or to which PowerExchange writes data.

For more information about version and maintenance requirements for operating systems and data sources, see the *PowerExchange 9.6.0 Installation and Upgrade Guide*.

Operating Systems

The following table identifies changes to supported operating system versions in PowerExchange 9.6.0:

Operating System	Version	New or Deprecated
SUSE Linux Enterprise Server	10, 11 on 32-bit, x86 machines only	Deprecated
Windows 8	32- and 64-bit	New for the PowerExchange Navigator client
Windows 2012	64-bit	New for the PowerExchange Navigator client
Windows XP Pro	-	Deprecated for the PowerExchange Navigator client
z/OS	1.10	Deprecated
z/OS	2.1	New

Data Sources

The following table identifies new, changed, or deprecated data source versions in PowerExchange 9.6.0:

Data Source	Version	Operating System	Bulk	CDC	New, Changed, or Deprecated
Adabas	7.1	z/OS	-	-	Deprecated
Adabas	8.2.4, 8.2.5, 8.2.6	z/OS	Supported	Supported	New
CICS Transaction Server	2.3	z/OS	-	-	Deprecated
CICS Transaction Server	5.1	z/OS	Not applicable - Use VSAM bulk data movement instead.	Supported	New
DB2 for Linux, UNIX, and Windows	10.1	Linux, UNIX, and Windows	Supported	Not supported	New for bulk data movement
DB2 for z/OS	8.1	z/OS	-	-	Deprecated
DB2 for z/OS	11	z/OS	Supported	Supported	New
IDMS	16	z/OS	-	-	Deprecated
IMS	8.1	z/OS	-	-	Deprecated
IMS	13	z/OS	Supported	Supported for log-based CDC. Not supported for synchronous CDC.	New
Oracle	10*g* R2	Linux, UNIX, and Windows	-	-	Deprecated

CHAPTER 2

PowerExchange Installation and Upgrade

This chapter includes the following topics:

PowerExchange 10.1.1 - New Features and Changes for Installation and Upgrade

This section describes the PowerExchange 10.1.1 new features and changes that are related to PowerExchange installation and upgrade.

Behavior Changes in 10.1.1

PowerExchange 10.1.1 introduces the following installation behavior change:

Installation Change for DB2 for z/OS CDC

During an installation or upgrade, PowerExchange now uses the DB2BINDB and DB2SGENB members in the RUNLIB library to bind the DB2 plan and packages and to upgrade the capture directory tables for all supported versions of DB2 for z/OS CDC sources.

Previously, PowerExchange used the DB2BIND and DB2 DB2SGEN8 members for DB2 sources earlier than Version 11 by default. For DB2 11 and later sources, you had to select the **DB2 V11+** option on the **DB2 CDC Parameters** page of the **z/OS Installation Assistant** to use the DB2BINDB and DB2GENB members, which are required for these later versions.

Now, when you run the jobs that bind the DB2 plan during an installation or upgrade, PowerExchange automatically uses the DB2BINDB and DB2GENB members for all supported DB2 or z/OS versions. Because the **DB2 V11+** option is no longer necessary to distinguish among bind members, it has been removed from the z/OS Installation Assistant. This change helps simplify the installation and upgrade process.

For more information, see the "Installing and Upgrading PowerExchange on z/OS" chapter in the *PowerExchange Installation and Upgrade Guide*.

PowerExchange 10.0 - New Features and Changes for Installation and Upgrade

This section describes the PowerExchange 10.0 new features and changes that are related to PowerExchange installation and upgrade.

Behavior Changes in 10.0

PowerExchange 10.0 introduces the following behavior change that is related to installation and upgrade:

Changes to PowerExchange Installation and Functionality on Windows

PowerExchange 10.0 introduces changes to installation and functionality on Windows. PowerExchange adds certain functionality to its 64-bit executables on Window and removes certain functionality from its 32-bit executables on Windows. The changes also affect the PowerExchange installation program for Windows.

The following changes apply to PowerExchange installation and functionality on Windows:

- Changes to functionality in PowerExchange 32-bit and 64-bit Windows executables are introduced.
- A single installation program now installs 32-bit and 64-bit executables. A single zip file is provided.
- The installation directory structure has been modified. A bin32 subdirectory is now installed as a subdirectory of the main PowerExchange installation directory.
- File names for installed 32-bit Windows .dll files have been changed to enable PowerExchange 32-bit and 64-bit Windows executables to operate without conflict on the same machine.
- You can no longer select **local** as the **Location** attribute for PWXPC connections and ODBC data sources.
- PowerExchange LDAP user authentication on Windows is deprecated.

The following table summarizes the 32-bit and 64-bit executables that are provided for PowerExchange components and features in 10.0 and in previous releases:

Feature or Component	Executables Provided in PowerExchange 10.0	Executables Provided in Previous Releases
PowerExchange Navigator PowerExchange utilities	64-bit executables only[1]	32-bit executables only
PowerExchange Listener CDC support Bulk data movement support PowerExchange support for the PowerCenter Integration Service, Data Integration Service, and Informatica Developer	64-bit executables only	Both 32-bit and 64-bit executables
PowerExchange ODBC ODBC Administrator support	Both 32-bit and 64-bit executables	Both 32-bit and 64-bit executables
Support for the PowerCenter Client	32-bit executables only	32-bit executables only
1. PowerExchange 10.0 provides both 32-bit and 64-bit executables for the DTLREXE utility.		

PowerExchange 9.6.1 - New Features and Changes for Installation and Upgrade

This section describes the PowerExchange 9.6.1 new features and changes that are related to PowerExchange installation and upgrade.

New Features in 9.6.1

PowerExchange 9.6.1 introduces the following new feature that is related to PowerExchange installation and upgrade:

JES3 Installation Option

The **General Parameters** page of the z/OS Installation Assistant now includes a **JES3 Install** option. This option customizes the JCL to install PowerExchange in a JES3 environment. You no longer need to manually customize the JCL.

For more information, see the *PowerExchange Installation and Upgrade Guide*.

Behavior Changes in 9.6.1

PowerExchange 9.6.1 introduces the following behavior change that is related to installation and upgrade:

Java Requirements on AIX, HP-UX, and z/Linux

The Java requirements on AIX, HP-UX, and z/Linux have changed.

PowerExchange no longer requires a specific Java minor version on AIX and HP-UX. PowerExchange requires only the following specific Java major versions:

- 1.7.0 on AIX
- 1.7.0.05 on HP-UX

On z/Linux, PowerExchange requires Java major version 1.7.0 and Java minor version pxz6470sr5-20130619_01.

For more information, see the *PowerExchange Installation and Upgrade Guide*.

PowerExchange 9.6.0 - New Features and Changes for Installation and Upgrade

This section describes the PowerExchange 9.6.0 new features and changes that are related to PowerExchange installation and upgrade.

New Features in 9.6.0

PowerExchange 9.6.0 introduces the following new features that are related to PowerExchange installation and upgrade:

Changes to the z/OS Installation Assistant to Support DB2 11 for z/OS

Changes have been made to the z/OS Installation Assistant to support DB2 11 for z/OS.

The following pages have changed:

- On the **Select DB2 Parameters** page, the **DB2 8+ New Function Mode (or Version 9)** check box was removed.
- On the **Select DB2 CDC Parameters** page, the **DB2 V11+** check box was added. Select this option if you use DB2 11 or later. When you run the installation or upgrade jobs that bind the DB2 plan and packages and upgrade capture directory tables, the jobs use the new DB2BINDB and DB2SGENB members for DB2 11 and later.

  If you use a supported DB2 version earlier than DB2 11, you can leave this check box unselected. When you run the installation or upgrade jobs that bind the DB2 plan and packages and upgrade capture directory tables, the jobs use the DB2BIND and DB2SGEN8 members.

  Tip: If you are performing a full installation for the first time, Informatica recommends that you select this option even if your subsystem is earlier than DB2 11. The DB2 ECCR configuration members for DB2 11 and later are compatible with all of the DB2 versions that PowerExchange supports. When you are ready to migrate to DB2 11 or later, the migration process will be easier because you will not need to upgrade the ECCR capture directory tables at that time.

For more information, see the *PowerExchange Installation and Upgrade Guide*.

DB2 Configuration Tasks Related to Upgrading to PowerExchange 9.6.0 from an Earlier Release

If you use DB2 for z/OS CDC and upgrade to PowerExchange 9.6.0 from an earlier version that does not include patch P639029, you must rebind the DBRM package, X029167. If you upgrade from a version that does not include patch P523210, you must also expand a column in the DB2 for z/OS ECCR TCAPWORK capture directory table to accommodate longer LRSN values in DB2 9.1 data sharing environments.

PowerExchange 9.6.0 provides updated DB2BIND and DB2BINDB members that include the bind statements for the X029167 package. When the XIDDB225 job runs during an upgrade, it usually performs the bind operations with one of these BIND members. However, if you select the **Upgrade by Using Existing Data Set Names** option in the z/OS Installation Assistant, a previous DB2BIND member that does not include the package bind statements might be retained. In this case, run the SETDB2UE job in the staging RUNLIB library to use the latest DB2BIND member that includes the package bind statements.

If you need to expand the RBA column in the TCAPWORK capture directory table, use the SQL statements in the EXPNDCP3 member of the SAMPLIB library.

For more information, see the upgrade considerations for 9.6.0 in the *PowerExchange Installation and Upgrade Guide*.

Microsoft SQL Server Client and Packages Delivered in a Windows Installation

PowerExchange now delivers the Microsoft SQL Server 2008 Management Objects (SMO) framework, related packages, and Native Client as part of a Windows installation. PowerExchange requires these items for CDC operations that have SQL Server sources. PowerExchange also delivers the 2012 Native Client for bulk data movement operations.

PowerExchange delivers this SQL Server software in the `packages\mssqlInstalls` folder of the Windows installation directory for your convenience. Use this deliverable to install these items for PowerExchange use, if they are not already installed.

For more information, see the *PowerExchange Installation and Upgrade Guide*, *PowerExchange Bulk Data Movement Guide*, and *PowerExchange CDC Guide for Linux, UNIX, and Windows*.

PowerExchange Passphrases and Related Network Layer Changes

In PowerExchange 9.6.0 and later, you can enter a valid PowerExchange passphrase for access to z/OS and i5/OS instead of a password. You can enter a passphrase in fields, commands, and parameters throughout the PowerExchange interfaces, including the PowerExchange Navigator, PowerExchange utilities, PowerExchange Logger pwxccl.cfg configuration file, pwxcmd and infacmd commands, PowerCenter, Informatica Developer tool, and Informatica Administrator tool. Passphrases provide enhanced security because they are longer and contain a wide range of allowable character types.

In support of longer passphrases, the PowerExchange network layer changed. The network header for data transmissions was split to accommodate much longer security credentials. The connection information was moved from the regular network header to a new PowerExchange Listener header. The connection information is now sent only once instead of in each network message, which reduces network overhead.

Important: Because of these network layer changes, all PowerExchange instances in your environment must be at version 9.6.0 or later, regardless of whether you are using passphrases. Also, if you use passphrases in MVS jobs, you can allocate a long partitioned data set (PDS) for storing passphrases. Ensure that the PDS has a record length that is long enough to store both passphrases and even longer encrypted passphrases. For example, use a record length of 320.

For information about using passphrases in the PowerExchange interfaces, see the *PowerExchange Navigator User Guide*, *PowerExchange Interfaces for PowerCenter*, *PowerExchange Command Reference*, *PowerExchange Utilities Guide*, *Informatica Command Reference*, *Informatica Developer Tool Guide*, and *Informatica Administrator Guide*.

CHAPTER 3

PowerExchange Agent

This chapter includes the following topics:

PowerExchange 9.6.1 HotFix 1 - New Features and Changes for the PowerExchange Agent

This section describes the PowerExchange 9.6.1 HotFix 1 new features and changes that are related to the PowerExchange Agent.

Behavior Changes in 9.6.1 HotFix 1

PowerExchange 9.6.1 HotFix 1 introduces the following behavior change for the PowerExchange Agent.

Expanded Global Circular Queue List Table

PowerExchange 9.6.1 HotFix 1 expanded the size of an internal table in the PowerExchange Agent data space to enable more concurrent PowerExchange Listener tasks to connect to the PowerExchange Logger for MVS.

Because of this change, you must drain and shut down the PowerExchange Agent before you upgrade to 9.6.1 HotFix 1 from a prior PowerExchange release. Perform the following steps:

1. Issue the PowerExchange Agent DRAIN command to ensure that all PowerExchange Agent tasks have completed processing before you shut down the Agent address space. Use the following syntax:

   ```
   cmd_prefix DRAIN
   ```

   The *cmd_prefix* variable is the command prefix that is specified in the AGENTCTL member of the RUNLIB library or the AGENTID parameter value in the AGENTCTL member.
2. Issue the PowerExchange Agent SHUTDOWN COMPLETELY command to shut down the Agent address space and delete the data space. Use the following syntax:

   ```
   cmd_prefix SHUTDOWN COMPLETELY
   ```
3. Install the hotfix.
4. To restart the PowerExchange Agent, issue the START command:

   ```
   START agent_task_name
   ```

For more information, see the *PowerExchange Installation and Upgrade Guide*.

PowerExchange 9.6.1 - New Features and Changes for the PowerExchange Agent

This section describes the PowerExchange 9.6.1 new features and changes that are related to the PowerExchange Agent.

Behavior Changes in 9.6.1

PowerExchange 9.6.1 introduces the following behavior change for the PowerExchange Agent.

Expanded PowerExchange Agent Buffer Size for DB2 for z/OS ECCR Processing

PowerExchange 9.6.1 expanded the size of a PowerExchange Agent internal buffer to make DB2 for z/OS ECCR processing more efficient.

To use the expanded buffer size, you must perform the following steps when you upgrade to PowerExchange 9.6.1 from an earlier release:

1. After you upgrade PowerExchange, issue the PowerExchange Agent DRAIN command to ensure that all PowerExchange Agent tasks have completed processing before you shut down the Agent address space. Use the following syntax:

   ```
   cmd_prefix DRAIN
   ```

   The *cmd_prefix* variable is the command prefix that is specified in the AGENTCTL member of the RUNLIB library or the AGENTID parameter value in the AGENTCTL member.
2. Issue the PowerExchange Agent SHUTDOWN COMPLETELY command to shut down the Agent address space and delete the data space that contains the buffer. Use the following syntax:

   ```
   cmd_prefix SHUTDOWN COMPLETELY
   ```

CHAPTER 4

PowerExchange Client for PowerCenter

This chapter includes the following topics:

PowerCenter 10.2 - New Features and Changes for the PowerExchange Client for PowerCenter

Parameter and Option Changes in 10.2

The PowerCenter 10.2 version introduces changed PowerCenter connection attributes.

PWXPC Connection Attributes

You can configure the following changed connection attributes:

Array Size

Changed. The maximum value of the **Array Size** connection attribute has been reduced from 100000 to 5000. If you specify a value greater than 5000, PowerExchange changes the value to 5000 and issues warning message PWX-07630.

Encryption Level

Changed. The **Encryption Level** connection attribute now defines the encryption level when the **Encryption Type** attribute is set to **AES**.

Enter one of the following values to define the encryption level:

- **1**. Use a128-bit encryption key.
- **2**. Use a 192-bit encryption key.
- **3**. Use a 256-bit encryption key.

Default is **1**.

Encryption Type

Changed. The following table identifies new and deprecated values for the **Encryption Type** connection attribute:

Value	New or Deprecated
AES	New
DES	Deprecated
RC2	Deprecated

Enter one of the following values to specify the encryption type:

- **None**
- **AES**

Default is **None**.

Note: PowerExchange changes an **Encryption Type** value of **DES** or **RC2** to **AES**.

For more information, see the "Connections" chapter in the *PowerExchange Interfaces for PowerCenter*.

PowerCenter 10.1 - New Features and Changes for the PowerExchange Client for PowerCenter

Parameter and Option Changes in 10.1

PowerCenter 10.1 introduces changed PowerCenter connection attributes.

PWXPC Connection Attributes

You can configure the following changed connection attributes:

Array Size

Changed. You can specify the array size for a DB2 for z/OS compressed image copy data source. If zIIP processing is enabled, PowerExchange dispatches the number of rows that you define for Array Size to the zIIP processor for expansion.

Offload Processing

Changed. PowerExchange supports offload processing for DB2 for z/OS image copy data sources. To enable offload processing, select **Filter After** for the **Offload Processing** connection attribute.

For more information, see *PowerExchange Interfaces for PowerCenter*.

PowerCenter 10.0 - New Features and Changes for the PowerExchange Client for PowerCenter

Parameter and Option Changes in 10.0

PowerCenter 10.0 introduces changed PowerCenter connection attributes.

PWXPC Connection Attributes

You can configure the following changed connection attributes:

Location

Changed. You can no longer select **local** as the Location when you define a connection or import source or target definitions on a 32-bit Windows system.

PWX Override

Changed. You can configure the new CONNECTSTRINGCODEPAGE override in the **PWX Override** attribute in all PWXPC connections.

CONNECTSTRINGCODEPAGE=*code_page*

Code page of the characters in the connection string. Enter this override if PowerExchange issues message PWX-07610.

For more information, see *PowerExchange Interfaces for PowerCenter*.

PowerCenter 9.6.1 HotFix 3 - New Features and Changes for the PowerExchange Client for PowerCenter

Parameter and Option Changes in 9.6.1 HotFix 3

PowerCenter 9.6.1 HotFix 3 introduces a new PowerCenter session property.

Session Properties

For PowerExchange nonrelational targets, you can specify the following new session-level property:

Pre SQL run once per Connection

New. Runs the SQL that you specify in the **Pre SQL** attribute only once for a connection.

Select this attribute in either of the following cases:

- In the **Pre SQL** attribute for a session that uses writer partitioning, you specify a SQL statement such as CREATEFILE that can run only once for the session. If you do not select **Pre SQL run once per Connection**, the session tries to run the statement once for each partition.
- In the **Pre SQL** attribute for a session that performs a multiple-record write, you specify a CREATEFILE statement that creates a new generation of a GDG or creates an empty file. If you do not select **Pre SQL run once per Connection**, the session creates a generation or tries to create a new empty file for each record that the session writes.

For more information, see *PowerExchange Interfaces for PowerCenter*.

PowerCenter 9.6.1 HotFix 2 - New Features and Changes for the PowerExchange Client for PowerCenter

Parameter and Option Changes in 9.6.1 HotFix 2

PowerCenter 9.6.1 HotFix 2 introduces changed PowerCenter connection attributes.

PWXPC Connection Attributes

You can configure the following changed connection attributes:

Encryption Type

Changed. PowerExchange now supports the RC2 and DES encryption types on all operating systems. Previous PowerExchange releases do not support these encryption types on 64-bit Windows or Linux on IBM System z.

PWX Override

Changed. You can configure the new LOWVALUES override in the **PWX Override** attribute in PWXPC relational and application connections for DB2, Microsoft SQL Server, NRDB, and Oracle sources and for NRDB lookups. Also, you can configure the new RETLOGINFOMSG override in the **PWX Override** attribute in all PWXPC connections.

LOWVALUES={Y|N}

Indicates whether PowerExchange preserves hexadecimal '0' values, called *low values*, in source character fields when passing these values to a PowerCenter session. Enter Y to preserve low values. When the session runs, PWXPC can write these values to a VSAM target on z/OS or to a sequential file target on Linux, UNIX, Windows, or z/OS. Overrides the LOWVALUES statement in the DBMOVER configuration file.

RETLOGINFOMSG={Y|N}

Indicates whether PowerExchange includes informational messages in the workflow log. By default, PowerExchange includes error and warning messages, but not informational messages, in the workflow log.

For more information, see *PowerExchange Interfaces for PowerCenter*.

PowerCenter 9.6.1 - New Features and Changes for the PowerExchange Client for PowerCenter

This section describes the PowerCenter 9.6.1 new features and changes that are related to the PowerExchange Client for PowerCenter (PWXPC).

Parameter and Option Changes in 9.6.1

PowerCenter 9.6.1 introduces changed PowerCenter connection attributes.

DB2 Relational Connections for Bulk Data Movement

You can configure the following changed connection attributes for PWX DB2zOS relational connections:

Load Options

Changed. An option name for the **Load Options** attribute for PWX DB2zOS relational connections changed. The **Load Options** attribute indicates how the data that PowerExchange provides to the DB2 LOAD utility is loaded into a DB2 table.

Valid values:

- **RESUME**. *Changed*. Generates a LOAD RESUME statement. This value replaces the INSERT option.
- **REPLACE**. *Unchanged*. Generates a LOAD REPLACE statement.

Default is RESUME.

PWX Override

Changed. You can configure the new DB2TRUNCASDEL={N|Y} override in the **PWX Override** attribute for PWX DB2zOS relational connections.

If you use the DB2TRUNCASDEL default value of N for DB2zOS target connections, when the PowerCenter Integration Service requests a TRUNCATE statement, PowerExchange issues a TRUNCATE statement.

If you specify DB2TRUNCASDEL=Y, when the Integration Service requests a TRUNCATE statement, PowerExchange issues a DELETE statement.

Note: The DB2TRUNCASDEL override applies only to DB2zOS target connections. For DB2i5OS target connections, PowerExchange always issues a DELETE statement. For DB2LUW target connections, PowerExchange always issues a TRUNCATE statement.

For more information, see *PowerExchange Interfaces for PowerCenter*.

PowerCenter 9.6.0 - New Features and Changes for the PowerExchange Client for PowerCenter

This section describes the PowerCenter 9.6.0 new features and changes that are related to the PowerExchange Client for PowerCenter (PWXPC).

New Features in 9.6.0

PowerExchange 9.6.0 introduces the following new features for PWXPC:

Uncached Lookups for Datacom and IDMS Data Sources

PowerExchange 9.6.0 supports uncached lookups for Datacom and IDMS data sources.

PowerExchange releases earlier than 9.6.0 support cached lookups but not uncached lookups.

For more information, see *PowerExchange Interfaces for PowerCenter*.

Overriding the IMS Access Method and Related Properties for a PowerCenter Session

In PowerCenter, you can specify new session-level properties to override the IMS access method and related properties, including the IMS SSID, PSB name, PCB name, and PCB number.

On the **Mapping** tab of the **Edit Tasks** dialog box, enter the following optional overrides for an IMS source or target in the session, depending on the access method:

- **IMS AM Override**. Overrides the access method.
- **IMS SSID Override**. Overrides the IMS SSID.
- **IMS PSBNAME Override**. Overrides the PSB name. Available for IMS ODBA and DL/I batch access.
- **IMS PCBNAME Override**. Overrides the PCB name. Available for IMS ODBA access only.
- **IMS PCBNUMBER Override**. Overrides the PCB number. Available for DL/I batch access only.

If you specify the **IMS PSBNAME Override** value and use DL/I or BMP access to IMS, you must also specify the %PSBNAME substitution variable in the netport JCL.

If you specify the **IMS SSID Override** value and use BMP access to IMS, you can also specify the %IMSID substitution variable in the netport JCL to change the IMS SSID for the netport job. By using the override with the substitution variable, you can use the same netport JCL to access multiple IMS environments, such as development, test, and production environments.

For more information, see *PowerExchange Interfaces for PowerCenter*.

PowerCenter and PWXPC Support for PowerExchange Passphrases

Effective in PowerExchange 9.6.0, you can enter a valid PowerExchange passphrase instead of password to access sources and targets on z/OS and i5/OS. Passphrases provide enhanced security because they are longer and contain a wide range of allowable character types. You can also use encrypted passphrases.

You can enter a passphrase or encrypted passphrase in the PowerCenter interface when performing the following tasks:

- Defining PWXPC DB2zOS, DB2iOS, and NRDB connections for bulk data movement and CDC
- Defining PowerExchange ODBC connections

- Importing source and target definitions, importing extraction maps, and previewing data with PWXPC
- Importing source and target definitions with PowerExchange ODBC

An i5/OS passphrase can be from 9 to 31 characters in length. A z/OS passphrase can be from 9 to 128 characters in length (PWXPC connections) or from 9 to 79 characters in length (ODBC connections). In contrast, passwords are limited to eight characters or less.

Passphrases can contain the following characters:

- Uppercase and lowercase letters
- The numbers 0 to 9
- Spaces
- The following special characters:

  ```
  ' - ; # \ , . / ! % & * ( ) _ + { } : @ | < > ?
  ```

  Note: The first character is an apostrophe.

Passphrases cannot contain single quotation marks (‘), double quotation marks (“), or currency symbols. In the PowerCenter interface, you do not need to enclose passphrases in quotation marks.

Note: On z/OS, a valid RACF passphrase can be up to 100 characters in length. PowerExchange truncates passphrases longer than 100 characters when passing them to RACF for validation.

To use passphrases, ensure that the following requirements are met:

- The PowerExchange Listener runs with a security setting of SECURITY=(1,N) or higher in the DBMOVER member. For more information, see "SECURITY Statement" in the *PowerExchange Reference Manual*.
- All PowerExchange instances in your environment are at version 9.6.0 or later.

To use passphrases for IMS connections, ensure that the following additional requirements are met:

- You must configure ODBA access to IMS as described in the *PowerExchange Navigator User Guide*.
- You must use IMS data maps that specify IMS ODBA as the access method. Do not use data maps that specify the DL/1 BATCH access method because this access method requires the use of netport jobs, which do not support passphrases.
- The IMS database must be online in the IMS control region to use ODBA access to IMS.

For more information, see *PowerExchange Interfaces for PowerCenter*.

Parameter and Option Changes in 9.6.0

PowerCenter 9.6.0 introduces a new option for the PowerCenter **PWX Override** connection attribute.

PWXPC Connection Attribute

You can configure the following new override in the **PWX Override** attribute for PWX DB2zOS, PWX DB2i5OS, and PWX DB2LUW relational connection types:

CONNSHARE=N|Y

New. By default, all DB2 lookups in a workflow use the same connection, and the PowerExchange Listener performs them in a single task.

To preserve the behavior in effect for DB2 lookups in PowerExchange releases earlier than 9.6.0, specify CONNSHARE=N.

Caution: If the DB2 connection is used as a target in a CDC workflow, do not change the default behavior. Otherwise, internal PowerCenter state tables that require connection sharing might not be updated correctly.

For more information, see *PowerExchange Interfaces for PowerCenter*.

CHAPTER 5

PowerExchange Condense

This chapter includes the following topics:

PowerExchange 10.1 - New Features and Changes for PowerExchange Condense

This section describes the PowerExchange 10.1 new features and changes that are related to PowerExchange Condense.

Parameter and Option Changes in PowerExchange 10.1

PowerExchange 10.1 introduces a new parameter for the PowerExchange Condense CAPTPARM configuration member.

PowerExchange Condense Configuration File Parameter

In PowerExchange 10.1, you can add the following new parameter to the PowerExchange Condense CAPTPARM configuration member on z/OS or i5/OS:

OPER_WTOR_ENABLED={N|Y}

Controls whether PWX-06449 WTOR messages are issued when PowerExchange Condense detects that a record is missing from the CDCT file after synchronization of the checkpoint file to the CDCT file. This message requires a user reply of Y or N.

Synchronization occurs at PowerExchange Condense initialization, after a warm start of a PowerExchange Condense job. During synchronization, if any record in the checkpoint file does not match a record in the CDCT file based on the key fields, the checkpoint file record is not added to the CDCT file. The CDCT file is then missing a record that points to a condense file from which to extract change data for a registered source object and time stamp. For each record that is missing from the

CDCT file, PowerExchange issues the following PWXX-06446 warning message followed by the optional PWX-06449 WTOR message:

```
PWX-06446 Checkpoint to CDCT synchronization not done for time stamp "time_stamp"
tag "registration_tag" number record_count reason.
PWX-06449 The CDCT cannot be fully synchronized with the checkpoint file because of
missing resources. Continue? (Y/N)
```

You must respond Y or N to the PWX-06449 message to indicate whether to continue or end PowerExchange Condense processing. Use this parameter to suppress these WTOR messages if you want PowerExchange Condense to continue and if the loss of some change data during extraction processing is tolerable for the reported time stamps and registrations.

Valid values:

- **Y**. When PowerExchange Condense detects missing records in the CDCT file after checkpoint-to-CDCT synchronization, PWX-06449 messages are displayed as WTOR messages and written to the PowerExchange message log. You must reply Y or N to each of these messages to indicate whether PowerExchange Condense processing should continue without the CDCT records or stop.
  - If you reply Y, PowerExchange Condense continues processing. In this case, extraction processes will not be able to find some condense files based on the CDCT file for data extraction. Skipping some change data might be acceptable if the condense files contain old data or if the CDC workflow already processed these condense files. Use the time stamps reported in the PWX-06446 messages to determine if the data is old. If you need to extract the data, you must cold start the CDC session from an earlier point in time.
  - If you reply N, PowerExchange Condense stops.
- **N**. When PowerExchange Condense detects missing records in the CDCT file, PWX-06449 messages are suppressed. PowerExchange Condense processing continues uninterrupted without the PWX-06449 WTOR messages.

Default is Y.

For more information, see the "PowerExchange Condense" chapter in the *PowerExchange CDC Guide for z/OS* or *PowerExchange CDC Guide for i5/OS*.

This parameter is also available in 9.6.1 HotFix 4. It is not available in 10.0.

Behavior Change in 10.1

PowerExchange 10.1 introduces the following behavior change for PowerExchange Condense.

Change to PowerExchange Condense Initialization

Previously, after you started a PowerExchange Condense job on z/OS or i5/OS, the Controller task started and then started the Command Handler and Condense subtasks concurrently. In PowerExchange 10.1, the Controller starts the Command Handler subtask and waits for the Command Handler to reply with a initialization complete event before starting the Condense subtask.

This initialization behavior allows the Command Handler to respond to commands immediately after it initializes, instead of waiting for the Condense subtask to finish initialization. Also, because the initialization sequence of the subtasks is now always the same, the message output from startup processing is more consistent.

The following additional changes improve PowerExchange Condense performance:

- PowerExchange Condense tracks and reports fewer status events.
- PowerExchange Condense no longer uses a Dump subtask, also called the Dump Handler, for dumping some memory in hexadecimal format.

For more information, see the *PowerExchange CDC Guide for z/OS* and *PowerExchange CDC Guide for i5/OS*.

PowerExchange 9.6.1 HotFix 4 - New Features and Changes for PowerExchange Condense

This section describes the PowerExchange 9.6.1 HotFix 4 new features and changes that are related to PowerExchange Condense.

Parameter and Option Changes in PowerExchange 9.6.1 HotFix 4

PowerExchange 9.6.1 HotFix 4 introduces a new parameter for the PowerExchange Condense CAPTPARM configuration member.

PowerExchange Condense Configuration File Parameter

In PowerExchange 9.6.1 HotFix 4, you can add the following new parameter to the PowerExchange Condense CAPTPARM configuration member on z/OS or i5/OS:

OPER_WTOR_ENABLED={N|Y}

Controls whether PowerExchange sends PWX-06449 messages that require a user reply when PowerExchange Condense detects that a record is missing from the CDCT file after synchronization of the checkpoint file to the CDCT file. This message requires a reply of Y or N.

Synchronization occurs after a PowerExchange Condense warm start, at initialization. During synchronization, if any record in the checkpoint file does not match a record in the CDCT file based on the key fields, the checkpoint file record is not added to the CDCT file. The CDCT file is then missing a record that points to a condense file from which to extract change data for a registered source object and time stamp. For each record that is missing from the CDCT file, PowerExchange issues the following PWXX-06446 warning message followed by the optional PWX-06449 message:

```
PWX-06446 Checkpoint to CDCT synchronization not done for time stamp "time_stamp"
tag "registration_tag" number record_count reason.
PWX-06449 There are missing resources, these can not be recovered. Continue? (Y/N)
```

You must respond Y or N to each PWX-06449 message to indicate whether to continue or end PowerExchange Condense processing. Use this parameter to suppress the PWX-06449 messages if you want PowerExchange Condense to continue without interruption and if the loss of some change data during extraction processing is tolerable for the reported time stamps and registrations.

Valid values:

- **Y**. When PowerExchange Condense detects missing records in the CDCT file after checkpoint-to-CDCT synchronization, it issues PWX-06449 messages. On z/OS, these messages are issued as WTOR messages and written to the PowerExchange message log. On i5/OS, these user reply messages are written to the AS400USRMSGQ message queue. You must reply Y or N to each

PWX-06449 message to indicate whether PowerExchange Condense processing should continue without the CDCT records or stop.

- If you reply Y, PowerExchange Condense continues processing. In this case, extraction processes will not be able to find some condense files based on the CDCT file for data extraction. Skipping some change data might be acceptable if the condense files contain old data or if the CDC workflow already processed these condense files. Use the time stamps reported in the PWX-06446 messages to determine if the data is old. If you need to extract the data, you must cold start the CDC session from an earlier point in time.
- If you reply N, PowerExchange Condense stops.

- **N**. When PowerExchange Condense detects missing records in the CDCT file, PWX-06449 messages are suppressed. PowerExchange Condense processing continues uninterrupted without the PWX-06449 messages.

Default is Y.

For more information, see the *PowerExchange CDC Guide for z/OS* or *PowerExchange CDC Guide for i5/OS*.

PowerExchange 9.6.0 - New Features and Changes for PowerExchange Condense

This section describes the PowerExchange 9.6.0 new features and changes that are related to PowerExchange Condense.

Command Changes in PowerExchange 9.6.0

PowerExchange 9.6.0 introduces changes to pwxcmd commands for PowerExchange Condense.

Passphrases in pwxcmd Commands for PowerExchange Condense

You can optionally enter a valid PowerExchange passphrase instead of a password in pwxcmd commands for a PowerExchange Condense process that runs on z/OS or i5/OS. Passphrases provide enhanced security because they are longer and contain a wide range of allowable character types.

In the following commands, enter a passphrase in the -password option or enter an encrypted passphrase in the -epassword option:

- pwxcmd condense
- pwxcmd displaystatus
- pwxcmd fileswitch
- pwxcmd shutcond
- pwxcmd shutdown

A passphrase for a PowerExchange Condense process on i5/OS can be from 9 to 31 characters in length. A passphrase for a PowerExchange Condense process on z/OS can be from 9 to 128 characters in length. In contrast, passwords are limited to eight characters or less.

Note: On z/OS, a valid RACF passphrase can be up to 100 characters in length. PowerExchange truncates passphrases longer than 100 characters when passing them to RACF for validation.

Passphrases can contain the following characters:

- Uppercase and lowercase letters
- The numbers 0 to 9
- Spaces
- The following special characters:

  ```
  ' - ; # \ , . / ! % & * ( ) _ + { } : @ | < > ?
  ```

  Note: The first character is an apostrophe.

Passphrases cannot contain single quotation marks (‘), double quotation marks (“), or currency symbols.

If a passphrase contains spaces, you must enclose it with double-quotation marks ("), for example, `"This is a passphrase"`. If a passphrase contains special characters, you must enclose it with triple double-quotation characters ("""), for example, `"""This passphrase contains special characters ! % & *."""`.

To use passphrases, ensure that the following requirements are met:

- The PowerExchange Listener runs with a security setting of SECURITY=(1,N) or higher in the DBMOVER member. For more information, see "SECURITY Statement" in the *PowerExchange Reference Manual*.
- All PowerExchange instances in the environment are at version 9.6.0 or later.

For more information, see the *PowerExchange Command Reference*.

Note: Passphrases can also be specified in the infacmd isp CreateConnection and UpdateConnection commands and in the infacmd pwx createdatamaps command. For more information, see the *Informatica Command Reference*.

CHAPTER 6

PowerExchange Listener

This chapter includes the following topics:

PowerExchange 10.2 - New Features and Changes for the PowerExchange Listener

This section describes the PowerExchange 10.2 new features and changes that are related to the PowerExchange Listener.

Parameter and Option Changes in 10.2

PowerExchange 10.2 introduces the following changes to DBMOVER configuration statements:

DBMOVER Configuration File Statements

The DBMOVER configuration file includes the following new and changed statements:

CONSOLE_MSG={N|Y}

New. On Linux, UNIX, and Windows systems, the CONSOLE_MSG statement specifies whether to write certain messages to the domain log in addition to writing them to the PowerExchange log file on the Integration Service machine.

Valid Values:

- **N.** PowerExchange does not write the messages to the domain log.
- **Y.** PowerExchange writes the messages to the domain log.

Default is Y.

ENCRYPT={AES|N|Y}

Changed. The following table identifies new and deprecated values for the ENCRYPT statement:

Value	New or Deprecated
AES	New
DES	Deprecated
RC2	Deprecated

Note: PowerExchange changes an ENCRYPT value of DES or RC2 to AES.

ENCRYPTLEVEL={1|2|3}

Changed. The ENCRYPTLEVEL statement now defines the encryption level when the ENCRYPT statement specifies **AES**.

Enter one of the following values in the ENCRYPTLEVEL statement:

- **1**. Use a128-bit encryption key.
- **2**. Use a 192-bit encryption key.
- **3**. Use a 256-bit encryption key.

LOWVALUES={N|Y}

Changed. The LOWVALUES statement now applies to PowerExchange NRDB, DB2, and CDC sources and targets. In previous releases, the statement applies only to VSAM files on z/OS and to sequential files on Linux, UNIX, Windows, or z/OS.

The LOWVALUES statement specifies whether PowerExchange preserves hexadecimal '0' values, called *low values*, in source character fields when passing these values to a PowerCenter session. When the session runs, the PowerExchange Client for PowerCenter (PWXPC) can write these values to the target.

MSQL CAPI_CONNECTION

This statement can now contain the following optional parameters:

LOCKAVOIDANCE={N|Y}

New. For Microsoft SQL Server sources, the LOCKAVOIDANCE parameter in the MSQL CAPI_CONNECTION statement controls whether PowerExchange SELECT statements use the NOLOCK hint when querying the SQL Server distribution database for change data. The NOLOCK hint can avoid lock contention with SQL Server utilities but might cause PowerExchange to miss some change records. Options are:

- **N**. PowerExchange SELECT queries that retrieve data from the distribution database do not use the NOLOCK hint. If locks are held on some change records, PowerExchange queries cannot retrieve the data until the locks are released. With this setting, PowerExchange queries might take longer to complete. However, no changes are skipped and data integrity is preserved. Use this option only when the MULTIPUB parameter is set to Y.

- **Y**. PowerExchange SQL SELECT queries that retrieve data from the distribution database use the NOLOCK hint. Use this option only when the MULTIPUB parameter is set to N. If the MULTIPUB parameter is set to Y, SQL Server might use allocation order scans to retrieve data for PowerExchange queries, which can result in missed change data and data corruption.

  Tip: Instead of using LOCKAVOIDANCE=Y, Informatica recommends that you set the isolation level for the distribution database to READ_COMMITTED_SNAPSHOT ON to avoid data integrity problems.

Default is **N** if MULTIPUB is set to Y, or **Y** if MULTIPUB is set to N.

RECONNTRIES={*number*|12}

New. For Microsoft SQL Server sources, specifies the maximum number of times that PowerExchange tries to reconnect to the Microsoft SQL Server database after the connection is dropped. Use this parameter in conjunction with the RECONNWAIT parameter if you get the following ODBC connection error and want to improve connection resiliency:

```
PWX-15790 ODBC driver for Microsoft SQL Server returned error [08S01]
[Informatica][ODBC SQL Server Wire Protocol driver]Unexpected Network Error.
ErrNum = 10054.
```

Valid values are 0 or any positive number. A value of 0 results in no connection retries. Default is 12.

RECONNWAIT={*seconds*|5}

New. For Microsoft SQL Server sources, specifies the number of seconds that PowerExchange waits before any attempt to reconnect to a Microsoft SQL Server database after the connection has been dropped. Use this parameter in conjunction with the RECONNTRIES parameter if you get the PWX-15790 message for an ODBC driver error and want to improve connection resiliency.

Valid values are 0 through 3600. A value of 0 results in no waiting between connection retries. Default is 5.

UDB CAPI_CONNECTION

This statement can now contain the following optional parameter:

AGEOUTPERIOD=*minutes*

New. For DB2 for Linux, UNIX, and Windows sources, this parameter specifies the age, in minutes, at which an outstanding DB2 UOW that has no change records of CDC interest will be removed from the calculation of the CDC restart point. The age is calculated as the difference between the start time of the outstanding UOW and the current time. Use this parameter to prevent CDC failures that can occur if you shut down and then restart capture processing for a DB2 source while the transaction is outstanding. After the restart, the DB2 transaction log in which the outstanding UOW started might not be available, causing the PowerExchange DB2 read process to fail.

Valid values are 60 to 43200. No default value is provided.

For more information, see the "DBMOVER Configuration File" chapter in the *PowerExchange Reference Manual*.

PowerExchange 10.1.1 HotFix 1 - New Features and Changes for the PowerExchange Listener

This section describes the PowerExchange 10.1.1 HotFix 1 new features and changes that are related to the PowerExchange Listener.

Parameter and Option Changes in 10.1.1 HotFix 1

PowerExchange 10.1.1 HotFix 1 introduces the following changes to DBMOVER configuration statements:

DBMOVER Configuration File Statements

The DBMOVER configuration file includes the following new and changed statements:

CAPI_CONNECTION=(NAME=*capi_connection_name*,TYPE=(MSQL,...[LOCKAVOIDANCE= {N|Y}]))

New. The LOCKAVOIDANCE parameter in the MSQL CAPI_CONNECTION statement controls whether PowerExchange SELECT statements use the NOLOCK hint when querying the SQL Server distribution database for change data. The NOLOCK hint can avoid lock contention with SQL Server utilities but might cause PowerExchange to miss some change records. Options are:

- **N**. PowerExchange SELECT queries that retrieve data from the distribution database do not use the NOLOCK hint. If locks are held on some change records, PowerExchange queries cannot retrieve the data until the locks are released. With this setting, PowerExchange queries might take longer to complete. However, no changes are skipped and data integrity is preserved. Use this option only when the MULTIPUB parameter is set to Y.
- **Y**. PowerExchange SQL SELECT queries that retrieve data from the distribution database use the NOLOCK hint. Use this option only when the MULTIPUB parameter is set to N. If the MULTIPUB parameter is set to Y, SQL Server might use allocation order scans to retrieve data for PowerExchange queries, which can result in missed change data and data corruption.

  Tip: Instead of using LOCKAVOIDANCE=Y, Informatica recommends that you set the isolation level for the distribution database to READ_COMMITTED_SNAPSHOT ON to avoid data integrity problems.

Default is **N** if MULTIPUB is set to Y, or **Y** if MULTIPUB is set to N.

CONSOLE_MSG={N|Y}

New. On Linux, UNIX, and Windows systems, the CONSOLE_MSG statement specifies whether to write certain messages to the domain log in addition to writing them to the PowerExchange log file on the Integration Service machine.

Valid Values:

- **N.** PowerExchange does not write the messages to the domain log.
- **Y.** PowerExchange writes the messages to the domain log.

Default is Y.

LOWVALUES={N|Y}

Changed. The LOWVALUES statement now applies to PowerExchange NRDB, DB2, and CDC sources and targets. In previous releases, the statement applies only to VSAM files on z/OS and to sequential files on Linux, UNIX, Windows, or z/OS.

The LOWVALUES statement specifies whether PowerExchange preserves hexadecimal '0' values, called *low values*, in source character fields when passing these values to a PowerCenter session. When the session runs, the PowerExchange Client for PowerCenter (PWXPC) can write these values to the target.

For more information, see the "DBMOVER Configuration File" chapter in the *PowerExchange Reference Manual*.

PowerExchange 10.1.1 - New Features and Changes for the PowerExchange Listener

This section describes the PowerExchange 10.1.1 new features and changes that are related to the PowerExchange Listener.

New Features in 10.1.1

PowerExchange 10.1.1 introduces the following new feature for PowerExchange Listeners:

Expanded OpenLDAP and Oracle LDAP Support for Requests to the PowerExchange Listener

PowerExchange introduces expanded support for the OpenLDAP and Oracle LDAP implementations to authenticate PowerExchange Listener requests.

PowerExchange supports the OpenLDAP implementation on the following platforms:

- AIX
- Linux x64
- Solaris SPARC
- Windows x64

PowerExchange supports the Oracle LDAP implementation on the following platforms:

- Linux x64
- Solaris SPARC

For more information, see the "PowerExchange Security" chapter in the *PowerExchange Reference Manual*.

Parameter and Option Changes in 10.1.1

PowerExchange 10.1.1 introduces the following changes to DBMOVER configuration statements:

DBMOVER Configuration File Statements

The DBMOVER configuration file includes the following new and changed statements:

PRGIND={N|Y}

Changed. For relational bulk data movement sources, include the PRGIND statement in the DBMOVER configuration file on the PowerCenter Integration Service machine. For CDC sources and nonrelational bulk data movement sources, continue to include the PRGIND statement in the DBMOVER configuration file on the PowerExchange Listener machine.

PRGINT={*number_rows*|250}

Changed. For relational bulk data movement sources, include the PRGINT statement in the DBMOVER configuration file on the PowerCenter Integration Service machine. For CDC sources and nonrelational bulk data movement sources, continue to include the PRGINT statement in the DBMOVER configuration file on the PowerExchange Listener machine.

START_UP_USER_EXIT=(PROGRAM_NAME=*program_name*,LANGUAGE=*language*)

New. Specifies the name and programming language of a user exit program that PowerExchange calls each time the PowerExchange Listener starts or shuts down. Use this statement to enable the PowerExchange Listener to read an Adabas database that is encrypted with an Adabas cipher code. The user exit program that you define must provide a result set that includes the cipher code and some additional information.

For more information about user exit program requirements for Adabas cipher code support, see the "Adabas Bulk Data Movement" chapter in the *PowerExchange Bulk Data Movement Guide*.

Parameters:

PROGRAM_NAME=*program_name*

Required. Name of the user exit program.

LANGUAGE=*language*

Required. Programming language in which the user exit program is written. Options are:

- **A**. Assembler language.
- **C**. C language.

For more information about the START_UP_USER_EXIT statement, see the "DBMOVER Configuration File" chapter in the *PowerExchange Reference Manual*.

PowerExchange 10.1 - New Features and Changes for the PowerExchange Listener

This section describes the PowerExchange 10.1 new features and changes that are related to the PowerExchange Listener.

New Features in 10.1

PowerExchange 10.1 introduces the following new feature for PowerExchange Listeners:

OpenLDAP Support for Requests to the PowerExchange Listener

PowerExchange introduces support for the OpenLDAP implementation to authenticate PowerExchange Listener requests. PowerExchange continues to support the Oracle LDAP implementation.

When you enable LDAP authentication, the PowerExchange Listener connects to an LDAP server to authenticate the enterprise user ID and password of clients that connect to the PowerExchange Listener.

With the introduction of support for OpenLDAP, PowerExchange provides LDAP user authentication on all Linux, UNIX, and Windows platforms where the PowerExchange Listener can run, including the following platforms:

- AIX
- Red Hat and SUSE Linux x64
- Windows x64

The PowerExchange installation program installs the OpenLDAP client files on each Linux, UNIX, or Windows machine where you install PowerExchange.

For more information, see the "PowerExchange Security" chapter of the *PowerExchange Reference Manual*.

Parameter and Option Changes in 10.1

PowerExchange 10.1 introduces the following changes to DBMOVER configuration statements:

DBMOVER Configuration File Statements

The DBMOVER configuration file includes the following new and changed statements:

ADA_TIMEZONE_CHECK

New. The ADA_TIMEZONE_CHECK statement controls whether PowerExchange issues the PWX-03206 message only once for each Adabas database that it accesses and that does not have an Adabas DD statement for timezone (//TZINFO DD) defined. PWX-03206 indicates that the Adabas DD statement for timezone (//TZINFO DD) was not found in the Adabas nucleus JCL.

Use the following syntax:

```
ADA_TIMEZONE_CHECK={N|Y}
```

Valid values:

- **N.** PowerExchange issues PWX-03206 only once for each Adabas database that it tries to access that does not have an Adabas DD statement for timezone defined.
- **Y.** PowerExchange issues a PWX-03206 message for each access to an Adabas database that does not have an Adabas DD statement for timezone defined.

Default is Y.

LDAP_OPENSSL

New. The LDAP_OPENSSL statement enables LDAP secured connections between PowerExchange on Linux, UNIX, or Windows and the LDAP server. This statement also specifies certificate information for a Transport Layer Security (TLS) connection to the LDAP server.

If you are using the OpenLDAP client, define the LDAP_OPENSSL statement and specify OPEN_LDAP for the fourth positional parameter in the SECURITY statement.

If you are using the Oracle LDAP client, use the LDAP_TLS statement instead of the LDAP_OPENSSL statement.

Use the following syntax:

```
LDAP_OPENSSL=({CAPATH=directory|CAFILE=filepath}
              [,CERTFILE=filepath,KEYFILE=filepath]
              [,PASS=passphrase|EPASS=encrypted_passphrase]
              [,START_TLS={N|Y}]
               )
```

The LDAP_OPENSSL statement includes the following parameters:

CAPATH=*directory*

Required if CAFILE is not specified. Directory where OpenSSL can find CA certificate files in PEM format.

CAFILE=*filepath*

Required if CAPATH is not specified. File that contains one or more CA certificates in PEM format.

CERTFILE=*filepath*

Optional. Client signing certificate. Include this parameter if the LDAP server is configured to require a signed certificate from its clients. The certificate and key files must be in PEM format. The certificate file must be named by the hash of the CA certificate.

KEYFILE=*filepath*

Required if CERTFILE is specified. Client private key for signing its certificate. The certificate and key files must be in PEM format.

PASS=*passphrase*

Optional. If the key file is DES-encrypted, the passphrase that is used to access the private key that is associated with the client certificate. Do not enter both the PASS and EPASS parameters.

EPASS=*encrypted_passphrase*

Optional. If the key file is DES-encrypted, the encrypted passphrase that is used to access the private key that is associated with the client certificate. Do not enter both the PASS and EPASS parameters.

START_TLS={N|Y}

Optional. Controls whether PowerExchange uses the StartTLS extended LDAP operation to initiate secure network traffic on a normally unsecured port. Default is N.

LRAP CAPI_CONNECTION

The following new optional parameter can be specified in the LRAP CAPI_CONNECTION statement:

UIDFMTIMS={UID|PSB|ALL}

New. For IMS synchronous CDC data sources, controls the type of value that PowerExchange uses to populate the generated DTL__CAPXUSER column in each change record. Options are:

- **UID**. Returns the user ID of the user who made the IMS change.
- **PSB**. Returns the IMS program specification block (PSB) name.
- **ALL**. Returns both the user ID and PSB name in the format *userid*:*psbname*.

Default is UID.

This parameter is also available in 9.6.1 HotFix 4. It is not available in 10.0.

SECURITY

Changed. The SECURITY statement has a new fourth positional parameter. The parameter has the following valid values:

{ORACLE_LDAP|OPEN_LDAP}

If you specify LDAP for the third positional parameter, specifies which set of LDAP client libraries to load.

Options are:

- **ORACLE_LDAP.** PowerExchange loads the Oracle LDAP client libraries.
- **OPEN_LDAP.** PowerExchange loads the OpenLDAP client libraries.

Default is ORACLE_LDAP.

For more information, see the "DBMOVER Configuration File" chapter in the *PowerExchange Reference Manual*.

PowerExchange 10.0 - New Features and Changes for the PowerExchange Listener

This section describes the PowerExchange 10.0 new features and changes that are related to the PowerExchange Listener.

Parameter and Option Changes in 10.0

PowerExchange 10.0 introduces the following changes to DBMOVER configuration statements:

DBMOVER Configuration File Statements

The DBMOVER configuration file includes the following new and changed statements:

GDGLOCATE={Y|N}

Changed. The default value for this parameter changed from N to Y. By default, the PowerExchange Listener now uses the most recent z/OS catalog information to determine the latest absolute generation in a GDG based on a relative generation number when reading or writing a generation data set.

In prior releases, the default value was N. This value causes the PowerExchange Listener to not refresh the generation table with the latest information from the z/OS catalog after it references the GDG the first time by using a relative generation number. All future Listener requests that use the relative generation number will access the same absolute generation as the first reference.

MSSQL_SERVER_CONNECT_TIMEOUT=*seconds*

New. Specifies the timeout interval, in seconds, for a PowerExchange Navigator, DTLUCBRG utility, or DTLURDMO utility connection to a Microsoft SQL Server Management Objects (SMO) interface to manage SQL Server publications. After this interval elapses, the connection times out with error message PWX-15700. If you receive PWX-15700 messages for a timeout error, use this statement to increase the timeout interval. Valid values are 1 to 86400. Default is 60 seconds.

MSSQL_SERVER_STATEMENT_TIMEOUT=*seconds*

New. Specifies the timeout interval, in seconds, for processing a Transact-SQL statement issued by the PowerExchange Navigator, DTLUCBRG utility, or DTLURDMO utility to the Microsoft SQL Server Management Objects (SMO) interface. After this interval elapses, processing of the Transact-SQL statement stops with error message PWX-15700. If you receive PWX-15700 messages related to this error, use this statement to increase the timeout interval. Valid values are 1 to 86400. Default is 60 seconds.

SECURITY_MSGSUPP={Y|N}

New. Controls whether to suppress the messages that are issued by RACF or a similar z/OS security product, such as CA Top Secret or ACF2, when verifying the logon credentials of a PowerExchange job or started task.

Valid values:

- **Y**. Suppress logon verification messages from RACF or a similar z/OS security product for PowerExchange jobs and started tasks. This option can help prevent flooding the system console with messages for successful logons.
- **N**. Allow RACF or a similar z/OS security product to write logon verification messages for PowerExchange jobs and started tasks. For example, RACF might issue the following ICH408I

message for an invalid logon of a PowerExchange utility user to the operator console and JES Job Log:

```
13.55.14 STC00011 ICH408I USER(AUSER) GROUP(TEST) NAME(AUSER NAME1) 373
 373 LOGON/JOB INITIATION - INVALID PASSWORD
13.55.14 STC00011 IRR013I VERIFICATION FAILED. INVALID PASSWORD GIVEN.
```

Default is Y, which preserves the behavior in prior PowerExchange releases.

Note: For the PowerExchange Listener to use this parameter, you must also specify SECURITY=(2,*x*) or (1,*x*) in the same DBMOVER configuration file. If you specify SECURITY=(0,*x*), this parameter is ignored.

For more information, see the "DBMOVER Configuration File" chapter in the *PowerExchange Reference Manual*.

PowerExchange 9.6.1 HotFix 4 - New Features and Changes for the PowerExchange Listener

This section describes the PowerExchange 9.6.1 HotFix 4 new features and changes that are related to the PowerExchange Listener.

Parameter and Option Changes in 9.6.1 HotFix 4

PowerExchange 9.6.1 HotFix 4 introduces the following changes to DBMOVER configuration statements:

DBMOVER Configuration File Statements

The DBMOVER configuration file includes the following new and changed statements:

LRAP CAPI_CONNECTION

The following new optional parameter can be specified in the LRAP CAPI_CONNECTION statement:

UIDFMTIMS={UID|PSB|ALL}

New. For IMS synchronous CDC data sources, controls the type of value that PowerExchange uses to populate the generated DTL__CAPXUSER column in each change record. Options are:

- **UID**. Returns the user ID of the user who made the IMS change.
- **PSB**. Returns the IMS program specification block (PSB) name.
- **ALL**. Returns both the user ID and PSB name in the format *userid*:*psbname*.

Default is UID.

MSSQL_SERVER_CONNECT_TIMEOUT=*seconds*

New. Specifies the timeout interval, in seconds, for a PowerExchange Navigator, DTLUCBRG utility, or DTLURDMO utility connection to a Microsoft SQL Server Management Objects (SMO) interface to manage SQL Server publications. After this interval elapses, the connection times out with error message PWX-15700. If you receive PWX-15700 messages for a timeout error, use this statement to increase the timeout interval. Valid values are 1 to 86400. Default is 60 seconds.

MSSQL_SERVER_STATEMENT_TIMEOUT=*seconds*

New. Specifies the timeout interval, in seconds, for processing a Transact-SQL statement issued by the PowerExchange Navigator, DTLUCBRG utility, or DTLURDMO utility to the Microsoft SQL Server

Management Objects (SMO) interface. After this interval elapses, processing of the Transact-SQL statement stops with error message PWX-15700. If you receive PWX-15700 messages related to this error, use this statement to increase the timeout interval. Valid values are 1 to 86400. Default is 60 seconds.

For more information, see the "DBMOVER Configuration File" chapter in the *PowerExchange Reference Manual*.

PowerExchange 9.6.1 HotFix 3 - New Features and Changes for the PowerExchange Listener

This section describes the PowerExchange 9.6.1 HotFix 3 new features and changes that are related to the PowerExchange Listener.

New Features in 9.6.1 HotFix 3

PowerExchange 9.6.1 HotFix 3 introduces the following new feature for PowerExchange Listeners:

Enhancements to LDAP User Authentication in PowerExchange

LDAP user authentication in PowerExchange includes the following enhancements:

- Support for encrypted passwords in TLS communications.

  To specify an encrypted password, include the EPASS parameter in the LDAP_TLS statement in the DBMOVER configuration file.
- Expanded platform support. LDAP user authentication is now supported on Windows x86 systems.
- Support for the LDAP StartTLS extension. Use the StartTLS extension to run a secured LDAP session on an LDAP port that is normally unsecured.

  To enable the StartTLS extension, incude the START_TLS=Y parameter in the LDAP_TLS statement in the DBMOVER configuration file.
- Ability to control the wait time while the PowerExchange Listener binds to LDAP.

  To specify the number of seconds that a PowerExchange Listener or PowerExchange Logger for Linux, UNIX, and Windows waits for an LDAP bind request, define the LDAP_BIND_TIMEOUT statement in the DBMOVER configuration file.

For more information, see the *PowerExchange Reference Manual*.

Parameter and Option Changes in 9.6.1 HotFix 3

PowerExchange 9.6.1 HotFix 3 introduces the following changes to DBMOVER configuration statements:

DBMOVER Configuration File Statements

The DBMOVER configuration file includes the following new and changed statements:

CAPX CAPI_CONNECTION

Changed. If you specify the RSTRADV parameter with any valid value in the CAPX CAPI_CONNECTION statement, the Log Reader now always issues a set of restart and sequence tokens when it reaches the end of a PowerExchange Logger for Linux, UNIX, and Windows log file, even if the RSTRADV interval has

not expired. These restart and sequence tokens indicate the end-of-log position of the Log Reader in the Logger log file. Previously, the Log Reader did not advance the restart and sequence tokens if the CDC session ended without receiving any changes of CDC interest before the RSTRADV interval elapsed. This situation usually occurred with source tables that had a low level of update activity and could result in CDC session failures or delays.

LDAP_BIND_TIMEOUT

New. Specifies the number of seconds that a PowerExchange Listener or PowerExchange Logger for Linux, UNIX, and Windows waits for an LDAP bind request.

LDAP_TLS

Changed. Enables LDAP secured connections and specifies certificate information for a Transport Layer Security (TLS) connection to an LDAP server. Optionally enables the LDAP StartTLS extension for initiating secured communications on a normally unsecured port.

The LDAP_TLS statement includes the following new optional parameters:

EPASS=*client_encrypted*

Required if you do not specify the PASS parameter. Specifies the encrypted passphrase that is used to make a TLS connection.

START_TLS=Y|N

Controls whether PowerExchange requests the LDAP StartTLS extension to initiate TLS on a normal LDAP port.

SSL

Changed. Specifies SSL certificate information for a Secure Sockets Layer (SSL) connection.

The SSL statement includes the following new optional parameter:

EPASS=*client_encrypted_passphrase*

Required if you do not specify the PASS parameter. Specifies the encrypted passphrase that is used to make a TLS connection.

For more information, see the *PowerExchange Reference Manual*.

PowerExchange 9.6.1 HotFix 2 - New Features and Changes for the PowerExchange Listener

This section describes the PowerExchange 9.6.1 HotFix 2 new features and changes that are related to the PowerExchange Listener.

New Features in 9.6.1 HotFix 2

PowerExchange 9.6.1 HotFix 2 introduces the following new feature for PowerExchange Listeners:

Monitoring Statistics for PowerExchange Listeners on i5/OS

Effective in PowerExchange 9.6.1 HotFix 2, you can generate PowerExchange Listener monitoring statistics for PowerExchange Listeners on i5/OS. These statistics are now available for PowerExchange Listeners on all types of supported operating systems.

You must use the PowerExchange Listener pwxcmd displaystats command to print the Listener, Accessmethods, and Clients reports on demand for a PowerExchange Listener on i5/OS. You can also configure the MONITOR parameter in the STATS statement of the DBMOVER configuration file to print the summary Listener statistics at a specific interval. The reports for a Listener on i5/OS are the similar to those for Listeners on Linux, UNIX, and Windows.

You cannot use the following commands to print monitoring statistics for a PowerExchange Listener on i5/OS:

- A DISPLAYSTATS command that is entered with the SNDLSTCMD command at the command line or through a scheduler or program
- An infacmd pwx displayStatsListener command for a PowerExchange Listener Service

If you are upgrading to 9.6.1 HotFix 2 from an earlier release and set SECURITY=(2,*x*) in the DBMOVER member of the CFG file, you need to prepare the i5/OS environment to run pwxcmd displaystats commands. Issue the following command on the i5/OS system where the PowerExchange Listener runs:

```
CALL PGM(dtllib/CRTDTLENVA) PARM('datalib')
```

Note: On i5/OS and UNIX, PowerExchange uses memory-mapped files and shared memory as the inter-process communication (IPC) method for monitoring. On i5/OS, the memory-mapped files are stored in an Integrated File System (IFS) directory named `/home/user_id`, where *user_ID* is the user ID under which the PowerExchange Listener is running. PowerExchange releases shared memory and cleans up the memory-mapped files when PowerExchange Listener subtasks end and when the PowerExchange Listener is closed.

For more information, see the *PowerExchange Command Reference* and *PowerExchange Reference Manual*.

PowerExchange LDAP User Authentication

You can use LDAP user authentication to authenticate PowerExchange Listener requests on supported Linux and UNIX systems.

When you enable LDAP authentication, the PowerExchange Listener connects to an LDAP server to authenticate the enterprise user ID and password of clients that connect to the PowerExchange Listener.

PowerExchange LDAP authentication provides the following features:

- LDAP user validation. PowerExchange can validate PowerExchange user credentials against an entry in LDAP.
- Flexible search. Configuration parameters provide the ability to specify multiple LDAP search locations, search filters, search tree depth, and a login attribute to key against the PowerExchange user ID.
- Failover. You can configure a list of LDAP servers in order of priority for failover, so that if a higher priority server is down, subsequent calls fail over to another server in the list.
- Relational pass-through authentication. You can configure pass-through authentication for relational connections, which delegates authentication to the underlying relational database.
- LDAP over secure transport. PowerExchange LDAP user authentication supports transport-level security (SSL and TLS) to protect against snooping, tampering, and man-in-the-middle security threats.

For more information, see the *PowerExchange Reference Manual*.

Support for Increased Record Sizes

Effective in PowerExchange 9.6.1 HotFix 2, the maximum length of a source record for which PowerExchange can move data during bulk data movement operations is 144 KB. For certain data sources, additional restrictions might apply. The maximum length of a source record for which PowerExchange releases earlier than 9.6.1 HotFix 2 can move data is 32 KB.

Also, if you use Adabas 8.2.2 or later, PowerExchange can now process Adabas spanned records up to their maximum size for both bulk data movement and CDC. The Adabas maximum size depends on the device type. PowerExchange releases earlier than 9.6.1 HotFix 2 can process records only up to 32 KB in size for both bulk data movement and CDC.

Parameter and Option Changes in 9.6.1 HotFix 2

PowerExchange 9.6.1 HotFix 2 introduces the following changes to DBMOVER configuration statements:

DBMOVER Configuration File Statements

The DBMOVER configuration file includes the following new and changed statements:

CAPI_CONNECTION=(...,TYPE=(AS4J,ALWCLRPFM={N|Y},...))

The behavior of the following optional parameter changed to cover SQL TRUNCATE operations as well as i5/OS CLRPFM commands:

ALWCLRPFM= {N|Y}

Changed. Controls whether DB2 for i5/OS CDC processing stops or continues when PowerExchange encounters changes that result from an i5/OS Clear Physical File Member (CLRPFM) command or SQL TRUNCATE statement that is issued against a DB2 table registered for change data capture. PowerExchange cannot capture the deletions that result from a CLRPFM command or TRUNCATE statement.

Options:

- **N**. PowerExchange CDC processing stops when PowerExchange detects changes that are caused by a CLRPFM command or TRUNCATE statement.
- **Y**. PowerExchange ignores the CLRPFM command or TRUNCATE statement and continues CDC processing. The data integrity of the CDC target might be damaged. Specify Y only at the direction of Informatica Global Customer Support.

Default is N.

Note: i5/OS version 7.2 introduced support for SQL TRUNCATE operations on i5/OS tables. If you have an earlier i5/OS version, this parameter still pertains to CLRPFM commands only.

ENCRYPT={DES|N|RC2|Y}

Changed. PowerExchange now supports the DES and RC2 encryption types on all operating systems. Previous PowerExchange releases do not support these encryption types on 64-bit Windows or Linux on IBM System z.

HOSTNAME=*i5OS_host_name*

New. Specifies an i5/OS host name that overrides the host name that PowerExchange retrieves from the TCP/IP Host table for communications with the PowerExchange Listener on i5/OS.

This statement pertains to an ethernet-type of environment in which an i5/OS server is configured to use multiple i5/OS host names and IP addresses. You might use this type of environment to help improve

performance when a high volume of transactions exists or to use different host names for different business functions.

You can enter one HOSTNAME statement in the DBMOVER member in the CFG file on the i5/OS system. This statement can specify only one override host name of up to 64 characters in length. No default value is provided.

Use this statement when you want to start or connect to a PowerExchange Listener on i5/OS under a host name other than the one PowerExchange retrieves by means of a TCP/IP gethostname() call to the TCP/IP Host table and other than the one that the HOSTENT utility reports. PowerExchange tasks and utilities can then use the override host name to connect to the PowerExchange Listener on i5/OS to perform tasks such as fetching data or pinging the Listener.

LDAP_BASE

New. Specifies the location within an LDAP directory from which to conduct a PowerExchange user search.

LDAP_BIND_DN

New. Specifies the distinguished name (DN) of an LDAP user with sufficient access rights to connect to LDAP and conduct a search for the PowerExchange user.

LDAP_BIND_EPWD

New. Specifies the encrypted password for the LDAP search user.

LDAP_BIND_PWD

New. Specifies the password for the LDAP search user.

LDAP_FILTER

New. Specifies a filter to speed up or restrict the LDAP search for a PowerExchange user.

LDAP_HOST

New. Defines TCP/IP host details for an LDAP server that PowerExchange might use for user validation.

LDAP_LOGIN_ATTRIBUTE

New. Specifies an LDAP attribute to use as a search key to match against a PowerExchange user ID.

LDAP_PORT

New. Defines the TCP/IP port for an LDAP server that PowerExchange might use for user validation.

LDAP_SASL_MECH

New. Specifies the authentication mechanism to be used for the Simple Authentication and Security Layer (SASL) that is used with LDAP certificate-based security.

LDAP_SCOPE

New. Defines the search depth in the LDAP tree for LDAP searches.

LDAP_SEARCH_TIMEOUT

New. Specifies the time, in seconds, that a PowerExchange Listener waits to receive a search result during validation of the PowerExchange user against LDAP.

LDAP_TLS

New. Enables LDAP secure connections and specifies TLS certificate information for an LDAP TLS connection.

SECURITY

Changed. Controls PowerExchange user authentication and access to resources and commands, including LDAP authentication.

The SECURITY statement now includes an optional third positional parameter. This parameter has the following valid value:

LDAP

Controls whether PowerExchange uses LDAP authentication on supported Linux and UNIX platforms.

SSL_CONTEXT_METHOD=*context_method*

Changed. Selects the TLS version that the peer supports for PowerExchange TLS communication.

The valid values for *context_method* have changed. The following values are supported:

- **TLSV1**. The peer supports TLS version 1.
- **TLSV1_1**. The peer supports TLS version 1.1.
- **TLSV1_2**. The peer supports TLS version 1.2.

The following values are no longer supported:

- **SSLV2**. The peer supports SSL version 2.
- **SSLV23**. The peer supports SSL version 2 or 3.
- **SSLV3**. The peer supports SSL version 3.

STATS=(MONITOR[,{*interval*|0}])

Changed. You can now use the MONITOR parameter in the STATS statement to collect summary monitoring statistics for a PowerExchange Listener on i5/OS. You can report these statistics at a regular interval or on demand.

To report the monitoring statistics for a Listener on i5/OS on demand, you must issue the pwxcmd displaystats command from a remote Linux, UNIX, or Windows program. To publish monitoring statistics at a regular interval, include the *interval* subparameter in the MONITOR parameter.

Note: The STATS statement can now produce monitoring statistics for Listeners on all types of supported operating systems.

USE_DB_AUTH

New. When LDAP authentication is enabled, controls whether to use LDAP validation for relational connections.

For more information, see the *PowerExchange Reference Manual*.

Command Changes in 9.6.1 HotFix 2

PowerExchange 9.6.1 HotFix 2 introduces a change to a monitoring command for the PowerExchange Listener.

pwxcmd displaystats Command Supports PowerExchange Listeners on i5/OS

Effective in PowerExchange 9.6.1 HotFix 2, the pwxcmd displaystats command has been enhanced to print monitoring statistics for PowerExchange Listeners on i5/OS. This command now is available for Listeners on all types of supported operating systems.

To issue the pwxcmd displaystats command to a Listener on i5/OS from a remote Linux, UNIX, or Windows system, use the following syntax:

```
pwxcmd displaystats
{-service|-sv} service_name
[{-user|-uid|-u} user_ID
[{-password |-pwd|-p} password}|{-epassword|-e} encrypted_password}]
[{-type|-tp} [{listener|accessmethods|clients}]
```

To specify the report type, include the listener, accessmethods, or clients option. If you do not specify a -type option, the default of listener is used.

The report output for a Listener on i5/OS is the same as that for a Listener on Linux, UNIX, or Windows.

For more information, see the *PowerExchange Command Reference*.

PowerExchange 9.6.1 HotFix 1 - New Features and Changes for the PowerExchange Listener

This section describes the PowerExchange 9.6.1 HotFix 1 new features and changes that are related to the PowerExchange Listener.

New Features in 9.6.1 HotFix 1

PowerExchange 9.6.1 HotFix 1 introduces the following new feature for the PowerExchange Listener:

Monitoring Statistics for PowerExchange Listeners on Linux and UNIX

Effective in PowerExchange 9.6.1 HotFix 1, PowerExchange Listener monitoring statistics are available for PowerExchange Listeners on Linux (including zLinux) and UNIX. Previously, these statistics were available only for PowerExchange Listeners on Windows and z/OS.

The PowerExchange Listener displaystats and pwxcmd displaystats commands can now print the Listener, Accessmethods, and Clients reports on demand for a PowerExchange Listener on Linux or UNIX. You can also configure the MONITOR parameter in the STATS statement of the DBMOVER configuration file to print the summary Listener statistics at a specific interval. The reports are the same as those for a Listener on Windows.

If you run a PowerExchange Listener Service in the Informatica domain, you can use the infacmd pwx displayStatsListener command to print the summary statistics for a PowerExchange Listener on Linux, UNIX, or Windows.

Tip: On UNIX, PowerExchange uses shared memory and memory-mapped files as the inter-process communication (IPC) method for monitoring. The memory-mapped files are allocated in the directory that is specified by the LOGPATH statement in the dbmover.cfg file, or in the current directory if the LOGPATH statement is not specified. On Linux, PowerExchange uses shared memory only. When the PowerExchange Listener subtasks end and when the PowerExchange Listener is closed, PowerExchange cleans up the memory-mapped files and releases shared memory. To check that the shared memory was freed, use the IPC command -ipcs - m. To release shared memory, use the ipcrm -m command.

For more information, see the *PowerExchange Command Reference*, *PowerExchange Reference Manual*, and *Informatica Command Reference*.

Parameter and Option Changes in 9.6.1 HotFix 1

PowerExchange 9.6.1 HotFix 1 introduces the following changes to DBMOVER configuration statements:

DBMOVER Configuration File Statements

The DBMOVER configuration file includes the following changed statement:

CAPI_CONNECTION=(NAME=*capi_connection_name*,TYPE=(MSQL,DISTDB=*distribution_database*,DISTSRV=*distribution_server*[,ENABLELWM={Y|N}]...))

The MSQL CAPI_CONNECTION statement includes the following new parameter:
ENABLELWM={N|Y}

New. When you use the PowerExchange Logger for Linux, UNIX, and Windows, controls whether the PowerExchange consumer API (CAPI) connection process deletes data read from the SQL Server distribution database after the data has been hardened to PowerExchange Logger log files or after the PowerExchange publication expiry time has elapsed. You can use this parameter to improve distribution database performance and to prevent the distribution database from growing too large in size when the PowerExchange Logger is in use.

Enter one of the following options:

- **N**. The distribution database cleanup job deletes data from the distribution database after the expiry time for the PowerExchange publications elapses. This option might degrade the performance of the distribution-database cleanup job and cause excessive growth of the distribution database.
- **Y**. The CAPI connection process deletes processed data from the distribution database after the data has been hardened to the PowerExchange Logger log files. After a log file switch, the PowerExchange Logger sends a low water marker to the CAPI connection process to identify the last end UOW prior to the file switch. At the end of the next capture cycle, after the CAPI connection process has read to the end of the available data in the distribution database, the CAPI deletes all of the processed data for the PowerExchange publications up to and including the low water mark data from the distribution.dbo.MSrepl_commands table in the distribution database.

  Note: The user ID under which the PowerExchange Logger runs must have delete authority on the MSrepl_commands table.

  This option can help improve distribution-database performance and control distribution-database size. However, if the SQL Server Log Reader Agent is writing very large UOWs to the distribution database when the CAPI connection processes the low water mark data, the performance of the distribution database might be temporarily degraded because the CAPI connection process must wait for a lock on the MSrepl_commands table.

  Note: If you run multiple extractions against a single distribution database for different publication databases and use ENABLELWM=Y for one CAPI connection and ENABLELWM=N with a RSTRADV value for another CAPI connection, PowerExchange might issue error message PWX-15756 for the connection with ENABLELWM=N. The message incorrectly reports that change data has been lost. To suppress this error, add the DWFLAGS=NNYN parameter to MSQL CAPI_CONNECTION statement.

Default is N.

Command Changes in 9.6.1 HotFix 1

PowerExchange 9.6.1 HotFix 1 introduces a change to the monitoring command for the PowerExchange Listener.

DISPLAYSTATS Command for the PowerExchange Listener

Effective in PowerExchange 9.6.1 HotFix 1, the displaystats and pwxcmd displaystats commands have been enhanced to print monitoring statistics for PowerExchange Listeners on Linux (including zLinux) and UNIX. Previously, these commands printed statistics only for Listeners on Windows and z/OS.

The command syntax and options for a Listener on Linux and UNIX are the same as those for a Listener on Windows.

To issue the displaystats command to a Listener on Linux or UNIX, use the following syntax:

```
displaystats [{listener|accessmethods|clients}]
```

or

```
ds [{l|a|c}]
```

To issue the pwxcmd displaystats command to a Listener on Linux or UNIX, use the following syntax:

```
pwxcmd displaystats
{-service|-sv} service_name
[{-user|-uid|-u} user_ID
[{-password |-pwd|-p} password}|{-epassword|-e} encrypted_password}]
[{-type|-tp} [{listener|accessmethods|clients}]
```

In both commands, include the listener, accessmethods, or clients option to specify the report type. If you do not include the option, the default of listener is used.

The report output for a Listener on Linux or UNIX is the same as that for a Listener on Windows.

For more information, see the *PowerExchange Command Reference*.

PowerExchange 9.6.1 - New Features and Changes for the PowerExchange Listener

This section describes the PowerExchange 9.6.1 new features and changes that are related to the PowerExchange Listener.

New Features in 9.6.1

PowerExchange 9.6.1 introduces the following new features for the PowerExchange Listener:

Monitoring Statistics for PowerExchange Listeners on Windows and z/OS

You can publish monitoring statistics for a PowerExchange Listener on Windows or z/OS on demand or at a regular interval.

The following types of statistics reports are available:

- Listener. The listener report displays summary statistics on resource usage and client requests. These statistics include counts of client tasks, connections, access methods, messages sent and received, and bytes of data sent and received.

- Accessmethods. The accessmethods report displays message and data volumes sent and received for client requests, by task ID and access method. The message and data volumes are totals as of the time the statistics are generated. For CDC tasks that use the CAPX or CAPXRT access method, includes counts of SQL inserts, updates, and deletes processed.
- Clients. The clients report displays information about the active tasks that are running under the PowerExchange Listener to process client requests. These statistics include the task start time, CPU processing time, access method, read or write mode, and associated process name and session ID if available. Also includes the port number and IP address of the client that issued the request to the PowerExchange Listener.

Use the new displaystats or pwxcmd displaystats command to print any of the statistics reports on demand.

You can also configure the new MONITOR parameter in the STATS statement of the DBMOVER configuration file to print the summary statistics at a specific interval.

If you run a PowerExchange Listener Service in the Informatica domain, use the infacmd pwx displayStatsListener command to print the summary statistics.

For more information, see the *PowerExchange Command Reference*, *PowerExchange Reference Manual*, and *Informatica Command Reference*.

Parameter and Option Changes in 9.6.1

PowerExchange 9.6.1 introduces the following changes to DBMOVER configuration statements:

DBMOVER Configuration File Statements

The DBMOVER configuration file includes the following changed statements:

APPBUFSIZEDYN Statement

Changed. Specifies whether to enable dynamic application buffer sizing.

Effective in PowerExchange 9.6.1, the APPBUFSIZEDYN statement applies to connections to all data sources that contain fixed-length or variable-length records and to both bulk data movement and CDC processing. In PowerExchange 9.6.0, APPBUFSIZEDYN applies only to connections to Microsoft SQL Server, Oracle, or sequential data sources that contain variable-length records and only to bulk data movement.

For each connection to a data source with variable-length records, PowerExchange resizes the application buffer when it encounters a record that is too large to fit into the buffer. PowerExchange increases the size of the application buffer to a value of ten times the size of the record that has overflowed, up to the maximum application buffer size of 8 MB. The new size remains in effect for the duration of the Listener run or until the application buffer is resized again. PowerExchange never decreases the application buffer size for a connection after the Listener run has started.

For each connection to a data source with fixed-length records, PowerExchange determines the record length when the connection is opened and resizes the application buffer once, up to the maximum application buffer size of 8 MB, as needed.

MSQL CAPI_CONNECTION Statement

The following new optional parameter can be specified in the MSQL CAPI_CONNECTION statement:

UIDFMT={DBNAME|NONE}

New. Controls the type of value that PowerExchange uses to populate the generated DTL__CAPXUSER column in each change record. Options are:

- **DBNAME**. Returns the Microsoft SQL Server publication database name.
- **NONE**. Returns a null because a user ID is not available.

Default is NONE.

STATS Statement

Changed. In addition to controlling whether PowerExchange writes SMF statistics records for the PowerExchange Listener to SMF or a file, this statement now also controls whether PowerExchange collects summary statistics for a PowerExchange Listener that runs on z/OS or Windows and reports these statistics at a regular interval.

The STATS statement syntax now includes the new MONITOR parameter:

```
STATS=({SMF,record_number[,{interval|0}]   |
        FILE,dataset_name[,{interval|0}]   |
        MONITOR[,{interval|0}]   |
        NONE}
)
```

The MONITOR parameter causes PowerExchange to collect summary statistics on PowerExchange Listener memory usage, CPU usage, client tasks, connections, data sent and received, and messages sent and received. This information is published to the system console or PowerExchange message log when you enter a DISPLAYSTATS or DISPLAYSTATS LISTENER command from the command line or with the pwxcmd program. Optionally, you can publish the statistics at a regular interval by specifying the *interval* subparameter. In the *interval* subparameter, enter a number of minutes from 0 through 120. Default is 0, which disables interval-based reporting. In 9.6.1, the MONITOR parameter is not supported for PowerExchange Listeners that run on i5/OS, Linux, or UNIX.

Note: If you configured a PowerExchange Listener Service in the Informatica domain, you can use the infacmd pwx displayStatsListener command to publish these statistics. For more information, see the *Informatica Command Reference*.

For more information about these DBMOVER statements, see the *PowerExchange Reference Manual*.

Command Changes in 9.6.1

PowerExchange 9.6.1 introduces a new command for the PowerExchange Listener.

DISPLAYSTATS Command for the PowerExchange Listener

PowerExchange 9.6.1 introduces a new DISPLAYSTATS command for PowerExchange Listeners that run on Windows and z/OS.

The command reports PowerExchange Listener monitoring statistics, including summary statistics on resource usage and client requests and more detailed statistics for each active client task and access method.

Note: In 9.6.1, the displaytstats command is not supported for PowerExchange Listeners that run on i5/OS, Linux, or UNIX.

Before you run the command, configure the following statements in the DBMOVER configuration file:

- Specify the MONITOR parameter in the STATS statement to enable PowerExchange to collect these statistics. You can include an *interval* subparameter to publish the statistics at a regular interval as well as on demand.

- For the proper display of monitoring output on z/OS, set the LOG_LINE_LIMIT statement to 132. Otherwise, the lines might wrap awkwardly, making the output hard to read.

You can issue the command from the command line or with the pwxcmd program. Use the following syntax:

- On Windows:

```
displaystats [{listener|accessmethods|clients}]
```

or

```
ds [{l|a|c}]
```

- On z/OS, use the MVS MODIFY (F) command:

```
F listener_task,DISPLAYSTATS [{LISTENER|ACCESSMETHODS|CLIENTS}]
```

or

```
F listener_task,DS [{L|A|C}]
```

- On a remote Linux, UNIX, or Windows system, issue the command to a PowerExchange Listener on Windows or z/OS with the pwxcmd program:

```
pwxcmd displaystats
{-service|-sv} service_name
[{-user|-uid|-u} user_ID
{{-password |-pwd|-p} password} | {-epassword|-e} encrypted_password}]
[{-type|-tp} [{listener|accessmethods|clients}]
```

In each command format, enter one of the following parameters to control the report type:

LISTENER

Reports PowerExchange Listener summary statistics on resource usage and client requests processed. These statistics include memory usage, CPU processing time, total number of tasks that were created for client requests, active tasks, high-watermark tasks, maximum allowed tasks, total number of connections attempted, connections accepted, active connections, number of messages sent and received, and bytes of data sent and received. For a PowerExchange Listener on z/OS, these statistics also include the total number of netport jobs that have run under the Listener.

ACCESSMETHODS

Reports statistics on PowerExchange Listener message and data transfer activity by client task and access method, as of the time the statistics are generated. For each active task and access method combination, these statistics include the number of rows read and written, bytes of data read and written, the source or target file name or data map file name, and the CPU processing time. For CDC requests that use the CAPX or CAPXRT access method, the report also includes the number of SQL inserts, updates, and deletes that the task processed.

CLIENTS

Reports information about the active tasks that are running under the PowerExchange Listener, including the associated client and session ID. A client is an application such as PowerCenter, the PowerExchange Navigator, or a PowerExchange utility. For each active client task, the statistics show some or all of the following information: the status, access method that the task is using, task read or write mode, process name and session ID if available, CPU processing time, and start date and time. The statistics also include the client port number and IP address. If the client is PowerCenter, the statistics include the PowerCenter session ID and the application name for CDC.

Default is LISTENER.

For more information, see the *PowerExchange Command Reference*.

Note: If you configured a PowerExchange Listener Service in the Informatica domain, you can use the infacmd pwx displayStatsListener command to publish these statistics. For more information, see the *Informatica Command Reference*.

PowerExchange 9.6.0 - New Features and Changes for the PowerExchange Listener

This section describes the PowerExchange 9.6.0 new features and changes that are related to the PowerExchange Listener, including changes to DBMOVER statements.

Parameter and Option Changes in 9.6.0

PowerExchange 9.6.0 introduces the following changes to DBMOVER configuration statements:

DBMOVER Configuration File Statements

The DBMOVER configuration file includes the following new or changed statements:

APPBUFSIZE Statement

*Changed.*Effective in PowerExchange 9.6.0, if APPBUFSIZEDYN is set to N, the APPBUFSIZE statement defines the size of the application data buffer, as in earlier releases. If APPBUFSIZEDYN is set to Y or is not specified, the APPBUFSIZE statement defines the initial size of the application data buffer for all connections during a PowerExchange Listener run. Subsequently, the application data buffer size for a connection can increase.

In PowerExchange releases earlier than 9.6.0, the APPBUFSIZE statement always defines the size of the application data buffer and the APPBUFSIZEDYN statement is not supported.

APPBUFSIZEDYN Statement

New. Specifies whether to enable dynamic application buffer sizing for supported data sources.

The APPBUFSIZEDYN statement applies to connections to Microsoft SQL Server, Oracle, or sequential bulk data sources with variable length records. A variable length record has at least one variable length field. A variable length field has a data type of VARCHAR or VARBIN.

The related APPBUFSIZE statement defines the initial size of the application buffer for all connections made during a PowerExchange Listener run. If APPBUFSIZEDYN is set to Y or is not specified, for each connection to a Microsoft SQL Server, Oracle, or sequential bulk source with variable length records, PowerExchange resizes the application buffer when encountering a record that is too large to fit into the buffer.

The size of the application buffer is increased to ten times the size of the record that has overflowed, up to the maximum application buffer size of 8 MB. The new size remains in effect for the duration of the Listener run or until the application buffer is resized again. The application buffer size is never reduced for a connection after a Listener run has started.

If APPBUFSIZEDYN=N, dynamic application buffer sizing is disabled, and the APPBUFSIZE statement defines the size of the application data buffer.

Default is Y.

DB2CODEPAGE Statement

Changed. In PowerExchange 9.6.0, the default values for the ASCII_CCSID parameter changed to ASCII_CCSID=(850,65534,65534).

Also, this statement now includes the following new parameters to provide greater flexibility in handling DB2 for z/OS code page conversions for bulk data movement:

DB2TRANS={P|N|R}

Indicates whether DB2 translates the encoding of data that it passes to or receives from PowerExchange. Options are:

- **P**. DB2 translates the code pages in which column data is stored into the code pages defined in the DB2 plan that was bound for PowerExchange. You must also specify the EBCDIC_CCSID parameter and optionally the PLAN_CCSID parameter. If you specify both, the PLAN_CCSID parameter takes precedence. If you have ASCII and Unicode data, you can also specify the ASCII_CCSID and UNICODE_CCSID parameters to map to the EBCDIC code pages.

  Note: To use any of the *_CCSID parameters, you must set DB2TRANS to P.

- **N**. DB2 does not translate the code pages of the column data to equivalent EBCDIC code pages. PowerExchange uses the native code page in which the data is stored. You do not need to define the EBCDIC_CCSID, ASCII_CCSID, UNICODE_CCSID, or PLAN_CCSID parameters.
- **R**. DB2 translates certain user-specified data code pages to other code pages, as defined in one or more REMAP*n* parameters. In each REMAP*n* parameter, the first positional parameter identifies a data code page to remap, and the second positional parameter identifies the code page to use. Use a code page other than the code page in which the PowerExchange DB2 plan is bound.

Default is P.

PLAN_CCSID=(*sbcs_ccsid*,*graphic_ccsid*,*mixed_ccsid*)

Optional. The CCSIDs to use for EBCDIC single-byte, graphic, and mixed data instead of those in the EBCDIC_CCSID parameter. Use this parameter when you need to redirect the EBCDIC code pages to other EBCDIC code pages. For example, use this parameter in the following situations:

- The EBCDIC_CCSID code pages do not have an ICU conversion table that PowerExchange can use for ICU-based code page conversion.
- The EBCDIC_CCSID code pages match the default code pages that were defined for the DB2 subsystem but differ from the EBCDIC code pages for a particular source or target table.

REMAP*n*=(*current_data_ccsid*,*remapped_data_ccsid*)

Optional. If you specified DB2TRANS=R, you can use this parameter to have DB2 remap the code page in which the data is stored to another code page that you specify. For example, if you have ASCII data that does not map to the code page in which the DB2 plan is bound and that does not have an ICU convertor, use this parameter to remap the ASCII code page to a supported EBCDIC code page.

Alternatively, if you specified DB2TRANS=N, DB2 does not translate or remap the data. However, PowerExchange can use the REMAP*n* statement to substitute the correct code page for the incorrect one. For example, DB2 might report a data code page that does not match the code page defined in the DB2 catalog, possibly because the data was loaded incorrectly. In this case, you can specify the correct code page in the REMAP*n* parameter.

You can specify up to six REMAP*n* parameters in a DB2CODEPAGE statement, each for a different DB2 table. Increment the *n* number at the end of the parameter names so that each name is unique.

DB2ID Statement

Changed. This statement defines the DB2 subsystem, plan, and PowerExchange access method module that PowerExchange uses to process data from a DB2 for z/OS source for bulk data movement. In PowerExchange 9.6.0, the default *module_name* parameter value changed from **DTLAMDB2** to **DTLAMV8F**. You must now use the DTLAMV8F module. This module enables PowerExchange to process multiple rows of data at a time by using DB2 multiple-row FETCH and INSERT SQL statements.

The DTLAMDB2 module is deprecated. It applies to DB2 Version 8.1 compatibility mode and earlier, which PowerExchange 9.6.0 does not support.

EXT_CP_SUPPT Statement

Changed. This statement controls whether PowerExchange converts certain characters from EBCDIC values to corresponding ASCII values. The statement affects EBCDIC characters X'41' and X'FF' and characters that have a value less than X'40' in single-byte static code pages.

In PowerExchange releases earlier than 9.6.0, the EXT_CP_SUPPT default is N. In PowerExchange 9.6.0 and later, the default is Y. If you need to retain the previous default method of mapping particular EBCDIC values, such as EBCDIC X'FF' to ASCII X'FF', Informatica recommends that you create a customized ICU code page.

LOG_LINE_LIMIT Statement

New. Specifies the maximum line length, defined as a number of characters, for PowerExchange messages in the message log. Messages that span multiple lines might be improperly formatted if the log line limit is too short. In this case, try increasing this value to make the messages easier to read in the log.

Valid values:

- On i5/OS, Linux, UNIX, or Windows, enter a number from 79 to 255.
- On z/OS, enter a number from 79 to 132.

Default is 79 on all of these operating systems.

For more information about these statements, see the *PowerExchange Reference Manual*.

Command Changes in 9.6.0

PowerExchange 9.6.0 introduces changes to pwxcmd commands for the PowerExchange Listener.

Passphrases in pwxcmd Commands for the PowerExchange Listener

You can optionally enter a valid PowerExchange passphrase instead of a password in pwxcmd commands for a PowerExchange Listener instance that runs on z/OS or i5/OS. Passphrases provide enhanced security because they are longer and contain a wide range of allowable character types.

In the following commands, enter a passphrase in the -password option or enter an encrypted passphrase in the -epassword option:

- pwxcmd close
- pwxcmd closeforce
- pwxcmd listtask
- pwxcmd stoptask

A passphrase for a PowerExchange Listener on i5/OS can be from 9 to 31 characters in length. A passphrase for a PowerExchange Listener on z/OS can be from 9 to 128 characters in length. In contrast, passwords are limited to eight characters or less.

Note: On z/OS, a valid RACF passphrase can be up to 100 characters in length. PowerExchange truncates passphrases longer than 100 characters when passing them to RACF for validation.

Passphrases can contain the following characters:

- Uppercase and lowercase letters

- The numbers 0 to 9
- Spaces
- The following special characters:

  ```
  ' - ; # \ , . / ! % & * ( ) _ + { } : @ | < > ?
  ```

  Note: The first character is an apostrophe.

Passphrases cannot contain single quotation marks (‘), double quotation marks (“), or currency symbols.

If a passphrase contains spaces, you must enclose it with double-quotation marks ("), for example, `"This is a passphrase"`. If a passphrase contains special characters, you must enclose it with triple double-quotation characters (""), for example, `"""This passphrase contains special characters ! % & *."""`.

To use passphrases, ensure that the following requirements are met:

- The PowerExchange Listener runs with a security setting of SECURITY=(1,N) or higher in the DBMOVER member. For more information, see "SECURITY Statement" in the *PowerExchange Reference Manual*.
- All PowerExchange instances in your environment are at version 9.6.0 or later.

For more information, see the *PowerExchange Command Reference*.

Note: Passphrases can also be specified in the infacmd isp CreateConnection and UpdateConnection commands and in the infacmd pwx createdatamaps command. For more information, see the *Informatica Command Reference*.

CHAPTER 7

PowerExchange Logger for Linux, UNIX, and Windows

This chapter includes the following topics:

PowerExchange 10.1.1 - New Features and Changes for the PowerExchange Logger

This section describes the PowerExchange 10.1.1 new features and changes that are related to the PowerExchange Logger for Linux, UNIX, and Windows.

New Features in 10.1.1

PowerExchange 10.1.1 introduces the following new feature for the PowerExchange Logger for Linux, UNIX, and Windows:

Monitoring Statistics Printed at PowerExchange Logger for Linux, UNIX, and Windows Shutdown

The PowerExchange Logger for Linux, UNIX, and Windows can now publish summary monitoring statistics each time it stops in response to a Logger SHUTCOND or SHUTDOWN command or at the end of a batch run. You must specify the STATS=(MONITOR) parameter, with or without the *interval* subparameter, in the PowerExchange Logger configuration file, pwxccl.cfg.

The following monitoring messages are issued at shutdown:

```
PWX-00723 Command <Shutdown stats> succeeded
PWX-37130   PWXCCL pid = 9064       Writer status = Shutting down
PWX-37134   CPU Time =    0:00:00.686404
PWX-37131   Memory  (Current/Total/Maximum)
PWX-37132    Controller: (476/477/1853) KB    Command Handler: (476/477/1853) KB    Writer: (0/0/0) KB
```

```
PWX-37105    Total Memory 16468 KB
PWX-37135   Status  9064                Totals  I=000000001404 U=000000000000 D=000000001404
C=000000000228 Total=000000003036
PWX-37136    CurrFileOpened : 2016-08-19 10:37:47 I=000000000000 U=000000000000 D=000000000000
C=000000000000 Total=000000000000
PWX-37137     Active Cycle  : 2016-08-19 10:37:47 I=000000001404 U=000000000000 D=000000001404
C=000000000228 Total=000000003036
```

For more information, see the "Monitoring CDC Sessions" chapter in the *PowerExchange CDC Guide for Linux, UNIX, and Windows* and the "PowerExchange Logger for Linux, UNIX, and Windows Commands" chapter in the *PowerExchange Command Reference*.

Expanded OpenLDAP and Oracle LDAP Support for Requests to the PowerExchange Logger

PowerExchange introduces expanded support for the OpenLDAP and Oracle LDAP implementations to authenticate PowerExchange Logger for Linux, UNIX, and Windows requests.

PowerExchange supports the OpenLDAP implementation on the following platforms:

- AIX
- Linux x64
- Solaris SPARC
- Windows x64

PowerExchange supports the Oracle LDAP implementation on the following platforms:

- Linux x64
- Solaris SPARC

For more information, see the "PowerExchange Security" chapter in the *PowerExchange Reference Manual*.

PowerExchange 10.1 - New Features and Changes for the PowerExchange Logger

This section describes the PowerExchange 10.1 new features and changes that are related to the PowerExchange Logger for Linux, UNIX, and Windows.

New Features in 10.1

PowerExchange 10.1 introduces the following new feature for the PowerExchange Logger for Linux, UNIX, and Windows:

OpenLDAP Support for Requests to the PowerExchange Logger

PowerExchange introduces support for the OpenLDAP implementation to authenticate pwxcmd requests to the PowerExchange Logger. PowerExchange continues to support the Oracle LDAP implementation.

When you enable LDAP authentication and a pwxcmd command connects to the SVCNODE port of the PowerExchange Logger, PowerExchange connects to an LDAP server to authenticate the enterprise user ID and password that the pwxcmd command provides.

With the introduction of support for OpenLDAP, PowerExchange provides LDAP user authentication on all Linux, UNIX, and Windows platforms where the PowerExchange Logger can run, including the following platforms:

- AIX
- Red Hat and SUSE Linux x64
- Windows x64

The PowerExchange installation program installs the OpenLDAP client files on each Linux, UNIX, or Windows machine where you install PowerExchange.

For more information, see the "PowerExchange Security" chapter of the *PowerExchange Reference Manual*.

PowerExchange 10.0 - New Features and Changes for the PowerExchange Logger

This section describes the PowerExchange 10.0 new features and changes that are related to the PowerExchange Logger for Linux, UNIX, and Windows.

New Features in 10.0

PowerExchange 10.0 introduces the following new feature for the PowerExchange Logger.

Enhanced Monitoring Statistics for the PowerExchange Logger for Linux, UNIX, and Windows

PowerExchange 10.0 provides new commands for publishing enhanced PowerExchange Logger monitoring statistics on demand. PowerExchange also provides a new PowerExchange Logger parameter to enable collection of these monitoring statistics and optionally print them at a specific interval. Use these statistics to monitor PowerExchange Logger processing status and computer resource usage.

The statistics are written to the PowerExchange message log and displayed on screen.

Important: Before you can use the new commands, you must specify the new STATS=(MONITOR) parameter in the PowerExchange Logger pwxccl.cfg configuration file to enable collection of the monitoring statistics.

If the PowerExchange Logger runs in the foreground, issue the DL or DG command from the command line on the system where the PowerExchange Logger runs. If the PowerExchange Logger runs in background mode or you want to issue the commands from a remote Linux, UNIX or Windows system, use the pwxcmd program to issue the displaystatus -tp {logger|groups} command.

The DL (or DS) command or pwxcmd displaystatus -tp logger command prints the following statistics for a PowerExchange Logger process and its tasks:

```
PWX-26011 Command handler received command "DS"
PWX-00723 Command <display L stats> succeeded
PWX-37130   PWXCCL pid = 7144       Writer status = Reading or waiting for source data
PWX-37134   CPU Time =    0:00:02.574016
PWX-37131   Memory  (Current/Total/Maximum)
PWX-37132    Controller: (981/983/1849) KB    Command Handler: (673/674/708) KB    Writer:
(5127/5147/5181) KB
PWX-37135   Status  7144                  Totals  I=000000024344 U=000000000000 D=000000024336
C=000000004004 Total=000000052684
PWX-37136    CurrFileOpened : 2015-08-11 13:20:39 I=000000024344 U=000000000000 D=000000024336
C=000000004004 Total=000000052684
PWX-37137     Active Cycle  : 2015-08-11 13:21:01 I=000000024344 U=000000000000 D=000000024336
C=000000004004 Total=000000052684
```

The DG command or pwxcmd displaystatus -tp groups command prints the following statistics for each PowerExchange Logger group definition:

```
PWX-26011 Command handler received command "DG"
PWX-37138   Grp: dtld004 Regs=1 IUD=000000000000 C=000000000000 Unflushed=000000000000
PWX-37138   Grp: dtld003 Regs=2 IUD=000000000470 C=000000000028 Unflushed=000000000000
PWX-37138   Grp: dtld002 Regs=2 IUD=000000003276 C=000000000196 Unflushed=000000000000
```

If no PowerExchange Logger group definitions exist, the DG or pwxcmd displaystatus -tp groups command prints the following statistics, as if all registrations were in one group:

```
PWX-26011 Command handler received command "DG"
PWX-37138   Grp: c:\pwx\capture/condenseO Regs=5 IUD=000000032292 C=000000001931 Unflushed=000000034223
PWX-37139       FirstRec=2015-05-22 13:59:10.603648  Open file=c:\pwx\capture/
condenseO.CND.CP150707.T1816001
PWX-37140       BeginSeq =000000009DE60000000000000000088D800000000 BeginRstrt
=D4C9C7D340400000000037DA00000000
PWX-37141       LastSeq  =00000158743800000000000000158728600000000
PWX-37142       CommitSeq=000001589B2400000000000001589B2400000000
CommitRstrt=D4C9C7D340400000000037DA00000000
```

Also, you can configure the PowerExchange Logger to print monitoring statistics at a specific interval by including the optional *interval* subparameter in the STATS parameter in the pwxccl.cfg file. In this case, the PowerExchange Logger displays an abbreviated form of the DL command output on screen to avoid flooding the screen with messages over time. For example:

```
PWX-37132    Controller: (981/983/1849) KB    Command Handler: (0/0/34) KB    Writer: (5127/5147/5181)
KB
PWX-37135   Status  7144                 Totals  I=000000024344 U=000000000000 D=000000024336
C=000000004004 Total=000000052684
PWX-37136    CurrFileOpened : 2015-08-11 13:20:39 I=000000024344 U=000000000000 D=000000024336
C=000000004004 Total=000000052684
PWX-37137     Active Cycle  : 2015-08-11 13:21:01 I=000000024344 U=000000000000 D=000000024336
C=000000004004 Total=000000052684
```

For more information, see the "Monitoring CDC Sessions" chapter in the *PowerExchange CDC Guide for Linux, UNIX, and Windows* and the "PowerExchange Logger for Linux, UNIX, and Windows Commands" chapter in the *PowerExchange Command Reference*.

Parameter and Option Changes in 10.0

PowerExchange 10.0 adds a parameter for the PowerExchange Logger for Linux, UNIX, and Windows.

PowerExchange Logger Configuration File Parameter

You can add the following new parameter in the PowerExchange Logger pwxccl.cfg configuration file to collect enhanced PowerExchange Logger monitoring statistics and optionally to publish these statistics at a regular interval:

STATS=(MONITOR[,*interval*|0])

Enables PowerExchange Logger collection of the following monitoring statistics:

- PowerExchange Logger process ID (PID)
- Status of the PowerExchange Logger Writer task
- CPU time used by the PowerExchange Logger
- Memory use (current/total/maximum) in kilobtyes, total and for the Controller, Command Handler, and Writer tasks
- The number of inserts, updates, deletes, and commits that the PowerExchange Logger processed, total since the Logger started and for the current active log file and the active logging cycle

Also, enables collection of the following statistics for PowerExchange Logger group definitions, if defined:

- The number of DML operations and commits processed for each group
- Then number of change records that have not yet been flushed to a Logger log file on disk
- The name of the open Logger log file for each group and the file open timestamp

The statistics are printed on demand to the PowerExchange message log and on screen when you enter the DL or DG command from the command line or the pwxcmd displaystats -tp {logger|groups} command from a remote system.

Include the optional *interval* subparameter to print the Logger statistics at a regular interval.

{interval|0}

Optional. The interval, in minutes, after which PowerExchange publishes monitoring statistics for the PowerExchange Logger. The interval-based statistics that are written to the PowerExchange message log file are the same as those published by the DL (or DS) command and pwxcmd displaystats -tp logger command. However, fewer interval-based statistics are displayed on screen to prevent flooding the screen with messages over time.

Valid values are 0 through 120. Default is 0, which disables interval-based reporting of PowerExchange Logger monitoring statistics.

For more information, see the *PowerExchange CDC Guide for Linux, UNIX, and Windows*.

Command Changes in 10.0

In PowerExchange 10.0, you can enter new commands from the command line to print enhanced PowerExchange Logger monitoring statistics on demand. Also, you can add a new option to the existing pwxcmd displaystats command to print these monitoring statistics from a remote Linux, UNIX, or Windows system.

Before you use any of these commands, you must specify the STATS=(MONITOR) parameter in the PowerExchange Logger pwxccl.cfg configuration file to enable the collection of these statistics.

New command-line commands:

DG

Displays monitoring statistics for each PowerExchange Logger for Linux, UNIX, and Windows group that is defined. A group is a set of PowerExchange Logger log files for a group of registered source tables. The following statistics are reported:

- The group name and the number of capture registrations in the group
- The total number of insert, update, and delete records that the PowerExchange Logger processed for the group
- The number of commits that the PowerExchange Logger processed for the group
- The number of change records that the PowerExchange Logger has not yet flushed from memory to its log files on disk
- The file name of the open Logger log file and the timestamp for when the file was opened

DL

Displays monitoring statistics for a PowerExchange Logger for Linux, UNIX, and Windows process and its tasks. The following statistics are reported:

- The PowerExchange Logger process ID

- The status of the PowerExchange Logger Writer subtask at the time the command is issued
- The CPU time used by the PowerExchange Logger since it started
- PowerExchange Logger memory use, total and by the Controller, Command Handler, and Writer tasks. For the tasks, memory use is reported in the following categories:
  - Current. The amount of memory that the task is currently using.
  - Total. The amount of memory in use by the task plus related header overhead. This value fluctuates as memory is dynamically allocated and freed during PowerExchange Logger processing
  - Maximum. The largest amount of memory that has been recorded for the "Total" category up to the point in time when the monitoring statistics are generated.
- Counts of inserts, updates, deletes, and commits that the PowerExchange Logger has processed, total and for the open Logger log file and the active logging cycle

Changed pwxcmd command:

The pwxcmd displaystats command includes the following new -type option:

```
pwxcmd displaystats {-service|-sv} service_name
                [{-user|-uid|-u} user_ID
                [{-password |-pwd|-p} password}|{-epassword|-e} encrypted_password}]
                [{-type|-tp} [{logger|groups}]
```

For the -type (or -tp) option, you can enter one of the following arguments:

- **logger**. Report monitoring statistics for the PowerExchange Logger process and tasks. The statistics include the PowerExchange Logger process ID (PID), Writer subtask status, CPU time used, memory use by task type, and counts of inserts, updates, deletes, and commits processed.
- **groups**. Report statistics for each PowerExchange Logger group that is defined. The statistics include the number of registrations in the group, the total number of DML operations processed, the number of commits processed, the name of the open Logger log file for the group, the timestamp of the open log file, and the number of change records that have not yet been flushed to a log file.

Default is logger.

For more information about all of these commands, see the "PowerExchange Logger for Linux, UNIX, and Windows Commands" chapter and "pwxcmd Commands" chapter in the *PowerExchange Command Reference*.

PowerExchange 9.6.1 HotFix 3 - New Features and Changes for the PowerExchange Logger

This section describes the PowerExchange 9.6.1 HotFix 3 new features and changes that are related to the PowerExchange Logger for Linux, UNIX, and Windows.

New Features in 9.6.1 HotFix 3

PowerExchange 9.6.1 HotFix 3 introduces the following new feature for the PowerExchange Logger.

PowerExchange Logger Support for LDAP User Authentication

You can use LDAP user authentication to authenticate client requests to a PowerExchange Logger for Linux, UNIX, and Windows instance that runs on a supported Linux, UNIX, or Windows system.

When you enable LDAP authentication, the PowerExchange Logger connects to an LDAP server to authenticate the enterprise user ID and password of clients that request a connection to the PowerExchange Logger.

You enable LDAP user authentication for the PowerExchange Logger in the same way that you enable it for the PowerExchange Listener. LDAP user authentication for the PowerExchange Listener was introduced in PowerExchange 9.6.1 HotFix 2.

For more information, see the *PowerExchange Reference Manual*.

Parameter and Option Changes in 9.6.1 HotFix 3

PowerExchange 9.6.1 HotFix 3 changes the behavior of a parameter that the PowerExchange Logger for Linux, UNIX, and Windows uses.

CAPX CAPI_CONNECTION Statement

The behavior of the RSTRADV parameter in the CAPX CAPI_CONNECTION statement changed.

CAPX CAPI_CONNECTION

Changed. If you specify the RSTRADV parameter with any valid value in the CAPX CAPI_CONNECTION statement, the Log Reader now always issues a set of restart and sequence tokens when it reaches the end of a PowerExchange Logger for Linux, UNIX, and Windows log file, even if the RSTRADV interval has not expired. These restart and sequence tokens indicate the end-of-log position of the Log Reader in the Logger log file. Previously, the Log Reader did not advance the restart and sequence tokens if the CDC session ended without receiving any changes of CDC interest before the RSTRADV interval elapsed. This situation usually occurred with source tables that had a low level of update activity and could result in CDC session failures or delays.

For more information, see the *PowerExchange Reference Manual*.

PowerExchange 9.6.1 HotFix 2 - New Features and Changes for the PowerExchange Logger

This section describes the PowerExchange 9.6.1 HotFix 2 new features and changes that are related to the PowerExchange Logger for Linux, UNIX, and Windows.

New Features in 9.6.1 HotFix 2

PowerExchange 9.6.1 HotFix 2 introduces the following new features for the PowerExchange Logger.

Encryption of PowerExchange Logger Log Files

You can now encrypt PowerExchange Logger log files to prevent unauthorized access to sensitive data that is stored in the log files. This feature can help you meet regulatory requirements for securing sensitive data, such as health care and financial records. The PowerExchange Logger uses AES encryption algorithms.

If you do not want to use the default algorithm of AES128, you can specify the AES192 or AES256 algorithm in the ENCRYPTOPT parameter in the PowerExchange Logger configuration file, pwxccl.cfg.

To enable the encryption of log files, you must specify an encryption password in one of the following ways:

- Specify the ENCRYPTEPWD or ENCRYTPWD parameter in the PowerExchange Logger configuration file, pwxccl.cfg. With this method, the password is stored in the CDCT file in encrypted format. For security reasons, the encryption password is not stored in CDCT backup files and not displayed in the CDCT reports that you can generate with the PWXUCDCT utility.
- When you cold start the PowerExchange Logger, enter the encryptepwd parameter in the pwxccl command at the command line. You must also include the coldstart=Y parameter. This method can reduce the risk of malicious access to the encryption password because the password is not stored in the pwxccl.cfg configuration file and the password can be removed from the command line after a successful cold start.

If you enter the ENCRYPTEPWD parameter in the PowerExchange Logger configuration file and also enter the encryptepwd parameter in a pwxccl command for cold starting the PowerExchange Logger, the parameter in the configuration file takes precedence. If you enter the ENCRYPTPWD parameter in the PowerExchange Logger configuration file and also enter the encryptepwd parameter in the pwxccl command, an error occurs.

If you specify the encryption password in a pwxccl command for cold starting the PowerExchange Logger and then need to restore the CDCT file later, you must enter the same encryption password in the RESTORE_CDCT command of the PWXUCDCT utility.

Additionally, the format of CDCT backup files has changed. Before you upgrade to PowerExchange 9.6.1 HotFix 2, back up your latest CDCT backup files and shut down the Logger.

For more information, see the *PowerExchange CDC Guide for Linux, UNIX, and Windows*.

Note: If you run a PowerExchange Logger Service in the Informatica domain, you can include the encryptepwd parameter in the start parameters for an infacmd pwx CreateLoggerService or UpdateLoggerService command. For more information, see the *Informatica Command Reference*. Also, when you define Logger Service configuration properties in the Informatica Administrator tool, you can include the encryptepwd parameter in the **Start Parameters** property. For more information, see the *Informatica Application Service Guide*.

Parameter and Option Changes in 9.6.1 HotFix 2

PowerExchange 9.6.1 HotFix 2 adds some new PowerExchange Logger for Linux, UNIX, and Windows parameters.

PowerExchange Logger Configuration File Parameters

You can specify the following new parameters in the PowerExchange Logger configuration file, pwxccl.cfg, to enable encryption of PowerExchange Logger log files:

ENCRYPTEPWD=*encrypted_encryption_password*

A password in encrypted format for enabling the encryption of PowerExchange Logger log files. With this password, the PowerExchange Logger can generate a unique encryption key for each Logger log file. The password is stored in the CDCT file in encrypted format. For security purposes, the password is not

stored in CDCT backup files and is not displayed in the CDCT reports that you can generate with the PWXUCDCT utility.

You can set the AES algorithm to use for log file encryption in the ENCRYPTOPT parameter. The default is AES128.

If you specify this parameter, do not also specify the ENCRYPTPWD parameter in the same pwxccl.cfg file.

If you specify this parameter and cold start the PowerExchange Logger with a pwxccl command that includes the encryptepwd parameter, the ENCRYPTEPWD parameter in the configuration file takes precedence.

If you change this ENCRYPTEPWD password after log files have been encrypted, you must cold start the PowerExchange Logger. Otherwise, the change is ignored.

Tip: For optimal security, Informatica recommends that you specify the encryption password in a pwxccl command for cold starting the PowerExchange Logger rather than in the pwxccl.cfg configuration file. This practice can reduce the risk of malicious access to the encryption password because the password is not stored in the pwxccl.cfg file. If you specify the encryption password in a pwxccl command for a cold start and then need to restore the CDCT file later, you must enter the same encryption password in the RESTORE_CDCT command of the PWXUCDCT utility.

To *not* encrypt PowerExchange Logger log files, do not enter an encryption password in the pwxccl.cfg configuration file or in the pwxccl command for a cold start.

ENCRYPTOPT={AES128|AES192|AES256}

The AES encryption algorithm that you want to use for encrypting PowerExchange log files. To enable encryption, you must also specify an encryption password in the ENCRYPTEPWD or ENCRYPTPWD parameter in the pwxccl.cfg configuration file or in the encryptepwd parameter in a pwxccl command for cold starting the PowerExchange Logger.

Default is AES128.

ENCRYPTPWD=*clear_text_encryption_password*

A password in clear text format for enabling the encryption of PowerExchange Logger log files. With this password, the PowerExchange Logger can generate a unique encryption key for each Logger log file. The password is stored in the CDCT file in encrypted format. For security purposes, the password is not included in CDCT backup files and is not displayed in the CDCT reports that you can generate with the PWXUCDCT utility.

You can set the AES algorithm to use for log file encryption in the ENCRYPTOPT parameter. The default is AES128.

If you specify this parameter, do not also specify the ENCRYPTEPWD parameter in the same pwxccl.cfg file.

If you specify this parameter and cold start the PowerExchange Logger with a pwxccl command that includes the encryptepwd parameter, an error occurs.

If you change this ENCRYPTPWD password after log files have been encrypted, you must cold start the PowerExchange Logger. Otherwise, the change is ignored.

Tip: For optimal security, Informatica recommends that you specify the encryption password in a pwxccl command for cold starting the PowerExchange Logger rather than in the pwxccl.cfg configuration file. This practice can reduce the risk of malicious access to the encryption password because the password is not stored in the pwxccl.cfg file. If you specify the encryption password in a pwxccl command for a cold start and then need to restore the CDCT file later, you must enter the same encryption password in the RESTORE_CDCT command of the PWXUCDCT utility.

To *not* encrypt PowerExchange Logger log files, do not enter an encryption password in encrypted or clear text format in the pwxccl.cfg configuration file or in the pwxccl command for a cold start.

For more information, see the *PowerExchange CDC Guide for Linux, UNIX, and Windows*.

Command Changes in 9.6.1 HotFix 2

When you enter the pwxccl command to cold start the PowerExchange Logger, you can include the new encryptepwd parameter to specify an encryption password. An encryption password is required to enable encryption of PowerExchange Logger log files.

Use the following command syntax to run the PowerExchange Logger in the foreground on Linux, UNIX, or Windows:

```
pwxccl [coldstart=Y|N] [{encryptepwd=encrypted_encryption_password]
```

You must specify the encryptepwd parameter with the coldstart=Y parameter. You can enter the other optional config, cs, and license parameters on the pwxccl command, if necessary. The pwxccl command for running the PowerExchange Logger in background mode is similar.

Parameter description:

encryptepwd

A password in encrypted format for enabling the encryption of PowerExchange Logger log files. With this password, the PowerExchange Logger can generate a unique encryption key for each Logger log file. The password is stored in the CDCT file in encrypted format. For security purposes, the password is not stored in CDCT backup files and is not displayed in the CDCT reports that you can generate with the PWXUCDCT utility.

If you specify this parameter, you must also specify coldstart=Y in the same pwxccl command.

If you specify this parameter and also specify the ENCRYPTEPWD parameter in the PowerExchange Logger configuration file, pwxccl.cfg, the parameter in the configuration file takes precedence. If you specify this parameter and also specify the ENCRYPTPWD parameter in the PowerExchange Logger configuration file, an error occurs.

You can set the AES algorithm to use for log file encryption in the ENCRYPTOPT parameter of the pwxccl.cfg file. The default is AES128.

Tip: For optimal security, Informatica recommends that you specify the encryption password in a pwxccl command for cold starting the PowerExchange Logger rather than in the pwxccl.cfg configuration file. This practice prevents the risk of malicious access to the encryption password because the password is not stored in the CDCT file. However, if you specify the encryption password in a pwxccl command for a cold start and then need to restore the CDCT file later, you must enter the same encryption password in the RESTORE_CDCT command of the PWXUCDCT utility.

To *not* encrypt PowerExchange Logger log files, do not enter an encryption password in encrypted or clear text format in the pwxccl command for a cold start or in the pwxccl.cfg configuration file.

For more information, see the *PowerExchange Command Reference*.

PowerExchange 9.6.0 - New Features and Changes for the PowerExchange Logger

This section describes the PowerExchange 9.6.0 new features and changes that are related to the PowerExchange Logger for Linux, UNIX, and Windows.

New Features in 9.6.0

PowerExchange 9.6.0 introduces the following new features for the PowerExchange Logger.

Ability to Special Start the PowerExchange Logger

You can now perform a *special start* of the PowerExchange Logger to begin change capture from a specific point in the change stream that overrides the restart point from the CDCT file for the PowerExchange Logger run.

A special start uses the SEQUENCE_TOKEN and RESTART_TOKEN parameter values in the pwxccl.cfg file to override the token values from the CDCT file. None of the data that was captured prior to the special start is lost.

You can use a special start to avoid capturing changes from problematic portions of the logs.

For example, perform a special start in the following situations:

- You do not want the PowerExchange Logger to capture an upgrade of the Oracle catalog. In this case, stop the PowerExchange Logger before the upgrade. After the upgrade is complete, generate new sequence and restart tokens for the PowerExchange Logger based on the post-upgrade SCN. Enter these token values in the SEQUENCE_TOKEN and RESTART_TOKEN parameters in the pwxccl.cfg, and then special start the PowerExchange Logger.
- You do not want the PowerExchange Logger to reprocess old, unavailable logs that were caused by outstanding UOWs that are not of CDC interest. In this case, stop the PowerExchange Logger. Edit the RESTART_TOKEN value to reflect the SCN of the earliest available log, and then perform a special start. If any of the outstanding UOWs are of CDC interest, data might be lost.

Note: Although these examples pertain to Oracle CDC, the special start feature can be used for other types of data sources for which the PowerExchange Logger logs changes.

To perform the special start, you must start the PowerExchange Logger with the new specialstart=Y parameter. For more information, see "PowerExchange Logger Startup Parameter" on page 111.

Also, you must include valid SEQUENCE_TOKEN and RESTART_TOKEN parameter values in the pwxccl.cfg file. To generate valid token values, contact Informatica Global Customer Support. Ensure that the SEQUENCE_TOKEN value is greater than or equal to the sequence token in the CDCT file.

Attention: Because assistance from Customer Support is required to generate the sequence and restart tokens, Informatica recommends that you use the specialstart=Y parameter only at the direction of Customer Support.

For more information, see the *PowerExchange CDC Guide for Linux, UNIX, and Windows*.

Parameter and Option Changes in 9.6.0

PowerExchange 9.6.0 adds a startup parameter.

PowerExchange Logger Startup Parameter

When you start the PowerExchange Logger from the command line, you can enter the new specialstart=Y parameter to perform a special start of the PowerExchange Logger. A special start begins change capture from a point in the change stream that you specify and that overrides the restart point from the CDCT file for the current PowerExchange Logger run.

To enter the specialstart parameter, use the following syntax.

```
pwxccl
   [coldstart=Y|N]
   [specialstart={Y|N}]
   [config=path/pwx_config_file]
   [cs=path/pwxlogger_config_file]
   [license=path/license_file]
```

The specialstart default value is N. When specialstart=N, the coldstart parameter controls whether the PowerExchange Logger cold starts or warm starts.

If you specify both specialstart=Y and coldstart=Y, the coldstart parameter takes precedence.

For more information, see the *PowerExchange Command Reference*.

Behavior Change in 9.6.0

PowerExchange 9.6.0 introduces the following behavior change for the PowerExchange Logger for Linux, UNIX, and Windows.

Validation of Oracle Redo Log Availability Before a Logger Restart

When you restart the PowerExchange Logger for Linux, UNIX and Windows for PowerExchange Express CDC for Oracle processing, it validates that all of the Oracle redo logs from the restart point to the current redo log exist. If any logs are not available, the PowerExchange Logger reports which logs are needed and which logs are missing and then stops. Previously, the unavailable logs were not reported until PowerExchange CDC Express for Oracle attempted to read them.

CHAPTER 8

PowerExchange Navigator

This chapter includes the following topics:

PowerExchange 10.2 - New Features and Changes for the PowerExchange Navigator

This section describes the PowerExchange 10.2 new features and changes that are related to the PowerExchange Navigator.

New Features in 10.2

PowerExchange 10.2 introduces the following new feature in the PowerExchange Navigator:

PowerExchange Navigator Overrides for the DBMOVER Configuration File and PowerExchange License Key File

PowerExchange provides the ability to override the default locations of the DBMOVER confiugration file and PowerExchange license key file that the PowerExchange Navigator uses.

When you add or edit a PowerExchange resource configuration, you can specify the location of the files for the resource configuration. You can also override the default locations by using the command line or environment variables.

The **Current Configuration** tab of the **Resource Configuration** dialog box displays the paths and file names of the DBMOVER configuration file and PowerExchange license key file. After each path and file name, a string in brackets indicates the source that the Navigator uses to determine the path and file name.

The following table identifies the sources that the Navigator uses to find the DBMOVER configuration file and PowerExchange license key file, in increasing order of precedence:

Source	Designation in GUI for DBMOVER Source	Designation in GUI for License Key Source	Description
System defaults	[Install Path]	[Install Path]	If you specify no override, the Navigator loads the dbmover.cfg and license.key files that are located in the PowerExchange root installation directory. This is the path that contains the Navigator executable file, dtlui.exe.
Environment variables	[$PWX_CONFIG]	[$PWX_LICENSE]	You can define the following environment variables before you start the Navigator: - PWX_CONFIG. Enter the full path to the dbmover.cfg. - PWX_LICENSE. Enter the full path to the license.key.
Command line arguments	[Command Line]	[Command Line]	When you start the Navigator from the command line or from a Windows shortcut, you can specify the following arguments: - config. Enter the full path to the DBMOVER configuration file. - license. Enter the full path to the license key file.
PowerExchange Navigator overrides	[NAVIGATOR]	[NAVIGATOR]	You can specify Navigator overrides in the **Resource Configuration** dialog box for a particular resource configuration name.

For more information, see the "PowerExchange Navigator Introduction" chapter in the *PowerExchange Navigator User Guide*.

Parameter and Option Changes in 10.2

PowerExchange 10.2 introduces a new parameter for the DTLUTSK utility.

Parameter for Issuing the LISTLOCATIONS Command

When you select **List Locations** from the **Fetch** list the **Database Row Test** dialog box, you can enter the new NODETYPE parameter in the **SQL Statement** box to specify the type of locations to list.

Use the following syntax:

```
listlocations nodetype={N|A|S}
```

Specify one of the following values for nodetype:

- N. Default. List locations that are defined in NODE statements in the DBMOVER configuration file.
- A. List locations that are defined in NODE or SVCNODE statements in the DBMOVER configuration file.
- S. List locations that are defined in SVCNODE statements in the DBMOVER configuration file.

PowerExchange 10.1.1 - New Features and Changes for the PowerExchange Navigator

This section describes the PowerExchange 10.1.1 new features and changes that are related to the PowerExchange Navigator.

New Features in 10.1.1

PowerExchange 10.1.1 introduces the following new feature in the PowerExchange Navigator:

Support for Multiple Versions of the PowerExchange Navigator

PowerExchange introduces support for running multiple versions of the PowerExchange Navigator on the same Windows platform.

When you first start the PowerExchange Navigator for a new product version, the **Resource Configuration** dialog box prompts you to enter the resource path to use with this version of the Navigator. To edit the configuration, click the **Edit Configuration** tab. A new **Import** button enables you to import the configuration from a previous version of the Navigator.

For more information, see the "PowerExchange Navigator Introduction" chapter in the *PowerExchange Navigator User Guide*.

PowerExchange 10.0 - New Features and Changes for the PowerExchange Navigator

This section describes the PowerExchange 10.0 new features and changes that are related to the PowerExchange Navigator.

New Features in 10.0

PowerExchange 10.0 introduces the following new feature in the PowerExchange Navigator:

Ability to Specify Restart Tokens for a Database Row Test

When you perform a database row test in the PowerExchange Navigator with a **DB Type** value of **CAPX** or **CAPXRT**, you can now specify restart tokens to control the point in the change stream from which the row test begins fetching data. Use this feature whenever you want to bypass some change records, for example, old records that have been archived off disk or records that are not consistent with an updated extraction map.

In the **Database Row Test** dialog box, click the **Advanced** button. Then on the **General** tab of the **CAPX Advanced Parameters** dialog box or **CAPXRT Advanced Parameters** dialog box, specify the sequence token in the **Restart Token 1** field and specify the restart token in the **Restart Token 2** field.

Note: You can generate token values that identify the current end of the change stream from the PowerExchange Navigator or with the DTLUAPPL utility.

For more information, see the "Database Row Test" chapter in the *PowerExchange Navigator User Guide*.

PowerExchange 9.6.1 HotFix 2 - New Features and Changes for the PowerExchange Navigator

This section describes the PowerExchange 9.6.1 HotFix 2 new features and changes that are related to the PowerExchange Navigator.

New Features in 9.6.1 HotFix 2

PowerExchange 9.6.1 HotFix 2 introduces the following new feature in the PowerExchange Navigator:

Connection Timeout Interval for Database Row Tests

The **Preferences** dialog box now includes the **Row Test Connection Timeout (Minutes)** field for specifying a connection timeout interval for active database row tests.

In this field, enter the number of minutes after which a connection to a data source for an active database row test times out. An active database row test is one that is open in the **Database Row Test** dialog box and that has not reached the end-of-file (EOF). When the row test is active, the bottom right corner of the PowerExchange Navigator window displays the time remaining before the timeout is reached. After the timeout is reached, the PowerExchange Navigator disconnects from the data source.

Use the row test timeout interval to help prevent exceeding the MAXTASKS limit on the number of concurrent tasks that can run under the PowerExchange Listener and to avoid row tests from tying up source data sets and files for a long time.

Valid values are 0 to 1440 (24 hours). If you specify 0, no row test timeout is in effect. Default is 15 minutes.

For more information, see the *PowerExchange Navigator User Guide*.

Support for PIC G Clause in COBOL Copybook Import

When you create a data map that imports metadata from a COBOL copybook that contains fields defined as PIC G, you can now specify a double-byte character set (DBCS) to be used with these fields. Also, when a COBOL field contains a PIC G data type, the field is now generated with a data type of CHAR. In previous releases, the field is generated with a data type of BIN.

When you import a COBOL copybook into a data map, the new **Import Copybook - Field Property Details** dialog box prompts whether to use the default code page for the data map or select a DBCS code page. The DBCS code page value that you select applies to every PIC G field in the copybook.

For more information, see the *PowerExchange Navigator User Guide*.

PowerExchange 9.6.1 HotFix 1 - New Features and Changes for the PowerExchange Navigator

This section describes the powerExchange 9.6.1 HotFix 1 new features and changes that are related to the PowerExchange Navigator.

New Features in 9.6.1 HotFix 1

PowerExchange 9.6.1 HotFix 1 introduces the following new feature in the PowerExchange Navigator:

Instance Field for Microsoft SQL Server Registration Groups

When you create a registration group for a Microsoft SQL Server source, the **Add a Registration Group** dialog box now includes an **Instance** field.

In this field, you can optionally enter a unique user-defined identifier for the database server and database name combination. Maximum length is seven characters. This identifier is used to identify a set of registrations for the publication database. This identifier is also incorporated into the names of the extraction maps that are generated for capture registrations in the registration group. If you use the PowerExchange Logger for Linux, UNIX, and Windows, ensure that the instance identifier matches the DBID parameter value in the Logger configuration file. If you do not enter an instance identifier, PowerExchange generates a unique instance identifier that is composed of all or part of the publication database name followed by a 3-digit number if a number is required to make the identifier unique.

A user-defined instance identifier can be useful in migration scenarios. If you need to migrate change capture from one environment to another, such as from test to production, and you do *not* define an instance identifier, PowerExchange uses a generated instance identifier in the new environment. The generated instance identifier might be different from the one in the original environment. To avoid having to update the extraction map names in PowerCenter workflows and edit the DBID parameter value for the PowerExchange Logger, enter an instance identifier that matches the instance identifier in the original environment when creating registrations for the new environment.

For more information, see the *PowerExchange Navigator User Guide*.

PowerExchange 9.6.1 - New Features and Changes for the PowerExchange Navigator

This section describes the powerExchange 9.6.1 new features and changes that are related to the PowerExchange Navigator.

New Features in 9.6.1

PowerExchange 9.6.1 introduces the following new feature in the PowerExchange Navigator:

Skipping a Specific Number of Initial Rows for a Database Row Test

The **Database Row Test** dialog box includes the new **Skip First *n* Rows** field. In this field, you can enter the number of initial rows of data to skip when the row test fetches data for display.

If you perform a row test on a large file, you can use this option to have the row test skip to a specific point in the file before displaying data. This option can help you diagnose problems in large files faster because only the data of potential interest is returned for analysis.

This option is available only if you select **CAPX**, **CAPXRT**, **NRDB**, or **NRDB2** in the **DB Type** list and select **Data** in the **Fetch** list.

Valid values are 0 to 99999. Default is 0, which causes no rows to be skipped.

A large value can increase PowerExchange Navigator response time and CPU usage.

Restriction: If you are testing a SEQ data map that has the **Variable** property set to **VS** to indicate a variable-length stream data file, the database row test returns warning message PWX-03042 and the **Skip First *n* Rows** option is ignored.

For more information, see the *PowerExchange Navigator User Guide*.

Parameter and Option Changes in 9.6.1

PowerExchange 9.6.1 introduces a new option for generating restart tokens from the PowerExchange Navigator:

Parameter for Generating DB2 for Linux, UNIX, and Windows Restart Tokens

When you generate current restart tokens for a DB2 for Linux, UNIX, and Windows source from the **Database Row Test** dialog box, you can enter the new INSTANCE parameter in the SQL statement to specify the required DB2 database name.

Syntax:

Use the following syntax to enter the statement in the **SQL Statement** box:

```
SELECT CURRENT_RESTART [WHERE [{CONNAME=capi_connection_name|CONTYPE=connection_type}]
[[AND] INSTANCE=db2_database_name]]
```

Parameter description:

INSTANCE=*db2_database_name*

For a DB2 for Linux, UNIX, and Windows source, specifies the DB2 database name. This parameter value is required unless you enter the DB2 database name in the **Override File Name** field. In the WHERE clause of the SELECT CURRENT_RESTART statement, you can specify this parameter only, or use the optional AND keyword to specify this parameter with the CONNAME or CONTYPE parameter.

For more information, see the *PowerExchange Navigator User Guide*.

Behavior Changes in 9.6.1

PowerExchange 9.6.1 introduces the following behavior changes in the PowerExchange Navigator:

Change to the Maximum Rows That a Row Test Can Fetch

The maximum number of rows that a database row test can fetch at one time has increased from 999 to 99999. You specify this value in the **Get *n* Rows** field of the **Database Row Test** dialog box when performing a row test of a data map, extraction map, or personal metadata profile. The default value of 10 remains the same.

For more information, see the *PowerExchange Navigator User Guide*.

Change to Valid Values for a Data Map Preference

On the **Data Map** tab of the **Preferences** dialog box, the valid values for the **Number of Records** field changed. This field specifies the maximum number of records that can be displayed at a time in the **Data File** window. You can now enter a value from 1 to 99999. A very large value might increase CPU usage by the PowerExchange Navigator. The default value of 10 remains the same.

For more information, see the *PowerExchange Navigator User Guide*.

Change to the Refresh Configuration Command

The behavior of the **Refresh Configuration** command on the **File** menu changed. The command now refreshes all locally held resources, including data maps, browser profiles, application groups, extraction groups, and registration groups.

If the PowerExchange Navigator is open when you import a data map by using the createdatamaps utility, you can use the **Refresh Configuration** command to refresh the list of data maps.

In previous PowerExchange releases, this command is inactive.

For more information, see the *PowerExchange Navigator User Guide*.

PowerExchange 9.6.0 - New Features and Changes for the PowerExchange Navigator

This section describes the powerExchange 9.6.0 new features and changes that are related to the PowerExchange Navigator.

New Features in 9.6.0

PowerExchange 9.6.0 introduces the following new feature in the PowerExchange Navigator:

Overriding the IMS Access Method and Related Parameters for a Database Row Test

In the PowerExchange Navigator, you can specify new advanced parameters for a database row test to override the IMS access method and related properties, including the IMS SSID, PSB name, PCB name, and PCB number.

In the **Database Row Test** dialog box, select **NRDB** or **IMSUNLD** as the **DB Type** and click **Advanced**. In the **Advanced Parameters** dialog box, you can enter the following optional overrides for the row test of an IMS data map or unload file:

- **Access Method**. Overrides the DL/1 BATCH and IMS ODBA access methods with one another.
- **IMS SSID**. Overrides the IMS SSID.
- **PSB Name**. Overrides the PSB name. Available for IMS ODBA and DL/I batch access.
- **PCB Name**.Overrides the PCB name. Available for IMS ODBA access only.
- **PCB Number**. Overrides the PCB number. Available for DL/I batch access only.

If you specify the **PSB Name** value and use DL/I or BMP access to IMS, you must also specify the %PSBNAME substitution variable in the netport JCL.

If you specify the **IMS SSID** value and use BMP access to IMS, you can also specify the %IMSID substitution variable in the netport JCL to override the IMS SSID for the netport job. By using the override with the substitution variable, you can use the same netport JCL to access multiple IMS environments, such as development, test, and production environments.

For more information, see the *PowerExchange Navigator User Guide*.

PowerExchange Navigator Support for PowerExchange Passphrases

Effective in PowerExchange 9.6.0, you can enter a valid PowerExchange passphrase instead of password to access sources and targets on z/OS and i5/OS. Passphrases provide enhanced security because they are longer and contain a wide range of allowable character types. You can also use encrypted passphrases.

You can enter a passphrase or encrypted passphrase throughout the PowerExchange Navigator interface when performing the following tasks:

- Adding or viewing registration groups, extraction groups, and application groups
- Adding personal metadata profiles
- Sending data maps to a remote node, or importing remote data maps
- Defining logons for accessing remote data maps and data
- Importing copybooks or i5/OS DDSs from remote locations
- Viewing a remote data file
- Performing a database row test
- Generating an encrypted passphrase

An i5/OS passphrase can be from 9 to 31 characters in length. A z/OS passphrase can be from 9 to 128 characters in length (PWXPC connections) or from 9 to 79 characters in length (ODBC connections). In contrast, passwords are limited to eight characters or less.

Note: On z/OS, a valid RACF passphrase can be up to 100 characters in length. PowerExchange truncates passphrases longer than 100 characters when passing them to RACF for validation.

Passphrases can contain the following characters:

- Uppercase and lowercase letters
- The numbers 0 to 9
- Spaces
- The following special characters:

  ```
  ' - ; # \ , . / ! % & * ( ) _ + { } : @ | < > ?
  ```

  Note: The first character is an apostrophe.

Passphrases cannot contain single quotation marks (‘), double quotation marks (“), or currency symbols. In the PowerExchange Navigator, you do not need to enclose passphrases in quotation marks.

To use passphrases, ensure that the following requirements are met:

- The PowerExchange Listener runs with a security setting of SECURITY=(1,N) or higher in the DBMOVER member. For more information, see "SECURITY Statement" in the *PowerExchange Reference Manual*.
- All PowerExchange instances in your environment are at version 9.6.0 or later.

To use passphrases for IMS connections, ensure that the following additional requirements are met:

- You must configure ODBA access to IMS as described in the *PowerExchange Navigator User Guide*.
- You must use IMS data maps that specify IMS ODBA as the access method. Do not use data maps that specify the DL/1 BATCH access method because this access method requires the use of netport jobs, which do not support passphrases.
- The IMS database must be online in the IMS control region to use ODBA access to IMS.

For more information, see the *PowerExchange Navigator User Guide*.

CHAPTER 9

PowerExchange Monitoring and Tuning

This chapter includes the following topics:

PowerExchange 10.2 - New Features and Changes for Monitoring and Tuning

This section describes the PowerExchange 10.2 new features and changes for PowerExchange monitoring and tuning.

New Features in 10.2

PowerExchange 10.2 introduces the following new monitoring feature:

Improvements to SMF Statistics Records and Documentation

Improvements have been made to SMF statistics records. Also, the documentation on SMF statistics logging in the *PowerExchange Reference Manual* has been enhanced to provide more detail on SMF record format and layout and how to view statistics written to SMF or a file.

In the General section of SMF records, the following statistics fields now report cumulative System z Integrated Information Processor (zIIP) times:

- PWXGTCP reports the zIIP qualified time.
- PWXGTOT reports the time spent on the zIIP.
- PWXGTOF reports the zIIP time that was offloaded to the Central Processor.

Documentation enhancements include:

- The description of the SMFxSTY field in the "Standard SMF Header with Subtype" section has been enhanced.
- The "SMF Triplet Section Descriptor" topic has been added to describe the triplet fields in records logged to SMF.
- Instructions for viewing statistics written to SMF have been added.
- The documentation now notes that you must use the pwxstats.file data map to view statistics that have been written to SMF or a sequential data set from the PowerExchange Navigator. The data map file must have the same version and release level as the PowerExchange Listener. You should not edit this file.
- Graphics have been added to show the general layout of records written to SMF and to a sequential data set, also called a PowerExchange file.

For more information, see "SMF Statistics Logging" in the *PowerExchange Reference Manual*.

PowerExchange 10.1.1 - New Features and Changes for Monitoring and Tuning

This section describes the PowerExchange 10.1.1 new features and changes for PowerExchange monitoring and tuning.

New Features in 10.1.1

PowerExchange 10.1.1 introduces the following new monitoring feature:

Monitoring Statistics Printed at PowerExchange Logger for Linux, UNIX, and Windows Shutdown

The PowerExchange Logger for Linux, UNIX, and Windows can now publish summary monitoring statistics each time it stops in response to a Logger SHUTCOND or SHUTDOWN command or at the end of a batch run. You must specify the STATS=(MONITOR) parameter, with or without the *interval* subparameter, in the PowerExchange Logger configuration file, pwxccl.cfg.

The following monitoring messages are issued at shutdown:

```
PWX-00723 Command <Shutdown stats> succeeded
PWX-37130   PWXCCL pid = 9064       Writer status = Shutting down
PWX-37134   CPU Time =    0:00:00.686404
PWX-37131   Memory  (Current/Total/Maximum)
PWX-37132    Controller: (476/477/1853) KB    Command Handler: (476/477/1853) KB    Writer: (0/0/0) KB
PWX-37105    Total Memory 16468 KB
PWX-37135   Status  9064                  Totals  I=000000001404 U=000000000000 D=000000001404
C=000000000228 Total=000000003036
PWX-37136    CurrFileOpened : 2016-08-19 10:37:47 I=000000000000 U=000000000000 D=000000000000
C=000000000000 Total=000000000000
PWX-37137     Active Cycle  : 2016-08-19 10:37:47 I=000000001404 U=000000000000 D=000000001404
C=000000000228 Total=000000003036
```

For more information, see the "Monitoring CDC Sessions" chapter in the *PowerExchange CDC Guide for Linux, UNIX, and Windows* and the "PowerExchange Logger for Linux, UNIX, and Windows Commands" chapter in the *PowerExchange Command Reference*.

Improvements to Statistics Fields in SMF Records

Usability improvements have been made to the statistics fields in System Management Facilities (SMF) records on z/OS. The record field names have been enhanced to more easily identify fields. Also, in some sections, more fields have been added to report additional information.

Note: To log statistics records in SMF or to a sequential data set on z/OS, you must specify the STATS statement in the DBMOVER configuration file. Include the SMF parameter to write statistics records in SMF, or include the FILE parameter to write statistics records to a sequential data set.

If you previously logged SMF statistics records to a sequential data set on z/OS, perform the following tasks after you upgrade to 10.1.1:

1. Create a new data map for accessing SMF statistics records. The new data map must reflect the new record layout. You can use the updated pwxstat.file data map in the *PowerExchange 10.1.1 installation*\examples\datamaps directory.
2. Remove the existing sequential data set to which you logged SMF statistics in the previous release. PowerExchange cannot access records of the old format based on the new data map.
3. Allocate a new sequential data set for SMF statistics. Ensure that the data set is large enough to accommodate the new larger record sizes. For variable length, blocked data sets, the following DCB allocation attributes are usually sufficient: LRECL 5000 and BLKSIZE 27998. Then specify the data set name in the FILE parameter of the STATS statement in the DBMOVER configuration file.

Also, if you have been using SMF statistics records programmatically, verify that the PowerExchange 10.1.1 record content and format changes do not disrupt your programmatic use of these records.

For more information, see the "Statistics Logging with SMF" chapter in the *PowerExchange Reference Manual*.

PowerExchange 10.0 - New Features and Changes for Monitoring and Tuning

This section describes the PowerExchange 10.0 new features and changes for PowerExchange monitoring and tuning.

New Features in 10.0

PowerExchange 10.0 introduces the following new monitoring feature:

Enhanced Monitoring Statistics for the PowerExchange Logger for Linux, UNIX, and Windows

PowerExchange 10.0 provides new commands for publishing enhanced PowerExchange Logger monitoring statistics on demand. PowerExchange also provides a new PowerExchange Logger parameter to enable collection of these monitoring statistics and optionally print them at a specific interval. Use these statistics to monitor PowerExchange Logger processing status and computer resource usage.

The statistics are written to the PowerExchange message log and displayed on screen.

Important: Before you can use the new commands, you must specify the new STATS=(MONITOR) parameter in the PowerExchange Logger pwxccl.cfg configuration file to enable collection of the monitoring statistics.

If the PowerExchange Logger runs in the foreground, issue the DL or DG command from the command line on the system where the PowerExchange Logger runs. If the PowerExchange Logger runs in background mode

or you want to issue the commands from a remote Linux, UNIX or Windows system, use the pwxcmd program to issue the displaystatus -tp {logger|groups} command.

The DL (or DS) command or pwxcmd displaystatus -tp logger command prints the following statistics for a PowerExchange Logger process and its tasks:

```
PWX-26011 Command handler received command "DS"
PWX-00723 Command <display L stats> succeeded
PWX-37130   PWXCCL pid = 7144       Writer status = Reading or waiting for source data
PWX-37134   CPU Time =    0:00:02.574016
PWX-37131   Memory  (Current/Total/Maximum)
PWX-37132    Controller: (981/983/1849) KB    Command Handler: (673/674/708) KB    Writer:
(5127/5147/5181) KB
PWX-37135   Status  7144                 Totals  I=000000024344 U=000000000000 D=000000024336
C=000000004004 Total=000000052684
PWX-37136    CurrFileOpened : 2015-08-11 13:20:39 I=000000024344 U=000000000000 D=000000024336
C=000000004004 Total=000000052684
PWX-37137     Active Cycle  : 2015-08-11 13:21:01 I=000000024344 U=000000000000 D=000000024336
C=000000004004 Total=000000052684
```

The DG command or pwxcmd displaystatus -tp groups command prints the following statistics for each PowerExchange Logger group definition:

```
PWX-26011 Command handler received command "DG"
PWX-37138   Grp: dtld004 Regs=1 IUD=000000000000 C=000000000000 Unflushed=000000000000
PWX-37138   Grp: dtld003 Regs=2 IUD=000000000470 C=000000000028 Unflushed=000000000000
PWX-37138   Grp: dtld002 Regs=2 IUD=000000003276 C=000000000196 Unflushed=000000000000
```

If no PowerExchange Logger group definitions exist, the DG or pwxcmd displaystatus -tp groups command prints the following statistics, as if all registrations were in one group:

```
PWX-26011 Command handler received command "DG"
PWX-37138   Grp: c:\pwx\capture/condenseO Regs=5 IUD=000000032292 C=000000001931 Unflushed=000000034223
PWX-37139       FirstRec=2015-05-22 13:59:10.603648  Open file=c:\pwx\capture/
condenseO.CND.CP150707.T1816001
PWX-37140       BeginSeq =000000009DE60000000000000000088D800000000 BeginRstrt
=D4C9C7D3404000000000037DA00000000
PWX-37141       LastSeq  =00000158743800000000000001587286000000000
PWX-37142       CommitSeq=000001589B2400000000000001589B2400000000
CommitRstrt=D4C9C7D3404000000000037DA00000000
```

Also, you can configure the PowerExchange Logger to print monitoring statistics at a specific interval by including the optional *interval* subparameter in the STATS parameter in the pwxccl.cfg file. In this case, the PowerExchange Logger displays an abbreviated form of the DL command output on screen to avoid flooding the screen with messages over time. For example:

```
PWX-37132    Controller: (981/983/1849) KB    Command Handler: (0/0/34) KB    Writer: (5127/5147/5181)
KB
PWX-37135   Status  7144                 Totals  I=000000024344 U=000000000000 D=000000024336
C=000000004004 Total=000000052684
PWX-37136    CurrFileOpened : 2015-08-11 13:20:39 I=000000024344 U=000000000000 D=000000024336
C=000000004004 Total=000000052684
PWX-37137     Active Cycle  : 2015-08-11 13:21:01 I=000000024344 U=000000000000 D=000000024336
C=000000004004 Total=000000052684
```

For more information, see the "Monitoring CDC Sessions" chapter in the *PowerExchange CDC Guide for Linux, UNIX, and Windows* and the "PowerExchange Logger for Linux, UNIX, and Windows Commands" chapter in the *PowerExchange Command Reference*.

PowerExchange 9.6.1 HotFix 2 - New Features and Changes for Monitoring and Tuning

This section describes the PowerExchange 9.6.1 HotFix 2 new features and changes for PowerExchange monitoring and tuning.

New Features in 9.6.1 HotFix 2

PowerExchange 9.6.1 HotFix 2 introduces the following new monitoring feature:

Monitoring Statistics for PowerExchange Listeners on i5/OS

Effective in PowerExchange 9.6.1 HotFix 2, you can generate PowerExchange Listener monitoring statistics for PowerExchange Listeners on i5/OS. These statistics are now available for PowerExchange Listeners on all types of supported operating systems.

You must use the PowerExchange Listener pwxcmd displaystats command to print the Listener, Accessmethods, and Clients reports on demand for a PowerExchange Listener on i5/OS. You can also configure the MONITOR parameter in the STATS statement of the DBMOVER configuration file to print the summary Listener statistics at a specific interval. The reports for a Listener on i5/OS are the similar to those for Listeners on Linux, UNIX, and Windows.

You cannot use the following commands to print monitoring statistics for a PowerExchange Listener on i5/OS:

- A DISPLAYSTATS command that is entered with the SNDLSTCMD command at the command line or through a scheduler or program
- An infacmd pwx displayStatsListener command for a PowerExchange Listener Service

If you are upgrading to 9.6.1 HotFix 2 from an earlier release and set SECURITY=(2,*x*) in the DBMOVER member of the CFG file, you need to prepare the i5/OS environment to run pwxcmd displaystats commands. Issue the following command on the i5/OS system where the PowerExchange Listener runs:

```
CALL PGM(dtllib/CRTDTLENVA) PARM('datalib')
```

Note: On i5/OS and UNIX, PowerExchange uses memory-mapped files and shared memory as the inter-process communication (IPC) method for monitoring. On i5/OS, the memory-mapped files are stored in an Integrated File System (IFS) directory named `/home/user_id`, where *user_ID* is the user ID under which the PowerExchange Listener is running. PowerExchange releases shared memory and cleans up the memory-mapped files when PowerExchange Listener subtasks end and when the PowerExchange Listener is closed.

For more information, see the *PowerExchange Command Reference* and *PowerExchange Reference Manual*.

Parameter and Option Changes in 9.6.1 HotFix 2

PowerExchange 9.6.1 HotFix 2 introduces a change to a parameter in the DBMOVER configuration file.

DBMOVER Configuration File Statement

The following statement in the DBMOVER configuration file has been enhanced to produce monitoring statistics for PowerExchange Listeners on i5/OS:

STATS Statement

Changed. You can now use the MONITOR parameter in the STATS statement to collect summary monitoring statistics for a PowerExchange Listener on i5/OS. You can report these statistics at a regular interval or on demand.

To report the monitoring statistics for a Listener on i5/OS on demand, you must issue the pwxcmd displaystats command from a remote Linux, UNIX, or Windows program. To publish monitoring statistics at a regular interval, include the *interval* subparameter in the MONITOR parameter.

Note: The STATS statement can now produce monitoring statistics for Listeners on all types of supported operating systems.

For more information, see the *PowerExchange Reference Manual*.

Command Changes in 9.6.1 HotFix 2

PowerExchange 9.6.1 HotFix 2 introduces a change to a monitoring command for the PowerExchange Listener.

pwxcmd displaystats Command Supports PowerExchange Listeners on i5/OS

Effective in PowerExchange 9.6.1 HotFix 2, the pwxcmd displaystats command has been enhanced to print monitoring statistics for PowerExchange Listeners on i5/OS. This command now is available for Listeners on all types of supported operating systems.

To issue the pwxcmd displaystats command to a Listener on i5/OS from a remote Linux, UNIX, or Windows system, use the following syntax:

```
pwxcmd displaystats
{-service|-sv} service_name
[{-user|-uid|-u} user_ID
[{-password |-pwd|-p} password}|{-epassword|-e} encrypted_password}]
[{-type|-tp} [{listener|accessmethods|clients}]
```

To specify the report type, include the listener, accessmethods, or clients option. If you do not specify a -type option, the default of listener is used.

The report output for a Listener on i5/OS is the same as that for a Listener on Linux, UNIX, or Windows.

For more information, see the *PowerExchange Command Reference*.

PowerExchange 9.6.1 HotFix 1 - New Features and Changes for Monitoring and Tuning

This section describes the PowerExchange 9.6.1 HotFix 1 new features and changes for PowerExchange monitoring and tuning.

New Features in 9.6.1 HotFix 1

PowerExchange 9.6.1 HotFix 1 introduces the following new monitoring feature:

Monitoring Statistics for PowerExchange Listeners on Linux and UNIX

Effective in PowerExchange 9.6.1 HotFix 1, PowerExchange Listener monitoring statistics are available for PowerExchange Listeners on Linux (including zLinux) and UNIX. Previously, these statistics were available only for PowerExchange Listeners on Windows and z/OS.

The PowerExchange Listener displaystats and pwxcmd displaystats commands can now print the Listener, Accessmethods, and Clients reports on demand for a PowerExchange Listener on Linux or UNIX. You can also configure the MONITOR parameter in the STATS statement of the DBMOVER configuration file to print the summary Listener statistics at a specific interval. The reports are the same as those for a Listener on Windows.

If you run a PowerExchange Listener Service in the Informatica domain, you can use the infacmd pwx displayStatsListener command to print the summary statistics for a PowerExchange Listener on Linux, UNIX, or Windows.

Tip: On UNIX, PowerExchange uses shared memory and memory-mapped files as the inter-process communication (IPC) method for monitoring. The memory-mapped files are allocated in the directory that is specified by the LOGPATH statement in the dbmover.cfg file, or in the current directory if the LOGPATH statement is not specified. On Linux, PowerExchange uses shared memory only. When the PowerExchange Listener subtasks end and when the PowerExchange Listener is closed, PowerExchange cleans up the memory-mapped files and releases shared memory. To check that the shared memory was freed, use the IPC command -ipcs - m. To release shared memory, use the ipcrm -m command.

For more information, see the *PowerExchange Command Reference*, *PowerExchange Reference Manual*, and *Informatica Command Reference*.

Command Changes in 9.6.1 HotFix 1

PowerExchange 9.6.1 HotFix 1 introduces a change to the monitoring command for the PowerExchange Listener.

DISPLAYSTATS Command for the PowerExchange Listener

Effective in PowerExchange 9.6.1 HotFix 1, the displaystats and pwxcmd displaystats commands have been enhanced to print monitoring statistics for PowerExchange Listeners on Linux (including zLinux) and UNIX. Previously, these commands printed statistics only for Listeners on Windows and z/OS.

The command syntax and options for a Listener on Linux and UNIX are the same as those for a Listener on Windows.

To issue the displaystats command to a Listener on Linux or UNIX, use the following syntax:

```
displaystats [{listener|accessmethods|clients}]
```

or

```
ds [{l|a|c}]
```

To issue the pwxcmd displaystats command to a Listener on Linux or UNIX, use the following syntax:

```
pwxcmd displaystats
{-service|-sv} service_name
[{-user|-uid|-u} user_ID
[{-password |-pwd|-p} password}|{-epassword|-e} encrypted_password}]
[{-type|-tp} [{listener|accessmethods|clients}]
```

In both commands, include the listener, accessmethods, or clients option to specify the report type. If you do not include the option, the default of listener is used.

The report output for a Listener on Linux or UNIX is the same as that for a Listener on Windows.

For more information, see the *PowerExchange Command Reference*.

PowerExchange 9.6.1 - New Features and Changes for Monitoring and Tuning

This section describes the PowerExchange 9.6.1 new features and changes for PowerExchange monitoring and tuning.

New Features in 9.6.1

PowerExchange 9.6.1 introduces the following new monitoring feature:

Monitoring Statistics for PowerExchange Listeners on Windows and z/OS

You can publish monitoring statistics for a PowerExchange Listener on Windows or z/OS on demand or at a regular interval.

The following types of statistics reports are available:

- Listener. The listener report displays summary statistics on resource usage and client requests. These statistics include counts of client tasks, connections, access methods, messages sent and received, and bytes of data sent and received.
- Accessmethods. The accessmethods report displays message and data volumes sent and received for client requests, by task ID and access method. The message and data volumes are totals as of the time the statistics are generated. For CDC tasks that use the CAPX or CAPXRT access method, includes counts of SQL inserts, updates, and deletes processed.
- Clients. The clients report displays information about the active tasks that are running under the PowerExchange Listener to process client requests. These statistics include the task start time, CPU processing time, access method, read or write mode, and associated process name and session ID if available. Also includes the port number and IP address of the client that issued the request to the PowerExchange Listener.

Use the new displaystats or pwxcmd displaystats command to print any of the statistics reports on demand.

You can also configure the new MONITOR parameter in the STATS statement of the DBMOVER configuration file to print the summary statistics at a specific interval.

If you run a PowerExchange Listener Service in the Informatica domain, use the infacmd pwx displayStatsListener command to print the summary statistics.

For more information, see the *PowerExchange Command Reference*, *PowerExchange Reference Manual*, and *Informatica Command Reference*.

Parameter and Option Changes in 9.6.1

PowerExchange 9.6.1 introduces new and changed parameters for the DBMOVER configuration file.

DBMOVER Configuration File Statement

The DBMOVER configuration file includes the following changed statement related to monitoring:

STATS Statement

Changed. In addition to controlling whether PowerExchange writes SMF statistics records for the PowerExchange Listener to SMF or a file, this statement now also controls whether PowerExchange collects summary statistics for a PowerExchange Listener that runs on z/OS or Windows and reports these statistics at a regular interval.

The STATS statement syntax now includes the new MONITOR parameter:

```
STATS=({SMF,record_number[,{interval|0}]   |
        FILE,dataset_name[,{interval|0}]   |
        MONITOR[,{interval|0}]   |
        NONE}
)
```

The MONITOR parameter causes PowerExchange to collect summary statistics on PowerExchange Listener memory usage, CPU usage, client tasks, connections, data sent and received, and messages sent and received. This information is published to the system console or PowerExchange message log when you enter a DISPLAYSTATS or DISPLAYSTATS LISTENER command from the command line or with the pwxcmd program. Optionally, you can publish the statistics at a regular interval by specifying the *interval* subparameter. In the *interval* subparameter, enter a number of minutes from 0 through 120. Default is 0, which disables interval-based reporting. In 9.6.1, the MONITOR parameter is not supported for PowerExchange Listeners that run on i5/OS, Linux, or UNIX.

For more information, see the *PowerExchange Reference Manual* and *PowerExchange Command Reference*.

Note: If you configured a PowerExchange Listener Service in the Informatica domain, you can use the infacmd pwx displayStatsListener command to publish these statistics. For more information, see the *Informatica Command Reference*.

Command Changes in 9.6.1

PowerExchange 9.6.1 introduces a new monitoring command for the PowerExchange Listener.

DISPLAYSTATS Command for the PowerExchange Listener

PowerExchange 9.6.1 introduces a new DISPLAYSTATS command for PowerExchange Listeners that run on Windows and z/OS.

The command reports PowerExchange Listener monitoring statistics, including summary statistics on resource usage and client requests and more detailed statistics for each active client task and access method.

Note: In 9.6.1, the displaytstats command is not supported for PowerExchange Listeners that run on i5/OS, Linux, or UNIX.

Before you run the command, configure the following statements in the DBMOVER configuration file:

- Specify the MONITOR parameter in the STATS statement to enable PowerExchange to collect these statistics. You can include an *interval* subparameter to publish the statistics at a regular interval as well as on demand.
- For the proper display of monitoring output on z/OS, set the LOG_LINE_LIMIT statement to 132. Otherwise, the lines might wrap awkwardly, making the output hard to read.

You can issue the command from the command line or with the pwxcmd program. Use the following syntax:

- On Windows:

  ```
  displaystats [{listener|accessmethods|clients}]
  ```

  or

  ```
  ds [{l|a|c}]
  ```

- On z/OS, use the MVS MODIFY (F) command:

  ```
  F listener_task,DISPLAYSTATS [{LISTENER|ACCESSMETHODS|CLIENTS}]
  ```

  or

  ```
  F listener_task,DS [{L|A|C}]
  ```

- On a remote Linux, UNIX, or Windows system, issue the command to a PowerExchange Listener on Windows or z/OS with the pwxcmd program:

  ```
  pwxcmd displaystats
  {-service|-sv} service_name
  [{-user|-uid|-u} user_ID
  ```

```
{{-password |-pwd|-p} password} | {-epassword|-e} encrypted_password}]
[{-type|-tp} [{listener|accessmethods|clients}]
```

In each command format, enter one of the following parameters to control the report type:

LISTENER

Reports PowerExchange Listener summary statistics on resource usage and client requests processed. These statistics include memory usage, CPU processing time, total number of tasks that were created for client requests, active tasks, high-watermark tasks, maximum allowed tasks, total number of connections attempted, connections accepted, active connections, number of messages sent and received, and bytes of data sent and received. For a PowerExchange Listener on z/OS, these statistics also include the total number of netport jobs that have run under the Listener.

ACCESSMETHODS

Reports statistics on PowerExchange Listener message and data transfer activity by client task and access method, as of the time the statistics are generated. For each active task and access method combination, these statistics include the number of rows read and written, bytes of data read and written, the source or target file name or data map file name, and the CPU processing time. For CDC requests that use the CAPX or CAPXRT access method, the report also includes the number of SQL inserts, updates, and deletes that the task processed.

CLIENTS

Reports information about the active tasks that are running under the PowerExchange Listener, including the associated client and session ID. A client is an application such as PowerCenter, the PowerExchange Navigator, or a PowerExchange utility. For each active client task, the statistics show some or all of the following information: the status, access method that the task is using, task read or write mode, process name and session ID if available, CPU processing time, and start date and time. The statistics also include the client port number and IP address. If the client is PowerCenter, the statistics include the PowerCenter session ID and the application name for CDC.

Default is LISTENER.

For more information, see the *PowerExchange Command Reference*.

Note: If you configured a PowerExchange Listener Service in the Informatica domain, you can use the infacmd pwx displayStatsListener command to publish these statistics. For more information, see the *Informatica Command Reference*.

PowerExchange 9.6.0 - New Features and Changes for Monitoring and Tuning

This section describes the PowerExchange 9.6.0 new features and changes for PowerExchange monitoring and tuning.

Parameter and Option Changes in 9.6.0

PowerExchange 9.6.0 introduces new and changed parameters for the DBMOVER configuration file.

DBMOVER Configuration File Statements

The DBMOVER configuration file includes the following new or changed statements:

APPBUFSIZE Statement

*Changed.*Effective in PowerExchange 9.6.0, if APPBUFSIZEDYN is set to N, the APPBUFSIZE statement defines the size of the application data buffer, as in earlier releases. If APPBUFSIZEDYN is set to Y or is not specified, the APPBUFSIZE statement defines the initial size of the application data buffer for all connections during a PowerExchange Listener run. Subsequently, the application data buffer size for a connection can increase.

In PowerExchange releases earlier than 9.6.0, the APPBUFSIZE statement always defines the size of the application data buffer and the APPBUFSIZEDYN statement is not supported.

APPBUFSIZEDYN Statement

New. Specifies whether to enable dynamic application buffer sizing for supported data sources.

The APPBUFSIZEDYN statement applies to connections to Microsoft SQL Server, Oracle, or sequential bulk data sources with variable length records. A variable length record has at least one variable length field. A variable length field has a data type of VARCHAR or VARBIN.

The related APPBUFSIZE statement defines the initial size of the application buffer for all connections made during a PowerExchange Listener run. If APPBUFSIZEDYN is set to Y or is not specified, for each connection to a Microsoft SQL Server, Oracle, or sequential bulk source with variable length records, PowerExchange resizes the application buffer when encountering a record that is too large to fit into the buffer.

The size of the application buffer is increased to ten times the size of the record that has overflowed, up to the maximum application buffer size of 8 MB. The new size remains in effect for the duration of the Listener run or until the application buffer is resized again. The application buffer size is never reduced for a connection after a Listener run has started.

If APPBUFSIZEDYN=N, dynamic application buffer sizing is disabled, and the APPBUFSIZE statement defines the size of the application data buffer.

Default is Y.

CHAPTER 10

PowerExchange Utilities

This chapter includes the following topics:

PowerExchange 10.2 - New Features and Changes for PowerExchange Utilities

This section describes PowerExchange 10.2 new features and changes that are related to PowerExchange utilities.

Parameter and Option Changes in 10.2

PowerExchange 10.2 introduces a new parameter for the DTLUTSK utility.

DTLUTSK Utility Parameter

You can specify the following new DTLUTSK utility parameter:

Parameter	Description
NODETYPE	When CMD=LISTLOCATIONS, specify one of the following node types: - **N**. Default. List locations that are defined in NODE statements in the DBMOVER configuration file. - **A**. List locations that are defined in NODE or SVCNODE statements in the DBMOVER configuration file. - **S**. List locations that are defined in SVCNODE statements in the DBMOVER configuration file.

For more information, see the "DTLUTSK - Task Control Utility" chapter in the *PowerExchange Utilities Guide*.

PowerExchange 10.1.1 - New Features and Changes for PowerExchange Utilities

This section describes PowerExchange 10.1.1 new features and changes that are related to PowerExchange utilities.

New Features in 10.1.1

PowerExchange 10.1.1 introduces the following new features for PowerExchange utilities:

Enhancement to the Data Map Creation Utility

PowerExchange introduces an enhancement to the data map creation utility. You can now include the following element in a control file for IMS, sequential data set, and VSAM data sources.

decimalPointIsComma

Defines whether a comma represents a decimal point character in fields that contain noninteger numbers. Set this value to match the value of the DECPOINT statement in the DBMOVER configuration file.

Type = boolean

Default = false

Cardinality = 0 to 1

For more information, see the "createdatamaps - Data Map Creation Utility" chapter in the *PowerExchange Utilities Guide*.

PowerExchange 10.1 - New Features and Changes for PowerExchange Utilities

This section describes PowerExchange 10.1 new features and changes that are related to PowerExchange utilities.

New Features in 10.1

PowerExchange 10.1 introduces the following new features for PowerExchange utilities.

Enhancements to the Data Map Creation Utility

For sequential and VSAM data sources on z/OS, when you configure the data map creation utility to find record ID (RID) fields, you can configure the following new elements in the control file:

- excludeUnmatchedRecords element. Creates data map records only for those layouts that match all of the data records that have a given RID value.

  By default, the utility preserves the original behavior. That is, the utility defines one record and one table in the data map for each layout that the copybook defines, up to the maximum number that the maxRedefines element specifies. For each layout that matches all of the data records that have a given RID value, the utility assigns an RID value to the record in the data map.
- fieldOffset element. Specifies the byte offset of the RID in a data record. This feature is useful if you know the location of this field in the copybook.

  By default, the utility preserves the original behavior. That is, if you configure the utility to find RID fields, the utility determines the location of the RID field.
- matchFieldWidth element. Specifes that the FieldWidth element defines the exact byte width of the RID field instead of the maximum number of bytes. This feature is useful when you know the exact width of this field.

  By default, the utility preserves the original behavior. That is, the fieldWidth value that you define represents the maximum number of bytes in the RID field.

For more information, see the "createdatamaps - Data Map Creation Utility" chapter in the *PowerExchange Utilities Guide*.

PowerExchange 10.0 - New Features and Changes for PowerExchange Utilities

This section describes PowerExchange 10.0 new features and changes that are related to PowerExchange utilities.

New Features in 10.0

PowerExchange 10.0 introduces the following new features for PowerExchange utilities.

Enhancements to the Data Map Creation Utility

PowerExchange 10.0 provides the following enhancements to the data map creation utility:

- For sequential and VSAM data sources on z/OS, you can configure the control file to find record ID (RID) fields. This feature is useful if the COBOL copybook includes REDEFINE statements or multiple 01-level records and includes one or more RID fields that identify the record layout of each data record. The utility reads the COBOL copybook and the data files that you specify in the control file to find likely RID fields and the data values that they contain. For each valid record layout, the utility creates a table and a record in the data map and assigns a data value to the RID field.
- You can configure the control file so that the utility skips the number of initial records that you specify when it reads the data file.

To configure these features, you can include the following new elements in the control file:

cacheConfig

Controls the data cache on disk. The utility downloads data records from the z/OS system and saves them to a temporary disk cache to process them. You can define the cacheConfig element at a global level but not at a data map instance level.

The CacheConfig element includes the following elements:

cachePath

Specifies the full path to the folder for temporary working files. The cache path is written to the message log.

flushDataMode

Specifies when to flush the cache of the data records that were downloaded from the z/OS system.

Valid values:

- e - Flush the cache when the createdatamaps utility finishes.
- d - Flush the cache after each data map is created.

The default value of "e" allows data to be shared by multiple data map generations during one createdatamaps session.

findRecordIds

Controls whether the utility finds RID fields. You can specify findRecordIds at the global or data map instance level.

ridConfig

Defines parameters for finding RID fields. It includes following elements:

readRecordLimit

Maximum number of data records to read from each data file.

recordTypeLimit

Maximum number of record types in the data file.

fieldWidth

Maximum width, in bytes, of an RID field.

skipRecordCount

Specifies the number of initial records that the utility skips when it reads the data file.

For more information, see the "createdatamaps - Data Map Creation Utility" chapter in the *PowerExchange Utilities Guide*.

PowerExchange 9.6.1 HotFix 2 - New Features and Changes for PowerExchange Utilities

This section describes PowerExchange 9.6.1 HotFix 2 new features and changes that are related to PowerExchange utilities.

Command Changes in 9.6.1 HotFix 2

PowerExchange 9.6.1 HotFix 2 introduces new parameters on a command of the PWXUCDCT utility.

PWXUCDCT Utility Command Change

The RESTORE_CDCT command of the PWXUCDCT utility now supports the following parameter to specify the encryption password that is required to restore the encrypted contents of the CDCT file:

ENCRYPTEPWD=*encrypted_encryption_password*

If you cold started the PowerExchange Logger from the command line with a pwxccl command that included the encryptepwd parameter, you must specify that same parameter value in the ENCRYPTEPWD parameter in the RESTORE_CDCT command. The parameter specifies an encryption password, in encrypted format, that enables the encryption of PowerExchange Logger log files. With this password, the command can restore the CDCT file, including the encryption password that is stored in the file in encrypted format.

Tip: After you run the RESTORE_CDCT command with this parameter, perform a CAPX database row test from the PowerExchange Navigator to verify that the encryption password has been successfully restored.

For more information, see the *PowerExchange Utilities Guide*.

PowerExchange 9.6.1 HotFix 1 - New Features and Changes for PowerExchange Utilities

This section describes PowerExchange 9.6.1 HotFix 1 new features and changes that are related to PowerExchange utilities.

New Features in 9.6.1 HotFix 1

PowerExchange 9.6.1 HotFix 1 introduces the following new features for PowerExchange utilities.

Microsoft SQL Server Instance Identifier for the DTLUCBRG and DTLURDMO Utilities

For Microsoft SQL Server sources, you can now enter a unique user-defined instance identifier up to seven characters in length for a specific database server and database name combination.

Enter the instance identifier in the following DLTUCBRG and DTLURDMO parameters, which have been enhanced to support this SQL Server instance identifier:

- The NEW_DBID parameter in the REG_COPY MODIFY statement for the DTLURDMO utility.
- The INSTANCE parameter for the DTLUCBRG utility.

This instance identifier is incorporated into the names of the extraction maps that the utilities generate. If you use the PowerExchange Logger for Linux, UNIX, and Windows, ensure that the instance identifier matches the DBID parameter value in the Logger configuration file. If you do not enter this instance value, PowerExchange generates a unique instance identifier that is composed of all or part of the publication database name followed by a 3-digit number if a number is required to make the identifier unique.

If you are migrating from one SQL Server environment to another, you can enter an instance identifier that matches the instance identifier in the source system. In this manner, you can avoid using a generated

instance identifier and having to update the extraction map names in PowerCenter workflows and edit the PowerExchange Logger DBID parameter value on the target. In this case, ensure that the dbmover.cfg files in the source and target environments define unique paths in the CAPT_PATH and CAPT_XTRA statements.

For more information, see the *PowerExchange Utilities Guide*.

PowerExchange 9.6.1 - New Features and Changes for PowerExchange Utilities

This section describes PowerExchange 9.6.1 new features and changes that are related to PowerExchange utilities.

Parameter and Option Changes in 9.6.1

PowerExchange 9.6.1 introduces a new parameter for the EDMLUCTR utility.

EDMLUCTR Utility Parameter

You can specify the following optional parameter in the -SEL statement for the EDMLUCTR utility:

ENDRBA

New. Specifies an RBA in the log data sets to use as the ending point for the EDMLUCTR utility. In a Post-Log Merge environment, ENDRBA specifies a timestamp in the log data sets as an unstructured TOD-clock value.

EDMLUCTR prints or scans log records until it finds a log record that has an RBA or a timestamp that is equal to or greater than the specified ENDRBA value. When EDMLUCTR reaches that point, it ends.

Specify up to 16 hexadecimal digits for the ENDRBA value. You can omit leading zeroes.

For more information, see the *PowerExchange Utilities Guide*.

PowerExchange 9.6.0 - New Features and Changes for PowerExchange Utilities

This section describes PowerExchange 9.6.0 new features and changes that are related to PowerExchange utilities.

New Features in 9.6.0

PowerExchange 9.6.0 introduces the following new feature for PowerExchange utilities.

PowerExchange Utility Support for PowerExchange Passphrases

Effective in PowerExchange 9.6.0, you can enter a valid PowerExchange passphrase instead of password to access a remote z/OS and i5/OS location. Passphrases provide enhanced security because they are longer and contain a wide range of allowable character types. You can also use encrypted passphrases.

You can enter a passphrase or encrypted passphrase for the following PowerExchange utilities and parameters:

Utility	Parameters
DTLREXE	In the pwd and epwd parameters of the DELETE, PING, and SUBMIT statements
DTLUCBRG	PWD and EPWD parameters
DTLUCDEP	PWD and EPWD parameters
DLTURDMO	PWD, EPWD, TARGETPWD, TARGETEPWD parameters
DTLUTSK	PWD parameter of the i5/OS and LUW command line programs PWD parameter in a PARM statement in a DTLUTSK MVS job

An i5/OS passphrase can be from 9 to 31 characters in length. A z/OS passphrase can be from 9 to 128 characters in length. In contrast, passwords are limited to eight characters or less.

Note: On z/OS, a valid RACF passphrase can be up to 100 characters in length. PowerExchange truncates passphrases longer than 100 characters when passing them to RACF for validation.

Passphrases can contain the following characters:

- Uppercase and lowercase letters
- The numbers 0 to 9
- Spaces
- The following special characters:

  ```
  ' - ; # \ , . / ! % & * ( ) _ + { } : @ | < > ?
  ```

  Note: The first character is an apostrophe.

Passphrases cannot contain single quotation marks (‘), double quotation marks (“), or currency symbols.

In utility statements, you must enclose a passphrase in double quotation marks (") if it contains spaces or enclose it in triple double-quotation marks (""") if it includes special characters.

To use passphrases, ensure that the following requirements are met:

- The PowerExchange Listener runs with a security setting of SECURITY=(1,N) or higher in the DBMOVER member. For more information, see "SECURITY Statement" in the *PowerExchange Reference Manual*.
- All PowerExchange instances in your environment are at version 9.6.0 or later.

For more information about utility use of passphrases, see the *PowerExchange Utilities Guide*.

CHAPTER 11

PowerExchange for Adabas

This chapter includes the following topics:

PowerExchange 10.1.1 - New Features and Changes for Adabas

This section describes PowerExchange 10.1.1 new features and changes that are related to Adabas sources or targets.

New Features in 10.1.1

PowerExchange 10.1.1 introduces the following new feature for Adabas data sources:

Support for Adabas Cipher Codes

PowerExchange provides bulk data movement support for Adabas databases that are encrypted with a cipher code.

To enable support for Adabas cipher codes, perform the following actions:

- Write a user exit program in Assembler or C that returns a result set with the information that PowerExchange requires to perform the decryption.
- Include the START_UP_USER_EXIT statement in the DBMOVER configuration file on the PowerExchange Listener machine. This statement identifies the user exit program and programming language.

PowerExchange calls the user exit program each time the PowerExchange Listener starts or shuts down. At Listener startup, the exit program provides information for accessing one or more Adabas databases that are protected by an Adabas cipher code. At Listener shutdown, the exit program cleans up resources that the exit program allocated or used.

The storage area that the user exit program provides contains the following comma-separated fields:

- ADA. Required. Identifies the source type to which the user exit program applies. ADA is the only supported value.
- DBID=*nnn*. Optional. The database ID of a database that is protected by an Adabas cipher code. If DBID is not specified or is equal to 0, the cipher code applies to all DBIDs.
- FILENUM=*nnn*. Optional. The file number of an Adabas file that is protected by an Adabas cipher code. If FILENUM is not specified or is equal to 0, the cipher code applies to all FILENUM numbers.
- ActionFlag=*n*. Required. The type of action that the user exit performs. A value of 1 indicates the decryption of data by using an Adabas cipher code.
- ActionValue=*cipher_code*. Required. An Adabas cipher code of up to eight numeric digits.

For more information, see the "Adabas Bulk Data Movement" chapter in the *PowerExchange Bulk Data Movement Guide*.

PowerExchange 10.1 - New Features and Changes for Adabas

This section describes PowerExchange 10.1 new features and changes that are related to Adabas sources or targets.

Parameter and Option Changes in 10.1

PowerExchange 10.1 includes a new parameter for the Adabas ECCR.

Adabas ECCR Parameter

You can now specify the following optional parameter in the RUNLIB(ADAECRP1) member:

ETID_DATE={N|Y}

Controls whether the Adabas ECCR entirely replaces values that start with x'40' in the ETID field in ADASEL-expanded PLOG files with all x'40' values when writing the ETID values to the temporary PowerExchange file that stores commit information for source UOWs. The x'40' values represent blank spaces.

In the ADASEL-expanded PLOG files, the ETID userid can be expressed as either an actual user ID or a timestamp value. The ADASEL utility can produce ETID timestamp values in hexadecimal timestamp format, for example, x'400015321F404040', or replace timestamp values entirely with x'40' values, for example, x'4040404040404040'.

With Adabas versions earlier than 8.3, the PowerExchange ECCR always sets the ETID timestamp values to all x'40' values if the ETID values begin with x'40'. This behavior is the default behavior.

Beginning with Adabas version 8.3, the ADASEL utility writes internally generated values that begin with x'40' to the ETID field in the PLOG records, unless the user application provides a specific user ID in the call to Adabas. You can use this parameter to prevent the ECCR from writing the internally generated values as all x'40' values.

If the ADASEL-expanded PLOG files contain ETID values in hexadecimal timestamp format or in ADASEL-generated internal format and the ECCR replaces these values with all x'40' values, the ECCR will not be able match the change records from the PLOGs to the commit records. In this case, UOWs might remain

open, causing the PowerExchange Logger for z/OS to generate many spill files. Also, spill file allocation errors and CDC session failures might occur. Use this parameter to allow the ECCR to read the ETID values "as is" from the PLOGs so that these errors can be avoided.

Valid values:

- **N**. The ECCR replaces ETID values that begin with x'40' entirely with x'40' values when writing these ETID values to the temporary PowerExchange commit file. This behavior is acceptable if the ADASEL utility produces ETID timestamp values as all x'40' values in the expanded PLOG files. The ECCR can still match the change records in PLOG files with the commit records in the PowerExchange commit file to determine where UOW commits occur.
- **Y**. The ECCR does not replace ETID values that begin with x'40' entirely with x'40' values when writing these ETID values to the temporary PowerExchange commit file. The ECCR writes the values exactly as read from the expanded PLOG files to the PowerExchange commit file. Use this option if the ADASEL utility writes ETID values in hexadecimal timestamp format or in the ADASEL-generated internal format to the PLOG files. In these cases, this option can prevent a large number of outstanding UOWs, spill file allocation errors, and session failures.

Default is N.

For more information, see the "Adabas Change Data Capture" chapter of the *PowerExchange CDC Guide for z/OS*.

This parameter is also available in 9.6.1 HotFix 4. It is not available in 10.0.

PowerExchange 10.0 - New Features and Changes for Adabas

This section describes PowerExchange 10.0 new features and changes that are related to Adabas sources or targets.

New Features in 10.0

PowerExchange 10.0 introduces the following new feature for Adabas data sources:

Adabas Version 8.3.*x* Support

PowerExchange 10.0 adds support for Adabas 8.3.*x* on z/OS for CDC and bulk data movement sessions.

Support for Adabas sources on Linux, UNIX, and Windows and for Adabas unload files on z/OS as sources is deprecated.

For more information, see "Installation Planning" chapter in the *PowerExchange Installation and Upgrade Guide* and the Product Availability Matrix at http://mysupport.informatica.com.

PowerExchange 9.6.1 HotFix 4 - New Features and Changes for Adabas

This section describes PowerExchange 9.6.1 HotFix 4 new features and changes that are related to Adabas sources or targets.

Parameter and Option Changes in 9.6.1 HotFix 4

PowerExchange 9.6.1 HotFix 4 introduces a new parameter for the Adabas ECCR.

Adabas ECCR Parameter

You can now specify the following optional parameter in the RUNLIB(ADAECRP1) member:

ETID_DATE={N|Y}

Controls whether the Adabas ECCR entirely replaces values that start with x'40' in the ETID field in ADASEL-expanded PLOG files with all x'40' values when writing the ETID values to the temporary PowerExchange file that stores commit information for source UOWs. The x'40' values represent blank spaces.

In the ADASEL-expanded PLOG files, the ETID userid can be expressed as either an actual user ID or a timestamp value. The ADASEL utility can produce ETID timestamp values in hexadecimal timestamp format, for example, x'400015321F404040', or replace timestamp values entirely with x'40' values, for example, x'4040404040404040'.

With Adabas versions earlier than 8.3, the PowerExchange ECCR always sets the ETID timestamp values to all x'40' values if the ETID values begin with x'40'. This behavior is the default behavior.

Beginning with Adabas version 8.3, the ADASEL utility writes internally generated values that begin with x'40' to the ETID field in the PLOG records, unless the user application provides a specific user ID in the call to Adabas. You can use this parameter to prevent the ECCR from writing the internally generated values as all x'40' values.

If the ADASEL-expanded PLOG files contain ETID values in hexadecimal timestamp format or in ADASEL-generated internal format and the ECCR replaces these values with all x'40' values, the ECCR will not be able match the change records from the PLOGs to the commit records. In this case, UOWs might remain open, causing the PowerExchange Logger for z/OS to generate many spill files. Also, spill file allocation errors and CDC session failures might occur. Use this parameter to allow the ECCR to read the ETID values "as is" from the PLOGs so that these errors can be avoided.

Valid values:

- **N**. The ECCR replaces ETID values that begin with x'40' entirely with x'40' values when writing these ETID values to the temporary PowerExchange commit file. This behavior is acceptable if the ADASEL utility produces ETID timestamp values as all x'40' values in the expanded PLOG files. The ECCR can still match the change records in PLOG files with the commit records in the PowerExchange commit file to determine where UOW commits occur.
- **Y**. The ECCR does not replace ETID values that begin with x'40' entirely with x'40' values when writing these ETID values to the temporary PowerExchange commit file. The ECCR writes the values exactly as read from the expanded PLOG files to the PowerExchange commit file. Use this option if the ADASEL utility writes ETID values in hexadecimal timestamp format or in the ADASEL-generated internal format to the PLOG files. In these cases, this option can prevent a large number of outstanding UOWs, spill file allocation errors, and session failures.

Default is N.

For more information, see the "Adabas Change Data Capture" chapter of the *PowerExchange CDC Guide for z/OS*.

This parameter is also available in 9.6.1 HotFix 4. It is not available in 10.0.

PowerExchange 9.6.1 HotFix 2 - New Features and Changes for Adabas

This section describes PowerExchange 9.6.1 HotFix 2 new features and changes that are related to Adabas sources or targets.

New Features in 9.6.1 HotFix 2

PowerExchange 9.6.1 HotFix 2 introduces the following new feature for Adabas data sources:

Support for Adabas Spanned Records Greater Than 32 KB

If you use Adabas 8.2.2 or later, PowerExchange can now process Adabas spanned records up to their maximum size for both bulk data movement and CDC. The Adabas maximum size depends on the device type. PowerExchange releases earlier than 9.6.1 HotFix 2 can process records only up to 32 KB in size for both bulk data movement and CDC.

For more information, see the *PowerExchange Bulk Data Movement Guide* and the *PowerExchange CDC Guide for z/OS*.

PowerExchange 9.6.0 - New Features and Changes for Adabas

This section describes PowerExchange 9.6.0 new features and changes that are related to Adabas sources or targets.

New Features in 9.6.0

PowerExchange 9.6.0 introduces the following new feature for Adabas bulk data movement and CDC data sources:

Support for Adabas Spanned Records

PowerExchange supports Adabas spanned records as data sources for bulk data movement and CDC. The database must use Adabas 8.2.2 or later.

A spanned record is a logical record that is composed of a single physical primary record and up to four physical secondary records. Each record is stored in a separate data storage block. The Adabas device type

affects the block size and maximum size of the spanned record. PowerExchange can process records only up to 32 KB in size, regardless of the device type, for both bulk data movement and CDC.

For bulk data movement, PowerExchange can process Adabas files and unload files that contain spanned records without any special configuration.

For CDC, you must perform the following PowerExchange and Adabas configuration tasks to capture changes for spanned records:

- In the PowerExchange Adabas ECCR JCL, add the PARM=(ADA82) to the EXEC statement:

  ```
  EXEC PGM=DTLCCADA,PARM=(ADA82)
  ```

  The ECCR JCL member is usually named *install_prefix*AD1EC and located in the PROCLIB library. If you do not add PARM=(ADA82), the ECCR does not capture changes for the sources files that contain spanned records.
- Apply the following Adabas SAG ZAPs to your Adabas load libraries:

  - AU823101 (ADA823)
  - AU824072 (ADA824)
  - AU825047 (ADA825)
  - AU826017 (ADA826)
- In Adabas, specify the SRLOG=ALL parameter for the Adabas nucleus:

  ```
  ADARUN SRLOG=ALL
  ```

  This parameter causes Adabas to log before and after images for the entire primary record and the entire secondary records that contain changes to the PLOG data sets.

For more information, see the *PowerExchange CDC Guide for z/OS* and *PowerExchange Bulk Data Movement Guide*.

Adabas Version 8.2.4, 8.2.5, and 8.2.6 Support

PowerExchange 9.6.0 adds support for Adabas Versions 8.2.4, 8.2.5, and 8.2.6 on z/OS for CDC and bulk data movement sessions.

Support for Adabas 7.1 on z/OS is deprecated.

For more information, see the *PowerExchange Installation and Upgrade Guide* and the Product Availability Matrix at http://mysupport.informatica.com.

CHAPTER 12

PowerExchange for CA Datacom

This chapter includes the following topic:

PowerExchange 10.0 - New Features and Changes for Datacom

This section describes PowerExchange 10.0 changes that are related to Datacom sources or targets.

New Features in 10.0

PowerExchange 10.0 introduces the following new features for Datacom data sources and targets:

Datacom Version 15 Support

PowerExchange 10.0 adds support for CA Datacom Version 15 on z/OS for CDC and bulk data movement sessions.

Support for Datacom Version 11 is deprecated.

For more information, see "Installation Planning" chapter in the *PowerExchange Installation and Upgrade Guide* and the Product Availability Matrix at http://mysupport.informatica.com.

CHAPTER 13

PowerExchange for DB2 for i5/OS

This chapter includes the following topics:

PowerExchange 10.1.1 - New Features and Changes for DB2 for i5/OS

This section describes PowerExchange 10.1.1 changes that are related to DB2 for i5/OS data sources and targets.

New Features in 10.1.1

PowerExchange 10.1.1 introduces the following new feature for DB2 for i5/OS data sources:

DB2 for i5/OS Version 7.3 Support

PowerExchange 10.1.1 adds support for DB2 for i5/OS Version 7.3. For bulk data movement, PowerExchange supports DB2 for i5/OS 7.3 sources and targets. For CDC, PowerExchange supports DB2 for i5/OS 7.3 sources.

DB2 for i5/OS 7.3 introduced system-period temporal tables. A system-period temporal table stores the current versions of data rows and uses an associated history table to store prior versions of rows that were updated or deleted. PowerExchange supports these tables for bulk data movement and CDC. However, if a system-period temporal table contains hidden columns, when you create a capture registration for the table in the PowerExchange Navigator, do not select the hidden columns for change capture. If you include the hidden columns in the registration, PowerExchange extraction processing will end abnormally. For more information about system-period temporal tables, see the IBM i 7.3 database administration documentation.

PowerExchange 10.1.1 drops support for DB2 for i5/OS Version 6.1.

For more information, see the "Installation Planning" chapter in the *PowerExchange Installation and Upgrade Guide*.

PowerExchange 10.1 - New Features and Changes for DB2 for i5/OS

This section describes PowerExchange 10.1 changes that are related to DB2 for i5/OS data sources.

New Features in 10.1

PowerExchange 10.1 introduces the following new feature for DB2 for i5/OS data sources:

Generating SQL Statements for Re-creating Source or Target Objects for Troubleshooting

PowerExchange now provides a command that generates SQL statements for re-creating SQL source or target objects in a PowerExchange for DB2 for i5/OS environment. The command is intended to produce SQL statements that Informatica Global Customer Support can use for troubleshooting bulk data movement or CDC problems.

To generate the SQL statements for an i5/OS SQL object, enter the RTVSQLSTMT command from the i5/OS system where PowerExchange is installed. The PowerExchange *dtllib* library must be in the current library list for the i5/OS job. The RTVSQLSTMT command prompts you for a series of parameters that control what SQL statements are generated. The RTVSQLSTMT command validates your entries to reduce the risk of errors

Important: At any point, you can display Help information in the i5/OS Console to see field descriptions, command examples, and the authorities that are required to run the command.

For more information, see the *PowerExchange Bulk Data Movement Guide* or *PowerExchange CDC Guide for i5/OS*.

PowerExchange 10.0 - New Features and Changes for DB2 for i5/OS

This section describes PowerExchange 10.0 changes that are related to DB2 for i5/OS data sources.

New Features in 10.0

PowerExchange 10.0 introduces the following new feature for DB2 for i5/OS data sources:

Support for LOB Datatypes

Effective in 10.0, PowerExchange supports LOB datatypes in DB2 for i5/OS source tables in bulk data movement sessions. LOB datatypes include BLOB, CLOB, and DBCLOB.

The following restrictions apply to tables that includes LOB columns:

- You cannot access the data by using an NRDB SEQ data map or a DB2 data map.
- You cannot perform an insert into a target table that contains LOB columns.

PowerExchange 9.6.1 HotFix 2 - New Features and Changes for DB2 for i5/OS

This section describes PowerExchange 9.6.1 HotFix 2 new features and changes that are related to DB2 for i5/OS data sources or targets.

New Features in 9.6.1 HotFix 2

PowerExchange 9.6.1 HotFix 2 introduces the following new feature for DB2 for i5/OS:

DB2 for i5/OS Version 7.2 Support

PowerExchange 9.6.1 HotFix 2 adds support for DB2 for i5/OS Version 7.2. For bulk data movement, PowerExchange supports DB2 for i5/OS 7.2 sources and targets. For CDC, PowerExchange supports DB2 for i5/OS 7.2 sources.

If you use DB2 for i5/OS 7.2, review the following operational considerations:

- DB2 for i5/OS version 7.2 introduced support for SQL TRUNCATE operations on DB2 tables. PowerExchange CDC processing treats a TRUNCATE operation in the same way as an i5/OS CLRPFM (Clear Physical File Member) command. The ALWCLRPFM parameter in the AS4J CAPI_CONNECTION statement now applies to TRUNCATE operations as well as to CLRPFM commands.
- DB2 for i5/OS 7.2 introduced an optional subsecond precision for timestamp columns. You can enter a precision value of 0 to 12. A value of 0 causes no subsecond information to be provided. A value of 12 provides the precision in picoseconds. If you do not specify a subsecond precision, the precision is in microseconds, as in prior DB2 releases. PowerExchange bulk data movement and CDC support all levels of timestamp precision available in DB2 for i5/OS 7.2.
- With DB2 for i5/OS 7.2, database administrators can create Row and Column Access Control (RCAC) rules to control the visibility of sensitive DB2 data for improved security. Row access rules filter the rows that DB2 returns to specified users. Column access rules mask the data that DB2 returns for a column to specified users. PowerExchange honors these rules when accessing a DB2 database for bulk data movement and for data extraction processes that use DB2 data maps and NRDB data maps based on DB2 tables.

  Important: For CDC processing, PowerExchange does not honor RCAC rules because of a DB2 for i5/OS 7.2 limitation. When PowerExchange tries to process journal entries for tables that have RCAC rules applied, the columns or rows are not masked or filtered based on the rules.
- If you use the DB2400C access method for a DB2 for i5/OS 7.2 source and specify SECURITY=(2,*x*) in the DBMOVER configuration file, bulk data movement operations that use ODBC and database row tests fail with an SQL error similar to the following one:

  ```
  PWX-02302 CLI SQLState=42977. Native=-7022. User USER1 not the same as current user
  USER2.
  ```

  This issue is related to an IBM change to the DB2 interface that the DB2400C access method uses in i5/OS 7.2. Use the DB2 access method or specify a different value for the first positional parameter in the SECURITY statement, if possible.

For more information, see the *PowerExchange Installation and Upgrade Guide* and *PowerExchange Reference Manual*.

Parameter and Option Changes in 9.6.1 HotFix 2

PowerExchange 9.6.1 HotFix 2 introduces a change to a statement in the DBMOVER configuration member.

DBMOVER Configuration Member Parameters

PowerExchange 9.6.1 HotFix 2 changes the behavior of a parameter on the AS4J CAPI_CONNECTION statement in the DBMOVER configuration member.

The behavior of the following optional parameter changed to cover SQL TRUNCATE operations as well as i5/OS CLRPFM commands:

ALWCLRPFM= {N|Y}

Changed. Controls whether DB2 for i5/OS CDC processing stops or continues when PowerExchange encounters changes that result from an i5/OS Clear Physical File Member (CLRPFM) command or SQL TRUNCATE statement that is issued against a DB2 table registered for change data capture. PowerExchange cannot capture the deletions that result from a CLRPFM command or TRUNCATE statement.

Options:

- **N**. PowerExchange CDC processing stops when PowerExchange detects changes that are caused by a CLRPFM command or TRUNCATE statement.
- **Y**. PowerExchange ignores the CLRPFM command or TRUNCATE statement and continues CDC processing. The data integrity of the CDC target might be damaged. Specify Y only at the direction of Informatica Global Customer Support.

Default is N.

Note: i5/OS version 7.2 introduced support for SQL TRUNCATE operations on i5/OS tables. If you have an earlier i5/OS version, this parameter still pertains to CLRPFM commands only.

For more information, see the *PowerExchange Reference Manual*.

PowerExchange 9.6.0 - New Features and Changes for DB2 for i5/OS

This section describes PowerExchange 9.6.0 new features and changes that are related to DB2 for i5/OS data sources or targets.

Behavior Change in 9.6.0

PowerExchange 9.6.0 introduces a behavior change for DB2 for i5/OS data sources.

Handling of Unmapped NOT NULL Target Columns

For bulk data movement to DB2 for i5/OS targets, PowerExchange writes data only to mapped target columns that are described in the target definition. If the target definition contains NOT NULL columns and some of those columns are not mapped, when PowerExchange tries to write a SQL Insert record to the target, the Insert fails with error message PWX-32206 and SQL Code -407. This error alerts you that NOT NULL columns cannot contain nulls. Previously, PowerExchange incorrectly assumed a default value for unmapped NOT NULL columns and did not issue an error. This behavior change closes a loophole in writing Inserts to DB2 for i5/OS target tables.

CHAPTER 14

PowerExchange for DB2 for Linux, UNIX, and Windows

This chapter includes the following topics:

PowerExchange 10.2 - New Features and Changes for DB2 for Linux, UNIX, and Windows

This section describes PowerExchange 10.2 new features and changes that are related to DB2 for Linux, UNIX, and Windows data sources or targets.

Parameter and Option Changes in 10.2

PowerExchange 10.2 introduces the following changes to DB2 for Linux, UNIX, and Windows parameters.

DBMOVER Configuration File Statement

In the UDB CAPI_CONNECTION statement in the dbmover.cfg configuration file, you can now specify the following new optional parameter:

AGEOUTPERIOD=*minutes*

New. The AGEOUTPERIOD parameter specifies the age, in minutes, at which an outstanding DB2 UOW that has no change records of CDC interest will be removed from the calculation of the CDC restart point. The age is calculated as the difference between the start time of the outstanding UOW and the current time. Use this parameter to prevent CDC failures that can occur if you shut down and then restart capture processing for a DB2 source while the transaction is outstanding. After the restart, the DB2 transaction log in which the outstanding UOW started might not be available, causing the PowerExchange DB2 read process to fail.

For more information, see the "DBMOVER Configuration File" chapter in the *PowerExchange Reference Manual*.

PowerExchange 10.1.1 - New Features and Changes for DB2 for Linux, UNIX, and Windows

This section describes PowerExchange 10.1.1 new features and changes that are related to DB2 for Linux, UNIX, and Windows data sources or targets.

New Features in 10.1.1

PowerExchange 10.1.1 introduces the following new feature for DB2 for Linux, UNIX, and Windows sources:

Support for DB2 for Linux, UNIX, and Windows Version 11.1

PowerExchange 10.1.1 adds support for DB2 for Linux, UNIX, and Windows Version 11.1 on Linux, UNIX, and Windows operating systems, except Solaris. For bulk data movement, PowerExchange 10.1.1 supports DB2 11.1 sources and targets. For CDC, PowerExchange 10.1.1 supports DB2 11.1 sources.

PowerExchange does not support DB2 11.1 on Solaris because IBM does not support DB2 11.1 on this platform.

For more information, see the "Installation Planning" chapter in the *PowerExchange Installation and Upgrade Guide*.

PowerExchange 9.6.1 HotFix 3 - New Features and Changes for DB2 for Linux, UNIX, and Windows

This section describes PowerExchange 9.6.1 HotFix 3 new features and changes that are related to DB2 for Linux, UNIX, and Windows data sources or targets.

New Features in 9.6.1 HotFix 3

PowerExchange 9.6.1 HotFix 3 introduces the following new feature for DB2 for Linux, UNIX, and Windows sources:

Support for IBM DB2 for Linux, UNIX, and Windows Version 10.5

PowerExchange supports DB2 for Linux, UNIX, and Windows Version 10.5 for change data capture (CDC) and bulk data movement operations on Linux, UNIX, and Windows operating systems. However, PowerExchange does not support DB2 10.5 on zLinux systems.

PowerExchange can work with DB2 10.5 source tables that use extended row size support.

No DB2 FixPaks are required. If you upgrade to DB2 10.5, you do not need to perform any special PowerExchange migration steps. You can continue to use your DB2 capture registrations.

For more information, see the *PowerExchange Installation and Upgrade Guide*.

PowerExchange 9.6.1 - New Features and Changes for DB2 for Linux, UNIX, and Windows

This section describes PowerExchange 9.6.1 new features and changes that are related to DB2 for Linux, UNIX, and Windows data sources or targets.

New Features in 9.6.1

PowerExchange 9.6.1 introduces the following new feature for DB2 for Linux, UNIX, and Windows sources:

CDC Support for DB2 for Linux, UNIX, and Windows Version 10.1

PowerExchange 9.6.1 supports DB2 for Linux, UNIX, and Windows Version 10.1 on Linux, UNIX, and Windows operating systems for CDC. DB2 Fix Pack 3 is required.

However, PowerExchange 9.6.1 does not support DB2 for Linux, UNIX, and Windows Version 10.1 on Linux for IBM System z (zLinux) for CDC.

Note: PowerExchange support for DB2 for Linux, UNIX, and Windows 9.5 is deprecated.

For more information, see the *PowerExchange Installation and Upgrade Guide*.

PowerExchange 9.6.0 - New Features and Changes for DB2 for Linux, UNIX, and Windows

This section describes PowerExchange 9.6.0 new features and changes that are related to DB2 for Linux, UNIX, and Windows data sources or targets.

New Features in 9.6.0

PowerExchange 9.6.0 introduces the following new feature for DB2 for Linux, UNIX, and Windows sources:

Bulk Data Movement Support for DB2 for Linux, UNIX, and Windows Version 10.1

PowerExchange 9.6.0 introduces support of DB2 for Linux, UNIX, and Windows Version 10.1 for bulk data movement. DB2 Fix Pack 2 is required.

For more information, see the *PowerExchange Installation and Upgrade Guide*.

CHAPTER 15

PowerExchange for DB2 for z/OS

This chapter includes the following topics:

PowerExchange 10.2 - New Features and Changes for DB2 for z/OS

This section describes PowerExchange 10.2 changes that are related to DB2 for z/OS data sources.

New Features in 10.2

PowerExchange 10.2 introduces the following new features for DB2 for z/OS data sources:

DB2 12 for z/OS Support

PowerExchange adds support for DB2 12 for z/OS for bulk data movement sources and targets and CDC data sources.

If you are migrating a DB2 CDC data source to DB2 12, you do not need to upgrade the DB2 for z/OS ECCR capture directory tables. No changes have been made to the structure of these tables since DB2 11.

Before you migrate, check the DB2 DSN6SPRM RESTRICT_ALT_COL_FOR_DCC parameter setting. PowerExchange reports this setting in message PWXEDM177155I in the ECCR output. How this parameter is set determines whether you will need to cold start the ECCR during the DB2 migration, as follows:

- If the RESTRICT_ALT_COL_FOR_DCC parameter is set to NO, the ECCR will be able to process all DB2 log data that was generated during the DB2 catalog upgrade process and update the contents of the ECCR capture directory tables. A cold start is not required.

- If the RESTRICT_ALT_COL_FOR_DCC parameter is set to YES, the first time you start the ECCR after migrating to DB2 12.1.100, you must perform a cold start. In a data sharing environment, you might need to cold start the ECCR an additional time, depending on where the ECCR runs:
  - When the first member of the data sharing group is migrated to DB2 12.1.100, cold start the ECCR, regardless of where the ECCR runs.
  - If the ECCR runs on another member of the data sharing group, when that member is migrated to DB2 12.1.100, cold start of the ECCR again.

A cold start of the ECCR is *not* required after you migrate any other member in the data sharing group.

Note: When you upgrade from DB2 12.1.100 to 12.1.500, no ECCR cold start or other special action is required.

No special operational considerations apply to PowerExchange bulk data movement in a DB2 12 environment.

For more information, see the *PowerExchange Installation and Upgrade Guide* and the "DB2 for z/OS Change Data Capture" chapter in the *PowerExchange CDC Guide for z/OS*.

Support for Image Copy Data Sources That Include Inline LOB Columns

PowerExchange adds support for DB2 for z/OS image copy data sources that include inline LOB columns.

PowerExchange does not support DB2 for z/OS image copy data sources that include externally stored LOB columns.

For more information, see the "DB2 for z/OS Bulk Data Movement" chapter in the *PowerExchange Bulk Data Movement Guide*.

Support for LOBs in DB2 for z/OS CDC Sources

For DB2 for z/OS source tables, PowerExchange can process change data from BLOB, CLOB, and DBCLOB columns, provided that the row size does not exceed 8 MB. PowerExchange reads the LOB data from the PowerExchange Logger log files instead of directly from the DB2 transaction logs.

PowerExchange CDC processing of LOB data depends on whether the data is stored fully inline in the base table space, as follows:

- When BLOB, CLOB, or DBCLOB data is stored fully inline, the row size in the base table space is limited by the maximum DB2 page size of 32 KB. The DB2 ECCR can capture LOB data up to the inline length, provided that this length does not exceed the 32-KB page size limit minus the size of the DB2 control fields and the size of the columns. PowerExchange delivers the inline LOB data to PowerCenter workflows that use a DB2zOS CDC application connection.
- When CLOB (including DBCLOB) data is stored fully or partially in an auxiliary table space, you can use the new generated DTL__ST column in the extraction map to determine if the CLOB data in the PowerExchange Logger log files is complete or incomplete. If the CLOB data is incomplete, you can use an Expression transformation and unconnected Lookup transformation in the PowerCenter workflow to retrieve all of the current CLOB data from the DB2 source table so that all of this data can be delivered to the target. Informatica recommends that you use a single target because the use of multiple targets can cause updates to be applied in the wrong sequence.

  Note: When a Lookup transformation is used to retrieve CLOB data, the before images of rows that contain the CLOB data are not available for an UPDATE or DELETE operation. However, the after images of rows that contain the CLOB data are available for an UPDATE or INSERT operation.
- When BLOB data is stored fully or partially in an auxiliary table space, PowerCenter cannot retrieve all of the BLOB data because of limitations related to using binary ports in Lookup transformations. In this case, contact Global Customer Support to determine if a custom solution is available.

For more information, see the "DB2 for z/OS Change Data Capture" chapter in the *PowerExchange CDC Guide for z/OS*.

Parameter and Option Changes in 10.2

PowerExchange 10.2 introduces the following changes to DB2 for z/OS parameters.

DB2 ECCR Configuration Statements in the REPL2OPT DD Data Set

PowerExchange includes a changed configuration statement in the data set or RUNLIB member that is allocated by the REPL2OPT DD statement in the DB2 for z/OS ECCR JCL. This statement is optional.

IFI306 ... [NDWAIT={*nnnn*|300}]

Changed. You can now optionally include the NDWAIT parameter in the IFI306 statement. This parameter specifies the interval, in hundredths of a second, that the ECCR waits for DB2 to return change data before sending another request to IFI to retrieve change data from the DB2 logs. Valid values are 1-9999. Default is 300.

For more information, see the "DB2 for z/OS Change Data Capture" chapter in the *PowerExchange CDC Guide for z/OS*.

PowerExchange 10.1.1 HotFix 1 - New Features and Changes for DB2 for z/OS

This section describes PowerExchange 10.1.1 HotFix 1 changes that are related to DB2 for z/OS data sources.

New Features in 10.1.1 HotFix 1

PowerExchange 10.1.1 HotFix 1 introduces the following new feature for DB2 for z/OS data sources:

DB2 12 for z/OS Support

PowerExchange adds support for DB2 12 for z/OS for bulk data movement sources and targets and CDC data sources.

If you are migrating a DB2 CDC data source to DB2 12, you do not need to upgrade the DB2 for z/OS ECCR capture directory tables. No changes have been made to the structure of these tables since DB2 11.

Before you migrate, check the DB2 DSN6SPRM RESTRICT_ALT_COL_FOR_DCC parameter setting. PowerExchange reports this setting in message PWXEDM177155I in the ECCR output. How this parameter is set determines whether you will need to cold start the ECCR during the DB2 migration, as follows:

- If the RESTRICT_ALT_COL_FOR_DCC parameter is set to NO, the ECCR will be able to process all DB2 log data that was generated during the DB2 catalog upgrade process and update the contents of the ECCR capture directory tables. A cold start is not required.

- If the RESTRICT_ALT_COL_FOR_DCC parameter is set to YES, the first time you start the ECCR after migrating to DB2 12.1.100, you must perform a cold start. In a data sharing environment, you might need to cold start the ECCR an additional time, depending on where the ECCR runs:
  - When the first member of the data sharing group is migrated to DB2 12.1.100, cold start the ECCR, regardless of where the ECCR runs.
  - If the ECCR runs on another member of the data sharing group, when that member is migrated to DB2 12.1.100, cold start of the ECCR again.

A cold start of the ECCR is *not* required after you migrate any other member in the data sharing group.

Note: When you upgrade from DB2 12.1.100 to 12.1.500, no ECCR cold start or other special action is required.

No special operational considerations apply to PowerExchange bulk data movement in a DB2 12 environment.

For more information, see the *PowerExchange Installation and Upgrade Guide* and the "DB2 for z/OS Change Data Capture" chapter in the *PowerExchange CDC Guide for z/OS*.

Parameter and Option Changes in 10.1.1 HotFix 1

PowerExchange 10.1.1 HotFix 1 introduces the following changes to DB2 for z/OS parameters.

DB2 ECCR Configuration Statements in the REPL2OPT DD Data Set

PowerExchange includes a changed configuration statement in the data set or RUNLIB member that is allocated by the REPL2OPT DD statement in the DB2 for z/OS ECCR JCL. This statement is optional.

IFI306 ... [NDWAIT={*nnnn*|300}]

Changed. You can now optionally include the NDWAIT parameter in the IFI306 statement. This parameter specifies the interval, in hundredths of a second, that the ECCR waits for DB2 to return change data before sending another request to IFI to retrieve change data from the DB2 logs. Valid values are 1-9999. Default is 300.

For more information, see the "DB2 for z/OS Change Data Capture" chapter in the *PowerExchange CDC Guide for z/OS*.

PowerExchange 10.1.1 - New Features and Changes for DB2 for z/OS

This section describes PowerExchange 10.1.1 changes that are related to DB2 for z/OS data sources.

New Features in 10.1.1

PowerExchange 10.1.1 introduces the following new feature for DB2 for z/OS data sources:

Support for LOB Datatypes in DB2 for z/OS Data Maps

PowerExchange introduces support for LOB datatypes in DB2 for z/OS data maps. LOB datatypes include BLOB, CLOB, and DBCLOB.

In the PowerExchange Navigator, you can define a data map for a DB2 for z/OS data source that includes LOB columns. After you define the data map, you can perform a database row test on the table, and you can include the table as a source in a PowerCenter bulk data movement session.

Because DB2 is a relational database, a DB2 data map is not required for PowerExchange to access DB2 tables. However, in certain cases, defining a data map allows you to process the data in a way that is not otherwise possible. For example, if a CHAR column contains multiple packed decimal fields, you can define a DB2 data map to split data in the CHAR column into separate columns with the correct datatype for the content.

The maximum length of a DB2 row with LOB columns that you can define in a data map or include in a PowerExchange bulk data movement operation is 8 MB.

In a bulk data movement session, PowerExchange already provides support for LOB columns in DB2 data sources for which a data map is not defined.

For more information, see the "Data Maps for Specific Data Sources" chapter in the *PowerExchange Navigator User Guide*.

Parameter and Option Changes in 10.1.1

PowerExchange 10.1.1 introduces the following changes to DB2 for z/OS parameters.

DB2 ECCR Configuration Statement in the REPL2OPT DD Data Set

PowerExchange 10.1.1 introduces the new SHOWGENERATED configuration statement in the data set or RUNLIB member that is allocated by the REPL2OPT DD statement in the DB2 for z/OS ECCR JCL. This statement is optional and has no parameters.

SHOWGENERATED

Include this statement if you want the ECCR to list internally generated control statements in its output. If you have many capture registrations, the SHOWGENERATED statement can substantially increase the amount of ECCR output that is written to the EDMMSG data set. By default, the internally generated control statements are suppressed because they are not needed for normal operation. However, if you need them for debugging purposes, include this SHOWGENERATED statement.

For more information, see the "DB2 for z/OS Change Data Capture" chapter in the *PowerExchange CDC Guide for z/OS*.

Command Changes in 10.1.1

PowerExchange 10.1.1 introduces a change to a DB2 for z/OS ECCR command.

DB2 for z/OS ECCR DISPLAY Command

When you issue a DB2 for z/OS ECCR DISPLAY command, the ECCR now displays detail-level statistics in the PWXEDM177085I message only for source tables for which it has received DML changes from DB2. The PWXEDM177085I and PWXEDM177084I statistics messages are written to the EDMMSG data set.

To list detail-level statistics for every source table, including those with no change activity, you can include the new ALL parameter in the DISPLAY command. Use the following syntax:

```
DISPLAY,ALL
DISPLAY,ST,ALL
DISPLAY,SQ,ALL
```

Note: Because ST is the default parameter for the DISPLAY command, DISPLAY,ALL and DISPLAY,ST,ALL are equivalent.

Parameter description:

ALL

Prints the SQ or ST detail-level statistics in message PWXEDM177085I for every source table, even those tables for which the ECCR has received no DML changes. If you omit the ALL parameter, the ECCR prints the detail-level statistics only for the source tables for which the ECCR received at least one DML change. If you specify the ALL parameter without the SQ or ST parameter, the ALL parameter applies to the ST detail-level statistics.

Example DISPLAY,ST output:

```
PWXEDM177084I ABCDSNB  capture statistics at 2016-09-06 21.30.29
DB2 Log Location  000000000007AE9460B6.0000.0000
DB2 Log Timestamp 2016-09-06 21.30.17
Current Delay=            sec   Average Delay=            sec
DB2 Log records       REC_TOT      REC_INTV REC_PSEC
                           13             0        0
EDM Messages          MSG_TOT      MSG_INTV MSG_PSEC
                            2             0        0
PWXEDM177085I Detail level statistics follow
      MSG_TOT      MSG_INTV MSG_PSEC  TABLE_NAME
            1             0        0  ABCOOK1.TSTP1
            1             0        0  ABCOOK1.SVT@ALL
```

Example DISPLAY,ST,ALL output:

```
PWXEDM177084I ABCDSNB  capture statistics at 2016-09-06 21.31.05
DB2 Log Location  000000000007AE9460EA.0000.0000
DB2 Log Timestamp 2016-09-06 21.30.17
Current Delay=            sec   Average Delay=            sec
DB2 Log records       REC_TOT      REC_INTV REC_PSEC
                           13             0        0
EDM Messages          MSG_TOT      MSG_INTV MSG_PSEC
                            2             0        0
PWXEDM177085I Detail level statistics follow
      MSG_TOT      MSG_INTV MSG_PSEC  TABLE_NAME
            0             0        0  ABCOOK1.V11TAB
            0             0        0  ABCOOK1.TSTP3
            0             0        0  ABCOOK1.TSTP2
            1             0        0  ABCOOK1.TSTP1
            0             0        0  ABCOOK1.SVT@SCC
            1             0        0  ABCOOK1.SVT@ALL
            0             0        0  ABCOOK1.RRF1
            0             0        0  ABCOOK1.P750612
            0             0        0  ABCOOK1.P707951D
            0             0        0  ABCOOK1.P707951C
            0             0        0  ABCOOK1.P707951B
            0             0        0  ABCOOK1.P707951A
            0             0        0  ABCOOK1.COMP1111222233334444555566667777888899990000COMP
            0             0        0  ABCOOK1.QAALLTYPES_DMAP
```

For more information, see the "DB2 for z/OS ECCR Commands" chapter in the *PowerExchange Command Reference*.

Behavior Changes in 10.1.1

PowerExchange 10.1.1 introduces the following behavior changes for DB2 for z/OS data sources:

Installation Change for DB2 for z/OS CDC

During an installation or upgrade, PowerExchange now uses the DB2BINDB and DB2SGENB members in the RUNLIB library to bind the DB2 plan and packages and to upgrade the capture directory tables for all supported versions of DB2 for z/OS CDC sources.

Previously, PowerExchange used the DB2BIND and DB2 DB2SGEN8 members for DB2 sources earlier than Version 11 by default. For DB2 11 and later sources, you had to select the **DB2 V11+** option on the **DB2 CDC Parameters** page of the **z/OS Installation Assistant** to use the DB2BINDB and DB2GENB members, which are required for these later versions.

Now, when you run the jobs that bind the DB2 plan during an installation or upgrade, PowerExchange automatically uses the DB2BINDB and DB2GENB members for all supported DB2 or z/OS versions. Because the **DB2 V11+** option is no longer necessary to distinguish among bind members, it has been removed from the z/OS Installation Assistant. This change helps simplify the installation and upgrade process.

For more information, see the "Installing and Upgrading PowerExchange on z/OS" chapter in the *PowerExchange Installation and Upgrade Guide*.

Improved Support of FlashCopy Image Copies as Sources

PowerExchange introduces improved support of DB2 for z/OS FlashCopy image copies as sources. You can use a FlashCopy image copy as a data source in a bulk data movement session even if the FlashCopy image copy is for a compressed table space that has not undergone a reorganization.

For more information, see the "DB2 for z/OS Bulk Data Movement" chapter in the *PowerExchange Bulk Data Movement Guide*.

PowerExchange 10.1 - New Features and Changes for DB2 for z/OS

This section describes PowerExchange 10.1 changes that are related to DB2 for z/OS data sources.

New Features in 10.1

PowerExchange 10.1 introduces the following new feature for DB2 for z/OS data sources:

Improved Support of DB2 for z/OS Image Copies as Sources

PowerExchange introduces the following improvements to its support of DB2 for z/OS image copies as sources:

- If you use zIIP processing, PowerExchange can dispatch an array of compressed rows to the zIIP processor for expansion. The **Array Size** connection attribute controls the number of rows that are dispatched. In most cases, use the default array size of 25 for optimal efficiency.
- PowerExchange supports offload processing for DB2 for z/OS image copy sources in a bulk data movement session. When you use bulk data offload processing, PowerExchange moves column-level processing and source data filtering to the PowerCenter Integration Service machine that runs the bulk data movement session. To enable offload processing for a DB2 for z/OS image copy data source, select **Filter After** for the **Offload Processing** connection attribute.

- You can use a FlashCopy image copy as a data source in a bulk data movement session.

  Restriction: The image copy must not be for a compressed table space that has not undergone at least one reorganization.

For more information, see the "DB2 for z/OS Bulk Data Movement" chapter in the *PowerExchange Bulk Data Movement Guide*.

Parameter and Option Changes in 10.1

PowerExchange 10.1 introduces the following changes to DB2 for z/OS parameters.

DB2 ECCR Configuration Statements in the REPL2OPT DD Data Set

PowerExchange 10.1 introduces the following changes to configuration statements in the data set or RUNLIB member that is allocated by the REPL2OPT DD statement in the DB2 ECCR JCL:

IFI306 [OPT={N|Y|F}

Changed. The OPT keyword has a new valid value of F. Set OPT=F to use DB2 object filtering to reduce the volume of change records that DB2 passes to the ECCR. DB2 object filtering is supported in DB2 Version 11 and in DB2 Version 10 with IBM APAR PM90568. The DB2 IFI 306 READS routine uses a list of table spaces to deliver only the change data for the tables in those table spaces. If the list of tracked table spaces changes, the ECCR initiates REFRESH processing to use the updated list. With the setting of F, the ECCR cannot capture inserts for DB2 QUIESCE operations from the DB2 catalog table SYSCOPY. The default value for OPT is still N.

SKIPURDML *eccr_description_of_urid*

Optional. Causes the ECCR to skip operations in a specific DB2 unit of recovery (UR). Use this statement to have the ECCR skip change records from a problematic area of the log. The *urid* value is the ECCR description of the DB2 URID, which consists of 20 hexadecimal characters, a period, and four ending hexadecimal characters. For example:

```
SKIPURDML 000000000004AB60DEC0.0000
```

Important: Use this statement only at the direction of Informatica Global Customer Support.

You can specify up to 255 SKIPURDML statements in the REPL2OPT DD data set.

If you specify this parameter, the ECCR issues messages PWXEDM177230I and PWXEDM!77231W to describe the UR and each log record that is skipped.

For more information, see the "DB2 for z/OS Change Data Capture" chapter in the *PowerExchange CDC Guide for z/OS*.

These statements and parameters are also available in 9.6.1 HotFix 4. They are not available in 10.0.

PowerExchange 10.0 - New Features and Changes for DB2 for z/OS

This section describes PowerExchange 10.0 changes that are related to DB2 for z/OS data sources.

New Features in 10.0

PowerExchange 10.0 introduces the following new feature for DB2 for z/OS data sources:

Support for LOB Datatypes

Effective in 10.0, PowerExchange supports LOB datatypes in DB2 for z/OS source tables in bulk data movement sessions. LOB datatypes include BLOB, CLOB, and DBCLOB.

The following restrictions apply to tables that includes LOB columns:

- You cannot access the data by using a DB2 data map.
- You cannot use an image copy or unload file as a data source.
- You cannot perform an insert into a target table that contains LOB columns.

Behavior Changes in 10.0

PowerExchange 10.0 introduces the following behavior change for DB2 for z/OS data sources:

DB2 for z/OS ECCR Changed Behavior

The DB2 for z/OS ECCR no longer uses the TCAPTABLEPART capture directory table. The members for the capture directory tables in the SAMPLIB library and the DB2BIND and DB2BINDB members in the RUNLIB library have been updated. When you perform a full installation or an upgrade installation on z/OS, the appropriate updated members are used. After you upgrade from a previous release, you can delete the TCAPTABLEPART table and its index whenever you are certain that you do not need to fall back to the previous release.

Also, the ECCR no longer bypasses VSAM table space files that have been migrated off disk or are unavailable because of RACF policies. Now, the ECCR forces the recall of the table space files. If security rules prevent access to these files, the ECCR ends.

For more information about the capture directory tables, see the "DB2 for z/OS Change Data Capture" chapter in the *PowerExchange CDC Guide for z/OS*.

PowerExchange 9.6.1 HotFix 4 - New Features and Changes for DB2 for z/OS

This section describes PowerExchange 9.6.1 HotFix 4 changes that are related to DB2 for z/OS data sources.

Parameter and Option Changes in 9.6.1 HotFix 4

PowerExchange 9.6.1 HotFix 4 introduces the following changes to DB2 for z/OS parameters.

DB2 ECCR Configuration Statements in the REPL2OPT DD Data Set

PowerExchange 9.6.1 HotFix 4 introduces the following new and changed configuration statements in the data set or RUNLIB member that is allocated by the REPL2OPT DD statement in the DB2 ECCR JCL:

IFI306 [OPT={N|Y|F}

Changed. The OPT keyword has a new valid value of F. Set OPT=F to use DB2 object filtering to reduce the volume of change records that DB2 passes to the ECCR. DB2 object filtering is supported in DB2 Version 11 and in DB2 Version 10 with IBM APAR PM90568. The DB2 IFI 306 READS routine uses a list of table spaces to deliver only the change data for the tables in those table spaces. If the list of tracked table spaces changes, the ECCR initiates REFRESH processing to use the updated list. With the setting of F, the ECCR cannot capture inserts for DB2 QUIESCE operations from the DB2 catalog table SYSCOPY. The default value for OPT is still N.

SKIPURDML *eccr_description_of_urid*

New. Causes the ECCR to skip operations in a specific DB2 unit of recovery (UR). Use this statement to have the ECCR skip change records from a problematic area of the log. The *urid* value is the ECCR description of the DB2 URID, which consists of 20 hexadecimal characters, a period, and four ending hexadecimal characters. For example:

```
SKIPURDML 000000000004AB60DEC0.0000
```

Important: Use this statement only at the direction of Informatica Global Customer Support.

You can specify up to 255 SKIPURDML statements in the REPL2OPT DD data set.

If you specify this parameter, the ECCR issues messages PWXEDM177230I and PWXEDM177231W to describe the UR and each log record that is skipped.

For more information, see the "DB2 for z/OS Change Data Capture" chapter in the *PowerExchange CDC Guide for z/OS*.

Behavior Changes in 9.6.1 HotFix 4

PowerExchange 9.6.1 HotFix 4 introduces the following behavior change for DB2 for z/OS data sources:

DB2 for z/OS ECCR Changed Behavior

The DB2 for z/OS ECCR no longer uses the TCAPTABLEPART capture directory table. The members for the capture directory tables in the SAMPLIB library and the DB2BIND and DB2BINDB members in the RUNLIB library have been updated. When you perform a full installation or an upgrade installation on z/OS, the appropriate updated members are used. After you upgrade from a previous release, you can delete the TCAPTABLEPART table and its index whenever you are certain that you do not need to fall back to the previous release.

Also, the ECCR no longer bypasses VSAM table space files that have been migrated off disk or are unavailable because of RACF policies. Now, the ECCR forces the recall of the table space files. If security rules prevent access to these files, the ECCR ends.

For more information about the capture directory tables, see the "DB2 for z/OS Change Data Capture" chapter in the *PowerExchange CDC Guide for z/OS*.

PowerExchange 9.6.1 HotFix 3 - New Features and Changes for DB2 for z/OS

This section describes PowerExchange 9.6.1 HotFix 3 changes that are related to DB2 for z/OS data sources.

Upgrade Consideration in 9.6.1 HotFix 3

PowerExchange 9.6.1 HotFix 3 has the following upgrade consideration for DB2 for z/OS CDC data sources:

Requirements for Upgrading the DB2 for z/OS ECCR to 9.6.1 HotFix 3

PowerExchange 9.6.1 HotFix 3 includes EDP patches P712919 and P713954, which affect DB2 for z/OS CDC. If you use DB2 for z/OS CDC and upgrade to PowerExchange 9.6.1 HotFix 3, you must perform several tasks to be able to restart the DB2 ECCR properly.

Perform the following tasks:

1. Before you install the hotfix, issue the following DB2 for z/OS ECCR QUIESCE command to stop the ECCR:

   ```
   MODIFY eccr_ task_name,QUIESCE
   ```

   If you cannot QUIESCE the ECCR, wait until no DDL changes or DB2 utility QUIESCE operations are occurring on the DB2 subsystem and then use the MVS STOP (P) command to stop the ECCR.

   Note: The ECCR treats DB2 utility QUIESCE operations as DDL changes.
2. Perform the upgrade or hotfix installation.
3. In the XIDDB225 job in RUNLIB library, edit the JCL to add the PowerExchange 9.6.1 HotFix 3 DBRM data set at the top of the DBRMLIB DD concatenation.
4. Run the XIDDB225 job to bind the DB2 plan and packages for the DB2 ECCR. To run the XIDDB225 job, you must have SYSCTRL authority.

   Note: If you do not rebind the DB2 plan and packages with the 9.6.1 HotFix 3 DBRM data set, the ECCR will abend at startup.
5. Restart the DB2 ECCR based on the following criteria:
   - If you did not specify an IFI306 statement in the REPL2OPT member of the RUNLIB library, warm start the ECCR.
   - If you specified an IFI306 statement in the REPL2OPT member and do not run the ECCR in a DB2 data-sharing environment, warm start the ECCR.
   - If you specified an IFI306 statement in the REPL2OPT member, run the ECCR in a DB2 data-sharing environment, and stopped the ECCR with the MVS STOP command instead of the DB2 ECCR QUIESCE command, you must cold start or special start the ECCR.
     To special start the ECCR from the point in time in the DB2 log where the ECCR stopped processing, include the USEDIR,USESTAT options in the START statement in the REPL2OPT member. If you want to special start the ECCR at some other point in time in the log and if DDL changes might have been logged between the point where the ECCR stopped processing and the point where the special start occurs, do not include the USIDIR,USESTAT options.

   Important: If you previously encountered the problem that was fixed by CR 413954 (EDP patch P713954) and do not use the IFI306 statement in the REPL2OPT member, you must delete the capture registration for the table that was identified in message PWXEDM177373W when the ECCR ended. Then warm start the ECCR and re-create the capture registration. If you use the IFI306 statement, use the preceding restart criteria.

PowerExchange 9.6.1 - New Features and Changes for DB2 for z/OS

This section describes PowerExchange 9.6.1 new features and changes that are related to DB2 for z/OS data sources.

Behavior Changes in 9.6.1

PowerExchange 9.6.1 introduces the following behavior change for DB2 for z/OS data sources:

Expanded PowerExchange Agent Buffer Size for DB2 for z/OS ECCR Processing

PowerExchange 9.6.1 expanded the size of a PowerExchange Agent internal buffer to make DB2 for z/OS ECCR processing more efficient.

To use the expanded buffer size, you must perform the following steps when you upgrade to PowerExchange 9.6.1 from an earlier release:

1. After you upgrade PowerExchange, issue the PowerExchange Agent DRAIN command to ensure that all PowerExchange Agent tasks have completed processing before you shut down the Agent address space. Use the following syntax:

   ```
   cmd_prefix DRAIN
   ```

   The *cmd_prefix* variable is the command prefix that is specified in the AGENTCTL member of the RUNLIB library or the AGENTID parameter value in the AGENTCTL member.
2. Issue the PowerExchange Agent SHUTDOWN COMPLETELY command to shut down the Agent address space and delete the data space that contains the buffer. Use the following syntax:

   ```
   cmd_prefix SHUTDOWN COMPLETELY
   ```

DD Statements Added to the DB2 for z/OS ECCR JCL

The z/OS Installation Assistant now automatically adds two DD statements to the sample DB2 for z/OS ECCR JCL in the ECCRDB2 member of the RUNLIB library. The statements cause PowerExchange to bypass the use of the Compuware Abend-AID and IBM Fault Analyzer tools to gather diagnostic information after an ECCR abend.

The new statements are:

```
//ABNLIGNR DD DUMMY
//IDIOFF DD DUMMY
```

When the DB2 for z/OS ECCR abends, PowerExchange requires an IBM SYSUDUMP to find the last processed LSRN value to use for a subsequent special start of the ECCR. If you have the Abend-AID or IBM Fault Analyzer tool, that tool might be used instead of IBM SYSUDUMP to generate diagnostic information. In this case, the correct LSRN will not be available for special starting the ECCR later.

If you have Abend-AID or IBM Fault Analyzer, do not delete or comment out the ABNLIGNR or IDIOFF DD statement. Always use IBM SYSUDUMP to produce diagnostic information after an ECCR abend.

For more information, see the *PowerExchange CDC Guide for z/OS*.

PowerExchange 9.6.0 - New Features and Changes for DB2 for z/OS

This section describes PowerExchange 9.6.0 new features and changes that are related to DB2 for z/OS data sources.

New Features in 9.6.0

PowerExchange 9.6.0 introduces the following new feature for DB2 for z/OS data sources and targets:

DB2 11 for z/OS Support

PowerExchange adds support for DB2 11 for z/OS for bulk data movement sources and targets and for CDC data sources.

When you migrate to DB2 11 conversion mode, you must upgrade the DB2 ECCR capture directory tables to accommodate the expanded 10-byte format of RBA and LRSN values in the DB2 log records that DB2 11 uses. If you use DB2 data sharing, Informatica recommends that you upgrade the capture directory tables before you migrate the first subsystem member in the data sharing group to DB2 11.

When you install PowerExchange 9.6.0, select the **DB2 V11+** option on the **Select DB2 CDC Parameters** page of the z/OS Installation Assistant. This option sets the **DB2V11** variable to 1 in the GENBULK member of the RUNLIB library. A setting of 1 causes PowerExchange to use the following new RUNLIB members for DB2 11:

- DB2SGENB. Creates the capture directory tables in a format that supports DB2 11.
- DB2BINDB. Binds the DB2 plan and packages for DB2 11.

PowerExchange 9.6.0 retains the DB2SGEN8 and DB2BIND members in the RUNLIB library for DB2 9.1 and 10. These members are used if you do *not* select **DB2 V11+**. The DB2SGEN member is deprecated.

Tip: Informatica recommends that you select the **DB2 V11+** option in the z/OS Installation Assistant even if you use DB2 9.1 or 10. The new RUNLIB members are compatible with the earlier DB2 versions. If you use these members, you will not need to upgrade the capture directory tables later when you migrate to DB2 11 or later.

PowerExchange 9.6.0 also adds the following members to the SAMPLIB library:

- EXPNDC51. Creates copies of the capture directory tables to be upgraded.
- EXPNC5L2. Upgrades the capture directory tables to support DB2 11 and later, as well as DB2 9.1 and 10, in a DB2 data sharing environment. Also performs the same function as EXPNDCP4. If you ran the SQL in EXPNDCP4 previously, you can still use EXPNC5L2 without generating errors.
- EXPNC5R2. Upgrades the capture directory tables to support DB2 11 and later, as well as DB2 9.1 and 10, in a DB2 environment that does not use data sharing. Also performs the same function as EXPNDCP4. If you ran the SQL in EXPNDCP4 previously, you can still use EXPNC5R2 without generating errors.
- BNDECCRB. A template that contains all of the DB2 BIND statements that are needed to bind the DB2 ECCR plan for DB2 11 support. The BIND statements are equivalent to those in DB2BINDB. If you use this member to create another bind member, remember to change the PACKAGE, OWNER, and QUALIFIER keywords to match those that your DB2 ECCR uses.

PowerExchange 9.6.0 retains the optional EXPNDCP3 and EXPNDCP4 members in the SAMPLIB library. If you upgrade to PowerExchange 9.6.0 from an earlier version that does not include patch P523210, use the EXPNDCP3 member to expand the RBA column in the TCAPWORK capture directory table to accommodate the longer LRSN values that can occur in DB2 9.1 data sharing environments.

The EXPNDCAP, EXPNDCP2, and FIX* members are deprecated because they are used with PowerExchange versions that are no longer supported.

No special operational considerations apply to PowerExchange bulk data movement and CDC in a DB2 11 environment.

Note: If you create DB2 image copies based on DB2 11 tablespaces with RBA and LRSN values in extended 10-byte format, PowerExchange can use these image copies as data sources for bulk data movement operations.

Support for DB2 for z/OS version 8.1 is deprecated.

For more information, see the *PowerExchange Installation and Upgrade Guide* and *PowerExchange CDC Guide for z/OS*.

Parameter and Option Changes in 9.6.0

PowerExchange 9.6.0 introduces the following changes to DB2 for z/OS parameters.

DBMOVER Configuration File Parameters

The following statements and parameters that you can specify in the DBMOVER configuration member changed:

DB2CODEPAGE Statement

Changed. In PowerExchange 9.6.0, the default values for the ASCII_CCSID parameter changed to ASCII_CCSID=(850,65534,65534).

Also, this statement now includes the following new parameters to provide greater flexibility in handling DB2 for z/OS code page conversions for bulk data movement:

DB2TRANS={P|N|R}

Indicates whether DB2 translates the encoding of data that it passes to or receives from PowerExchange. Options are:

- **P**. DB2 translates the code pages in which column data is stored into the code pages defined in the DB2 plan that was bound for PowerExchange. You must also specify the EBCDIC_CCSID parameter and optionally the PLAN_CCSID parameter. If you specify both, the PLAN_CCSID parameter takes precedence. If you have ASCII and Unicode data, you can also specify the ASCII_CCSID and UNICODE_CCSID parameters to map to the EBCDIC code pages.

  Note: To use any of the *_CCSID parameters, you must set DB2TRANS to P.
- **N**. DB2 does not translate the code pages of the column data to equivalent EBCDIC code pages. PowerExchange uses the native code page in which the data is stored. You do not need to define the EBCDIC_CCSID, ASCII_CCSID, UNICODE_CCSID, or PLAN_CCSID parameters.
- **R**. DB2 translates certain user-specified data code pages to other code pages, as defined in one or more REMAP*n* parameters. In each REMAP*n* parameter, the first positional parameter identifies a data code page to remap, and the second positional parameter identifies the code page to use. Use a code page other than the code page in which the PowerExchange DB2 plan is bound.

Default is P.

PLAN_CCSID=(*sbcs_ccsid*,*graphic_ccsid*,*mixed_ccsid*)

Optional. The CCSIDs to use for EBCDIC single-byte, graphic, and mixed data instead of those in the EBCDIC_CCSID parameter. Use this parameter when you need to redirect the EBCDIC code pages to other EBCDIC code pages. For example, use this parameter in the following situations:

- The EBCDIC_CCSID code pages do not have an ICU conversion table that PowerExchange can use for ICU-based code page conversion.
- The EBCDIC_CCSID code pages match the default code pages that were defined for the DB2 subsystem but differ from the EBCDIC code pages for a particular source or target table.

REMAP*n*=(*current_data_ccsid*,*remapped_data_ccsid*)

Optional. If you specified DB2TRANS=R, you can use this parameter to have DB2 remap the code page in which the data is stored to another code page that you specify. For example, if you have ASCII data that does not map to the code page in which the DB2 plan is bound and that does not have an ICU convertor, use this parameter to remap the ASCII code page to a supported EBCDIC code page.

Alternatively, if you specified DB2TRANS=N, DB2 does not translate or remap the data. However, PowerExchange can use the REMAP*n* statement to substitute the correct code page for the incorrect one. For example, DB2 might report a data code page that does not match the code page defined in the DB2 catalog, possibly because the data was loaded incorrectly. In this case, you can specify the correct code page in the REMAP*n* parameter.

You can specify up to six REMAP*n* parameters in a DB2CODEPAGE statement, each for a different DB2 table. Increment the *n* number at the end of the parameter names so that each name is unique.

DB2ID Statement

Changed. This statement defines the DB2 subsystem, plan, and PowerExchange access method module that PowerExchange uses to process data from a DB2 for z/OS source for bulk data movement. In PowerExchange 9.6.0, the default *module_name* parameter value changed from DTLAMDB2 to DTLAMV8F. You must now use the DTLAMV8F module. This module enables PowerExchange to process multiple rows of data at a time by using DB2 multiple-row FETCH and INSERT SQL statements.

The DTLAMDB2 module is deprecated. It applies to DB2 Version 8.1 compatibility mode and earlier, which PowerExchange 9.6.0 does not support.

For more information about the DB2CODEPAGE statement, see the *PowerExchange Reference Manual*.

DB2 ECCR Control Statements in the REPL2CTL DD Data Set

PowerExchange 9.6.0 introduces the following changes to configuration statements in the data set or RUNLIB member that is allocated by the REPL2CTL DD statement in the DB2 ECCR JCL.

STOPAFT LOGLOC=*rba*

Changed. For the LOGLOC keyword, the length of the RBA value that you can enter has been extended from 12 hexadecimal digits to 20 hexadecimal digits.

UOWPREFIX=*xx*

New. A two-character prefix that is used as the first 2 bytes of the UOW ID that the DB2 ECCR creates and sends to the PowerExchange Logger for MVS when a DB2 unit-of-recovery contains data to be captured. By default, the last two characters of the CA NAME value are used. If you use multiple DB2 ECCRs with CA NAME values that end with the same last two characters, you can use this parameter to define a unique prefix for each ECCR to use in its UOW IDs.

For more information, see the *PowerExchange CDC Guide for z/OS*.

DB2 ECCR Configuration Statements in the REPL2OPT DD Data Set

PowerExchange 9.6.0 introduces the following changes to configuration statements in the data set or RUNLIB member that is allocated by the REPL2OPT DD statement in the DB2 ECCR JCL:

IFI306OPT

Deprecated. This statement is deprecated. If you currently use it in your REPL2OPT DD data set, it will still be honored.

IFI306 [OPT={N|Y}] [4KPAGES={*nnn*|50}]

New. This new optional statement enables you to control DB2 ECCR interaction with the DB2 IFI. Specify the OPT keyword, the 4KPAGES keyword, or both. You must specify at least one keyword.

OPT

Set this keyword to Y to reduce the number of log records that the DB2 passes to the ECCR in each transmission.

The OPT keyword must be in all uppercase and begin in column 8.

Default is N.

Note: When the OPT parameter is set to Y, the ECCR does not capture DB2 QUIESCE operations from the SYSCOPY table.

4KPAGES

Enter the number of 4-KB pages of KEY-7 CSA storage to use for the IFI 306 buffer that stores the data to pass to the DB2 ECCR. When entering this value, the following rules apply:

- The 4KPAGES keyword must be in all uppercase and begin in column 14.
- You can enter up to three digits.
- You must pad a value less than three digits with spaces, ending in column 24.

Default is 50.

Important: Do not change the default value unless Informatica Global Customer Support directs you to do so.

If you add, remove, or change the IFI306 statement, you must restart the DB2 ECCR for the change to take effect.

START STARTLOC=*rba*

Changed. For the STARTLOC keyword, the length of the RBA value that you can enter has been extended from 12 hexadecimal digits to 20 hexadecimal digits.

TRACE [*option*]

Changed. The following options are no longer valid in the TRACE statement because they relate to IFI 129, which is not supported:

- **LOGSEG**. Traces reading a DB2 log record segment.
- **LOGDSNJ**. Traces reading the DB2 log through DSNJ.

For more information, see the *PowerExchange CDC Guide for z/OS*.

Behavior Change in 9.6.0

PowerExchange 9.6.0 introduces the following behavior change for DB2 for z/OS data sources:

Default DB2 Access Method Load Module

The default access method load module that PowerExchange uses to process data from a DB2 for z/OS source for bulk data movement changed. The default and only supported load module is now DTLAMV8F. This module enables PowerExchange to process multiple rows of data at a time by using DB2 multiple-row FETCH and INSERT SQL statements.

The previous default load module, DTLAMDB2 , is deprecated. It was used with DB2 Version 8.1 compatibility mode and earlier, which PowerExchange no longer supports. If you previously specified DTLAMDB2 for the *module_name* parameter in the DB2ID statement of the DBMOVER file and retain this DBMOVER file for use with PowerExchange 9.6.0, edit the DB2ID statement to specify DTLAMV8F.

For more information about the DB2ID statement, see the *PowerExchange Reference Manual*.

CHAPTER 16

PowerExchange for CA IDMS

This chapter includes the following topics:

PowerExchange 10.0 - New Features and Changes for IDMS

This section describes PowerExchange 10.0 new features and changes that are related to IDMS sources or targets.

New Features in 10.0

PowerExchange 10.0 introduces new features for IDMS data sources and targets.

IDMS Version 19 Support

PowerExchange 10.0 adds support for CA IDMS Version 19 on z/OS for CDC and bulk data movement sessions.

For more information, see "Installation Planning" chapter in the *PowerExchange Installation and Upgrade Guide* and the Product Availability Matrix at http://mysupport.informatica.com.

PowerExchange 9.6.1 HotFix 3 - New Features and Changes for IDMS

This section describes PowerExchange 9.6.1 HotFix 3 new features and changes that are related to IDMS sources or targets.

Parameter and Option Changes in 9.6.1 HotFix 3

PowerExchange 9.6.1 HotFix 3 introduces the following new parameter:

IDMS Log-Based ECCR Parameter

You can now specify the following optional parameter in the RUNLIB(ECCRIDLP) member:

ABRT_TERMINATION_BLOCK_COUNT=*number_of_blocks*

New. After the IDMS log-based ECCR encounters ABRT records in the IDMS journal that result from an IDMS ROLLBACK or ROLLBACK CONTINUE command, the number of subsequent IDMS journal blocks that the ECCR processes before it passes the job-level ABRT record to the PowerExchange Logger for MVS. By processing these additional blocks, the ECCR can catch any additional updates from the job before the job-level ABRT record is logged. If the ECCR encounters additional updates, the job-level ABRT operation is canceled.

If this block count is too high, the ECCR might not resolve outstanding UOWs that contain ABRT records in timely manner, which prevents the journals from being freed. If you use small journals, you can decrease this parameter value to resolve these outstanding UOWs more quickly.

Valid values are 100 through 10000. Default is 10000.

For more information, see the *PowerExchange CDC Guide for z/OS*.

PowerExchange 9.6.1 - New Features and Changes for IDMS

This section describes PowerExchange 9.6.1 new features and changes that are related to IDMS sources or targets.

New Features in 9.6.1

PowerExchange 9.6.1 introduces new features that preserve set relationships in IDMS data sources.

PowerExchange Functions that Preserve IDMS Set Relationships

PowerExchange provides new functions that preserve IDMS set relationships among tables.

In PowerExchange data maps, you can define fields in records that use these functions in expressions. Also, when you import an IDMS copybook into an IDMS data map, you can automatically generate fields that call these and other PowerExchange functions. These fields enable applications to determine the logical foreign key relationships among tables.

The following new functions are available:

GetDbKeyOfFirstMember('*IDMS_set_name*')

Returns the database key of the first member of the specified set. You can use this function with the record that is the owner of the specified set.

GetFullDbKeyOfFirstMember('*IDMS_set_name*')

Returns the database key of the first member of the specified set. Use this function instead of GetDbKeyOfFirstMember if duplicate databases exist that are accessed using different page groups. You can use this function with the record that is the owner of the specified set.

GetDbKeyOfLastMember ('*IDMS_set_name*')

Returns the database key of the last member of the specified set. You can use this function with the record that is the owner of the specified set.

GetFullDbKeyOfLastMember ('*IDMS_set_name*')

Returns the database key of the last member of the specified set. Use this function instead of GetDbKeyOfLastMember if duplicate databases exist that are accessed using different page groups. You can use this function with the record that is the owner of the specified set.

GetDbKeyOfNextMember ('*IDMS_set_name*')

Returns the database key of the next member record of the specified set. You can use this function with a record that is a member of the specified set.

GetFullDbKeyOfNextMember('*IDMS_set_name*')

Returns the database key of the next member record of the specified set. Use this function instead of GetDbKeyOfNextMember if duplicate databases exist that are accessed using different page groups. You can use this function with a record that is a member of the specified set.

GetDbKeyOfPriorMember ('*setname*')

Returns the database key of the previous member record of the specified set. You can use this function with a record that is a member of the specified set.

GetFullDbKeyOfPriorMember ('*setname*')

Returns the database key of the previous member record of the specified set. Use this function instead of GetDbKeyOfPriorMember if duplicate databases exist that are accessed using different page groups. You can use this function with a record that is a member of the specified set.

For more information, see the *PowerExchange Navigator User Guide*.

Automatic Generation of Expression Fields that Preserve IDMS Set Relationships

When you import an IDMS copybook into an IDMS data map, you can automatically generate fields that applications can use to preserve IDMS set relationships among tables. These fields include expressions that call PowerExchange functions that are used to maintain data relationships.

In the **Import Copybook – Configuration Details** dialog box, select **Create expressions for IDMS set relationships**.

When this option is selected, PowerExchange generates the following fields for each record in the data map:

- A field that calls the GetDatabaseKey function.
- For each set of which the record is the owner, fields that call the GetDbKeyOfFirstMember and GetDbKeyOfLastMember functions.
- For each set of which the record is a member, fields that call the GetDbKeyOfOwner, GetDbKeyOfNextMember, and GetDbKeyOfPriorMember functions.

For more information, see the *PowerExchange Navigator User Guide*.

CHAPTER 17

PowerExchange for IMS

This chapter includes the following topics:

PowerExchange 10.2 - New Features and Changes for IMS

This section describes PowerExchange 10.2 new features and changes that are related to IMS data sources or targets.

New Features in 10.2

PowerExchange 10.2 introduces the following new features for IMS data sources:

Updated Components in the PowerExchange ECCR CRG.LOAD Library for IMS Synchronous CDC

The PowerExchange 10.2 version includes patch P802235, which updates the PowerExchange CRG.LOAD library for IMS synchronous CDC to provide the latest available version of the BMC Software CHANGE RECORDING FACILITY and DATABASE INTEGRITY PLUS components.

If you use the CRG software, after you upgrade PowerExchange, run the CRGUMOD or CRGCLINK job in the *hlq*.SAMPLIB library again to install DBRC modifications. Otherwise, events such as abends might cause change capture to fail in the DLIODDC*x* module when the IMS synchronous ECCR tries to capture changes for a source segment. After you run the CRGUMOD or CRGCLINK job, restart the IMS control region.

Important: If you have a supported version of the BMC Software CHANGE RECORDING FACILITY, DATABASE INTEGRITY PLUS, or Fast Path Online Restructure/EP product, use the BMC Software product instead of the CRG software. In this case, you do not need to run the CRGUMOD or CRGCLINK job. Ensure that the BMC

Software product version matches or is later than the minimum BMC version that PowerExchange 10.2 supports for your IMS version.

Behavior Changes in 10.2

PowerExchange 10.2 introduces the following behavior change for IMS data targets:

Support for IMS Command Code A

PowerExchange now uses IMS command code A to improve the performance of PowerCenter sessions that write to IMS 11 and later target databases that use ODBA, BMP, or DL/I batch access. The use of command code A also reduces overhead and CPU usage on the IMS system. This change applies to PowerCenter bulk and CDC sessions that use a PWX NRDB Batch application connection to connect to an IMS target. For this feature to function properly, you must apply the APARs that are documented for your IMS version in the "Installation Planning" chapter of the *PowerExchange 10.2 Installation and Upgrade Guide*.

Prior to this change, when the session ran, IMS wrote a checkpoint after every commit for an Update, lookup, or other operation that required IMS to reset its position to the beginning of the database. Also, the session ignored the **Commit Interval** session property. The excessive checkpointing degraded performance and increased resource usage.

PowerExchange 10.1 - New Features and Changes for IMS

This section describes PowerExchange 10.1 new features and changes that are related to IMS data sources or targets.

New Features in 10.1

PowerExchange 10.1 introduces the following new features for IMS data sources:

IMS Version 14 Support

PowerExchange 10.1 adds IMS Version 14 support for IMS log-based CDC, synchronous CDC, and bulk data movement sessions.

PowerExchange 10.1 drops support for IMS version 9.1.

For more information, see the "Installation Planning" chapter in the *PowerExchange Installation and Upgrade Guide*.

Updated Components in the PowerExchange 10.1 ECCR CRG.LOAD Library for IMS Synchronous CDC

PowerExchange 10.1 includes patch P717217, which updates the PowerExchange CRG.LOAD library for IMS synchronous CDC to provide the latest available version of the BMC Software CHANGE RECORDING FACILITY and DATABASE INTEGRITY PLUS components.

Note: PowerExchange 9.6.1 HotFix 4 also includes patch P717217.

If you use the CRG software, after you upgrade to 10.1 from PowerExchange 10.0 or PowerExchange 9.6.1 HotFix 3 or earlier, run the CRGUMOD or CRGCLINK job in the *hlq*.SAMPLIB library again to install DBRC modifications. Otherwise, events such as abends might cause change capture to fail in the DLIODDCx module when the IMS synchronous ECCR tries to capture changes for a source segment. After you run the CRGUMOD or CRGCLINK job, restart the IMS control region.

Important: If you have a supported version of the BMC Software CHANGE RECORDING FACILITY, DATABASE INTEGRITY PLUS, or Fast Path Online Restructure/EP product, use the BMC Software product instead of the CRG software. In this case, you do not need to run the CRGUMOD or CRGCLINK job. Ensure that the BMC Software product version matches or is later than the minimum BMC version that PowerExchange 10.1 supports for your IMS version.

Parameter and Option Changes in 10.1

PowerExchange 10.1 includes a new parameter for a DBMOVER statement.

DBMOVER Configuration File Statements

The DBMOVER configuration file includes the following new and changed statements:

LRAP CAPI_CONNECTION

The following new optional parameter can be specified in the LRAP CAPI_CONNECTION statement:
UIDFMTIMS={UID|PSB|ALL}

New. For IMS synchronous CDC data sources, controls the type of value that PowerExchange uses to populate the generated DTL__CAPXUSER column in each change record. Options are:

- **UID**. Returns the user ID of the user who made the IMS change.
- **PSB**. Returns the IMS program specification block (PSB) name.
- **ALL**. Returns both the user ID and PSB name in the format *userid*:*psbname*.

Default is UID.

For more information, see the "DBMOVER Configuration File" chapter in the *PowerExchange Reference Manual*.

PowerExchange 10.0 - New Features and Changes for IMS

This section describes PowerExchange 10.0 new features and changes that are related to IMS data sources or targets.

New Features in 10.0

PowerExchange 10.0 introduces the following new features for IMS data sources:

Updated Components in the PowerExchange 10.0 ECCR CRG.LOAD Library for IMS Synchronous CDC

If you upgrade to 10.0 from an earlier release that does not include EDP patch P699028, the PowerExchange CRG.LOAD library for IMS synchronous CDC does not contain the latest available version of the BMC Software CHANGE RECORDING FACILITY and DATABASE INTEGRITY PLUS components.

If you use the CRG software, after you upgrade to 10.0, run the CRGUMOD or CRGCLINK job in the *hlq*.SAMPLIB library again to install DBRC modifications. Otherwise, events such as abends might cause change capture to fail in the DLIODDCx module when the IMS synchronous ECCR tries to capture changes for a source segment. After you run the CRGUMOD or CRGCLINK job, restart the IMS control region.

Important: If you have a supported version of the BMC Software CHANGE RECORDING FACILITY, DATABASE INTEGRITY PLUS, or Fast Path Online Restructure/EP product, use the BMC Software product instead of the CRG software. In this case, you do not need to run the CRGUMOD or CRGCLINK job. Ensure that the BMC Software product version matches or is later than the minimum BMC version that PowerExchange 10.0 supports for your IMS version.

PowerExchange 9.6.1 HotFix 4 - New Features and Changes for IMS

This section describes PowerExchange 9.6.1 HotFix 4 new features and changes that are related to IMS data sources or targets.

New Features in 9.6.1 HotFix 4

PowerExchange 9.6.1 HotFix 4 introduces the following new features for IMS data sources:

Updated Components in the PowerExchange 9.6.1 HotFix 4 ECCR CRG.LOAD Library for IMS Synchronous CDC

PowerExchange 9.6.1 HotFix 4 includes patch P717217, which updates the PowerExchange CRG.LOAD library for IMS synchronous CDC to provide the latest available version of the BMC Software CHANGE RECORDING FACILITY and DATABASE INTEGRITY PLUS components.

If you use the CRG software, after you upgrade to 9.6.1 HotFix 4, run the CRGUMOD or CRGCLINK job in the *hlq*.SAMPLIB library again to install DBRC modifications. Otherwise, events such as abends might cause change capture to fail in the DLIODDCx module when the IMS synchronous ECCR tries to capture changes for a source segment. After you run the CRGUMOD or CRGCLINK job, restart the IMS control region.

Important: If you have a supported version of the BMC Software CHANGE RECORDING FACILITY, DATABASE INTEGRITY PLUS, or Fast Path Online Restructure/EP product, use the BMC Software product instead of the CRG software. In this case, you do not need to run the CRGUMOD or CRGCLINK job. Ensure that the BMC Software product version matches or is later than the minimum BMC version that PowerExchange 9.6.1 HotFix 4 supports for your IMS version.

Parameter and Option Changes in 9.6.1 HotFix 4

PowerExchange 9.6.1 HotFix 4 introduces a new parameter for a DBMOVER statement.

DBMOVER Configuration File Statements

The DBMOVER configuration file includes the following new and changed statements:

LRAP CAPI_CONNECTION

The following new optional parameter can be specified in the LRAP CAPI_CONNECTION statement:
UIDFMTIMS={UID|PSB|ALL}

New. For IMS synchronous CDC data sources, controls the type of value that PowerExchange uses to populate the generated DTL__CAPXUSER column in each change record. Options are:

- **UID**. Returns the user ID of the user who made the IMS change.
- **PSB**. Returns the IMS program specification block (PSB) name.
- **ALL**. Returns both the user ID and PSB name in the format *userid*:*psbname*.

Default is UID.

For more information, see the *PowerExchange Reference Manual*.

PowerExchange 9.6.1 HotFix 2 - New Features and Changes for IMS

This section describes PowerExchange 9.6.1 HotFix 2 new features and changes that are related to IMS data sources or targets.

New Features in 9.6.1 HotFix 2

PowerExchange 9.6.1 HotFix 2 introduces the following new features for IMS data sources:

Updated Components in the PowerExchange 9.6.1 HotFix 2 ECCR CRG.LOAD Library for IMS Synchronous CDC

If you upgrade to 9.6.1 HotFix 2 from an earlier release that does not include patch P699028, the PowerExchange CRG.LOAD library for IMS synchronous CDC does not contain the latest available version of the BMC Software CHANGE RECORDING FACILITY and DATABASE INTEGRITY PLUS components.

If you use the CRG software, after you upgrade to 9.6.1 HotFix 2, run the CRGUMOD or CRGCLINK job in the *hlq*.SAMPLIB library again to install DBRC modifications. Otherwise, events such as abends might cause change capture to fail in the DLIODDCx module when the IMS synchronous ECCR tries to capture changes for a source segment. After you run the CRGUMOD or CRGCLINK job, restart the IMS control region.

Important: If you have a supported version of the BMC Software CHANGE RECORDING FACILITY, DATABASE INTEGRITY PLUS, or Fast Path Online Restructure/EP product, use the BMC Software product instead of the CRG software. In this case, you do not need to run the CRGUMOD or CRGCLINK job. Ensure that the BMC Software product version matches or is later than the minimum BMC version that PowerExchange 9.6.1 HotFix 2 supports for your IMS version.

PowerExchange 9.6.1 HotFix 1 - New Features and Changes for IMS

This section describes PowerExchange 9.6.1 HotFix 1 new features and changes that are related to IMS data sources or targets.

New Features in 9.6.1 HotFix 1

PowerExchange 9.6.1 HotFix 1 introduces the following new features for IMS data sources:

Enhancements to the Data Map Creation Utility

PowerExchange 9.6.1 HotFix 1 provides the following enhancements to the data map creation utility:

- You can import COBOL copybooks with multiple 01-level records. For IMS data maps, the utility creates a record and a table for the first level-01 record in the copybook only.
- You can overlay multiple IMS segments with the same COBOL copybook.

To run the utility, issue the infacmd pwx createdatamaps command.

For more information, see the *PowerExchange Bulk Data Movement Guide*.

PowerExchange 9.6.1 - New Features and Changes for IMS

This section describes PowerExchange 9.6.1 new features and changes that are related to IMS data sources or targets.

New Features in 9.6.1

PowerExchange 9.6.1 introduces the following new features for IMS data sources:

IMS Version 13 Support for Synchronous CDC

Effective in PowerExchange 9.6.1, IMS version 13 is supported for synchronous CDC.

Note: PowerExchange 9.6.0 added IMS 13 support for bulk data movement and log-based CDC.

For more information, see the *PowerExchange Installation and Upgrade Guide* and Product Availability Matrix at http://mysupport.informatica.com.

Updated Components in the PowerExchange 9.6.1 ECCR CRG.LOAD Library for IMS Synchronous CDC

If you upgrade to 9.6.1 from an earlier release that does not include patch P638444, the PowerExchange CRG.LOAD library for IMS synchronous CDC does not contain the latest available version of the BMC Software CHANGE RECORDING FACILITY and DATABASE INTEGRITY PLUS components.

If you use the CRG software, after you upgrade, run the CRGUMOD or CRGCLINK job in the *hlq*.SAMPLIB library again to install DBRC modifications. Otherwise, events such as abends might cause change capture to fail in the DLIODDCx module when the IMS synchronous ECCR tries to capture changes for a source segment. After you run the CRGUMOD or CRGCLINK job, restart the IMS control region.

Important: If you have a supported version of the BMC Software CHANGE RECORDING FACILITY or DATABASE INTEGRITY PLUS product, use the BMC Software product instead of the CRG software. In this case, you do not need to run the CRGUMOD or CRGCLINK job. Ensure that the BMC Software product version matches or is later than the minimum BMC version that your PowerExchange version supports for the IMS version.

PowerExchange 9.6.0 - New Features and Changes for IMS

This section describes PowerExchange 9.6.0 new features and changes that are related to IMS data sources or targets.

New Features in 9.6.0

PowerExchange 9.6.0 introduces the following new features for IMS data sources:

Data Map Creation Utility

PowerExchange 9.6.0 provides a utility to generate data maps for IMS, SEQ, and VSAM data sources from the command line. The utility provides an alternative to using the PowerExchange Navigator in certain cases and allows you to generate or regenerate data maps noninteractively. To run the utility, issue the infacmd pwx createdatamaps command.

The infacmd pwx createdatamaps command uses the following syntax:

```
createdatamaps

[<-pwxLocation|-loc> pwx_location]

[<-pwxUserName|-pun> pwx_user_name]

[<-pwxPassword|-ppd> pwx_password]

[<-pwxEncryptedPassword|-epwd> pwx_encrypted_password]

[<-datamapOutputDir|-dod> datamap_output_directory]

[<-replace|-r> replace_existing_datamaps

<-controlFile|-cf> file_path_for_control_file

[<-logFile|-lf> file_path_for_log_file]
```

```
[<-verbosity|-v> logging_verbosity]
```

To run the createdatamaps command, the Informatica services or the Informatica Client must be installed on the machine on which you run the command.

You can create multiple data maps per run, but they must all be of the same data source type.

Caution: Use the createdatamaps utility to create new data maps only. Do not use the utility to modify data maps that are already in use.

For more information, see the *PowerExchange Bulk Data Movement Guide*.

Overrides for the IMS Access Method and Related Properties

You can override the access method for a PowerExchange IMS source or target for a PowerCenter session or a PowerExchange Navigator database row test. You can also add or override related properties, including the IMS SSID, PSB name, PCB name, and PCB number.

Use overrides for the following reasons:

- Gain greater flexibility in configuring bulk data movement sessions. When you are ready to run a session, you can switch between the ODBA and DL/I batch access methods as needed. Use ODBA to run small, frequent database queries as PowerExchange Listener subtasks to read or write data. Run DL/I Batch jobs at night to process mass updates that require longer access to the database.
- Create fewer PowerExchange data maps. You do not need to create a duplicate data map to change the access method or a related property. With fewer data maps, you also can create fewer PowerCenter mappings and workflows.
- Avoid creating very large PSBs that include many PCBs and require large buffers. Large PSBs are sometimes used to avoid exceeding the maximum of ten NETPORT statements in the DBMOVER member. Instead, you can override the PSB and PCB number at session run time.
- Use one pair of NETPORT and LISTENER statements for DL/I access to multiple PSBs.
- Override the IMS SSID in the data map. You can use an SSID override to direct a netport job to another IMS SSID, to point to an ODBA source or target on another IMS SSID, or to use another DBD library for an IMS source unload file.

In PowerCenter, enter the session overrides on the **Mapping** tab of the **Edit Tasks** dialog box. The following overrides are available for the source and target, depending on the access method:

- **IMS AM Override**. Overrides the DL/1 BATCH and IMS ODBA access methods with one another. If you change the access method, enter the other override properties that the new access method requires.
- **IMS SSID Override**. Overrides the IMS SSID.
- **IMS PSBNAME Override**. Overrides the PSB name. Available for IMS ODBA and DL/I batch access.
- **IMS PCBNAME Override**. Overrides the PCB name. Available for IMS ODBA access only.
- **IMS PCBNUMBER Override**. Overrides the PCB number. Available for DL/I batch access only.

In the PowerExchange Navigator, enter the following overrides for a database row test of an IMS data map or unload file in the **Advanced Parameters** dialog box:

- **Access Method**. Overrides the DL/1 BATCH and IMS ODBA access methods with one another. If you change the access method, enter the other override properties that the new access method requires. For example, ODBA access requires an IMS SSID, PSB name, and PCB name.
- **IMS SSID**. Overrides the IMS SSID.
- **PSB Name**. Overrides the PSB name. Available for IMS ODBA and DL/I batch access.
- **PCB Name**.Overrides the PCB name. Available for IMS ODBA access only.

- **PCB Number**. Overrides the PCB number. Available for DL/I batch access only.

PowerExchange 9.6.0 also introduces the following new substitution variables for the netport JCL that is used for DL/I or BMP access to IMS data:

%PSBNAME

This substitution variable is replaced by the PSB name from one of the following locations, in order of precedence: 1) the **IMS PSBNAME Override** value specified for the PowerCenter session or the **PSB NAME** override specified for a database row test, 2) an ODBA data map with an access method override, or 3) the NETPORT statement in the DBMOVER configuration file. To override a PSB name for a session or database row test, you must specify either the PSB=%PSBNAME or PSB=%1 substitution variable in the netport JCL. Do not specify both substitution variables. No changes have been made to the %1 substitution variable. The %1 substitution variable is replaced only be the PSB name in the NETPORT statement.

%IMSID

This substitution variable is replaced by the IMS SSID value from one of the following locations, in order of precedence: 1) the **IMS SSID Override** value specified for the PowerCenter session or the **IMS SSID** value specified for a data row test or 2) an ODBA data map with an access method override. If an IMS SSID value is not available from either of these locations, PowerExchange passes a null value to the netport job, which causes IMS to determine the IMS SSID to access based on the load libraries specified in the netport job.

For more information, see the *PowerExchange Navigator User Guide*, *PowerExchange Interfaces for PowerCenter*, and *PowerExchange Reference Manual*.

IMS Version 13 Support

Effective in PowerExchange 9.6.0, IMS version 13 is supported for log-based CDC and bulk data movement sessions. IMS 13 is not yet supported for synchronous CDC.

Support for IMS version 8.1 is deprecated.

For more information, see the *PowerExchange Installation and Upgrade Guide* and Product Availability Matrix at http://mysupport.informatica.com.

Updated Components in the IMS Synchronous ECCR CRG.LOAD Library

If you upgrade to 9.6.0 from an earlier release that does not include patch P647646, the PowerExchange CRG.LOAD library for IMS synchronous CDC does not contain the latest available version of the BMC Software CHANGE RECORDING FACILITY and DATABASE INTEGRITY PLUS components.

If you use the CRG software, after you upgrade to 9.6.0, run the CRGUMOD or CRGCLINK job in the *hlq*.SAMPLIB library again to install DBRC modifications. Otherwise, events such as abends might cause change capture to fail in the DLIODDCx module when the IMS synchronous ECCR tries to capture changes for a source segment. After you run the CRGUMOD or CRGCLINK job, restart the IMS control region.

Important: If you have a supported version of the BMC Software CHANGE RECORDING FACILITY or DATABASE INTEGRITY PLUS product, use the BMC Software product instead of the CRG software. In this case, you do not need to run the CRGUMOD or CRGCLINK job. Ensure that the BMC Software product version matches or is later than the minimum BMC version that PowerExchange 9.6.0 supports for your IMS version. PowerExchange 9.6.0 does not support synchronous CDC with either the CRG software or BMC products for IMS 13.

For more information, see the *PowerExchange Installation and Upgrade Guide*.

CHAPTER 18

PowerExchange for Microsoft SQL Server

This chapter includes the following topics:

PowerExchange 10.2 - New Features and Changes for SQL Server

This section describes PowerExchange 10.2 new features and changes that are related to Microsoft SQL Server data sources or targets.

New Features in 10.2

PowerExchange 10.2 introduces the following new features for SQL Server CDC:

Microsoft SQL Server NTLM and Active Directory Authentication for Access to SQL Server Sources

You can use Microsoft SQL Server NTLM and Active Directory authentication to control PowerExchange access to SQL Server sources for CDC and database row tests.

When you create the registration group or perform a database row test, you must enter the user ID in the format *domain\user_name* and a valid password.

For more information, see the "Registration Groups and Capture Registrations" and "Database Row Test" chapters in the *PowerExchange Navigator User Guide*.

Parameter and Option Changes in 10.2

PowerExchange 10.2 introduces the following parameter and option changes for SQL Server sources.

DBMOVER Configuration File Statement

In the MSQL CAPI_CONNECTION statement in the dbmover.cfg configuration file, you can now specify the following new optional parameters:

LOCKAVOIDANCE={N|Y}

New. Controls whether PowerExchange SELECT statements use the NOLOCK hint when querying the SQL Server distribution database for change data. The NOLOCK hint can avoid lock contention with SQL Server utilities but might cause PowerExchange to miss some change records. Options are:

- **N**. PowerExchange SELECT queries that retrieve data from the distribution database do not use the NOLOCK hint. If locks are held on some change records, PowerExchange queries cannot retrieve the data until the locks are released. With this setting, PowerExchange queries might take longer to complete. However, no changes are skipped and data integrity is preserved. Use this option only when the MULTIPUB parameter is set to Y.
- **Y**. PowerExchange SQL SELECT queries that retrieve data from the distribution database use the NOLOCK hint. Use this option only when the MULTIPUB parameter is set to N. If the MULTIPUB parameter is set to Y, SQL Server might use allocation order scans to retrieve data for PowerExchange queries, which can result in missed change data and data corruption.

  Tip: Instead of using LOCKAVOIDANCE=Y, Informatica recommends that you set the isolation level for the distribution database to READ_COMMITTED_SNAPSHOT ON to avoid data integrity problems.

Default is **N** if MULTIPUB is set to Y, or **Y** if MULTIPUB is set to N.

RECONNTRIES={*number*|12}

New. For Microsoft SQL Server sources, specifies the maximum number of times that PowerExchange tries to reconnect to the Microsoft SQL Server database after the connection is dropped. Use this parameter in conjunction with the RECONNWAIT parameter if you get the following ODBC connection error and want to improve connection resiliency:

```
PWX-15790 ODBC driver for Microsoft SQL Server returned error [08S01][Informatica]
[ODBC SQL Server Wire Protocol driver]Unexpected Network Error. ErrNum = 10054.
```

Valid values are 0 or any positive number. A value of 0 results in no connection retries. Default is 12.

RECONNWAIT={*seconds*|5}

New. For Microsoft SQL Server sources, specifies the number of seconds that PowerExchange waits before any attempt to reconnect to a Microsoft SQL Server database after the connection has been dropped. Use this parameter in conjunction with the RECONNTRIES parameter if you get the PWX-15790 message for an ODBC driver error and want to improve connection resiliency.

Valid values are 0 through 3600. A value of 0 results in no waiting between connection retries. Default is 5.

For more information, see the "DBMOVER Configuration File" chapter in the *PowerExchange Reference Manual*.

Behavior Changes in 10.2

PowerExchange 10.2 introduces the following behavior change for SQL Server data sources:

Improved Handling of Capture Registration Deletions

Previously, when you tried to delete a capture registration for a SQL Server source, the PowerExchange Navigator failed to delete the registration with error message PWX-15700 because the registration entry in the CCT file could not be deleted.

Now, when you confirm the deletion of a Microsoft SQL Server registration in the PowerExchange Navigator, PowerExchange attempts to delete the SQL Server article associated with the registered table from the publication database. If PowerExchange cannot delete the SQL Server article for any reason, an error is displayed and an additional message box prompts you to confirm the registration deletion again. If you click **Yes** to confirm the deletion, you must manually delete the associated SQL Server article.

For more information, see the chapter "Registration Groups and Capture Registrations" in the *PowerExchange Navigator User Guide*.

Ability to Change the Registration Status from History to Active When the Database Is Not Active

Previously, the PowerExchange Navigator did not allow you to change the status of a SQL Server capture registration from **Active** to **History** if the database was inactive, absent, or invalid.

Now, when you try to change the status of a SQL Server capture registration in this situation, PowerExchange displays confirmation message PWX-01984. If you click **Yes** to confirm the status change, you must then manually remove the SQL Server article that is associated with the registered table from the publication database.

For more information, see message PWX-01984 in the *PowerExchange Message Reference Volume 1*.

PowerExchange 10.1.1 HotFix 1 - New Features and Changes for SQL Server

This section describes PowerExchange 10.1.1 HotFix 1 new features and changes that are related to Microsoft SQL Server data sources or targets.

Parameter and Option Changes in 10.1.1 HotFix 1

PowerExchange 10.1.1 HotFix 1 introduces the following parameter and option changes for SQL Server sources.

DBMOVER Configuration File Statements

The DBMOVER configuration file includes the following changed statement:

CAPI_CONNECTION=(NAME=*capi_connection_name*,TYPE=(MSQL,...[LOCKAVOIDANCE= {N|Y}]))

New. The LOCKAVOIDANCE parameter in the MSQL CAPI_CONNECTION statement controls whether PowerExchange SELECT statements use the NOLOCK hint when querying the SQL Server distribution

database for change data. The NOLOCK hint can avoid lock contention with SQL Server utilities but might cause PowerExchange to miss some change records. Options are:

- **N**. PowerExchange SELECT queries that retrieve data from the distribution database do not use the NOLOCK hint. If locks are held on some change records, PowerExchange queries cannot retrieve the data until the locks are released. With this setting, PowerExchange queries might take longer to complete. However, no changes are skipped and data integrity is preserved. Use this option only when the MULTIPUB parameter is set to Y.
- **Y**. PowerExchange SQL SELECT queries that retrieve data from the distribution database use the NOLOCK hint. Use this option only when the MULTIPUB parameter is set to N. If the MULTIPUB parameter is set to Y, SQL Server might use allocation order scans to retrieve data for PowerExchange queries, which can result in missed change data and data corruption.

  Tip: Instead of using LOCKAVOIDANCE=Y, Informatica recommends that you set the isolation level for the distribution database to READ_COMMITTED_SNAPSHOT ON to avoid data integrity problems.

Default is **N** if MULTIPUB is set to Y, or **Y** if MULTIPUB is set to N.

For more information, see the "DBMOVER Configuration File" chapter in the *PowerExchange Reference Manual*.

PowerExchange 10.1.1 - New Features and Changes for SQL Server

This section describes PowerExchange 10.1.1 new features and changes that are related to Microsoft SQL Server data sources or targets.

New Features in 10.1.1

PowerExchange 10.1.1 introduces the following new features for SQL Server CDC:

Support for SQL Server Always On Availability Groups

PowerExchange 10.1.1 can capture changes that are written to an availability database in a SQL Server Always On Availability Group. An Availability Group consists of primary and secondary replica databases on multiple nodes in a Windows Server Failover Clustering (WSFC) cluster. Only the following configuration has been tested and certified for PowerExchange CDC:

- The distribution database is installed on a node outside of the Always On Availability Group cluster, which is consistent with SQL Server requirements.
- PowerExchange is installed on a node outside of the Always On Availability Group cluster.
- When you create a registration group for the SQL Server Always On Availability Group source, you specify the Availability Group listener name in the **Database Server** field.

Note: If you need to use another configuration, contact Informatica Global Customer Support. Informatica will try to accommodate your request.

After CDC processing is running, If the primary database fails over to a secondary replica database on another node, PowerExchange can continue to capture change data from the distribution database without data loss.

SQL Server CDC with a PowerExchange Listener on Linux

In a PowerExchange CDC environment with Microsoft SQL Server sources, you can now run the PowerExchange Listener on a Linux system. The PowerExchange Listener uses the DataDirect ODBC driver that PowerExchange supplies to connect to the SQL Server system.

If you run the PowerExchange Listener on a Linux system, configure the following DBMOVER statements:

- In the DBMOVER configuration file on the Linux system where the PowerExchange Listener runs, define a MSQL CAPI CONNECTION statement that provides connection information for the SQL Server source distribution database.
- In the DBMOVER configuration files on the PowerCenter Integration Service machine and the PowerExchange Navigator system, define a NODE statement that points to the PowerExchange Listener system.

Alternatively, you can still run the PowerExchange Listener on a Windows system. You cannot run the PowerExchange Listener on a UNIX system.

For more information, see the "Microsoft SQL Server CDC" chapter in the *PowerExchange CDC Guide for Linux, UNIX, and Windows*.

Support for Microsoft SQL Server 2016

PowerExchange 10.1.1 adds support for Microsoft SQL Server 2016 sources and targets on Windows. For bulk data movement, PowerExchange supports SQL Server 2016 sources and targets. For CDC, PowerExchange supports SQL Server 2016 sources.

PowerExchange CDC captures change data only from databases that are configured for SQL Server transactional replication. Consequently, PowerExchange support of SQL Server 2016 features are limited to those that SQL Server transactional replication supports.

For more information, see the "Installation Planning" chapter in the *PowerExchange Installation and Upgrade Guide*.

PowerExchange 10.1 - New Features and Changes for SQL Server

This section describes PowerExchange 10.1 new features and changes that are related to Microsoft SQL Server data sources or targets.

New Features in 10.1

PowerExchange 10.1 introduces the following new feature for SQL Server CDC:

PowerExchange CDC No Longer Requires SQL Server Management Objects

Previously, PowerExchange CDC for Microsoft SQL Server sources required that you install the SQL Server 2008 Server Management Objects (SMO), Replication Management Objects (RMO), and some related packages, even if you used a later SQL Server version. Otherwise, you could not create or edit SQL Server

capture registrations. Effective in PowerExchange 10.1, PowerExchange no longer requires these objects and packages.

Instead, PowerExchange 10.1 uses the DataDirect ODBC driver for SQL Server. For your convenience, when you install PowerExchange, the correct DataDirect ODBC driver for SQL Server is delivered to the *PowerExchange_root_installation*\ODBC7.1\Drivers directory. No additional configuration is required.

This feature removes the need to perform a separate installation of the SQL Server 2008 SMO objects and packages and aligns PowerExchange with SQL Server 2012 deprecation of the RMO.

For more information, see the "Microsoft SQL Server CDC" chapter in the *PowerExchange CDC Guide for Linux, UNIX, and Windows*.

Behavior Changes in 10.1

PowerExchange 10.1 introduces the following behavior change for SQL Server data sources:

Handling Columns Added with the NOT NULL and DEFAULT Options to a SQL Server Source Table

Previously, if you captured change data from a Microsoft SQL Server 2012 or later source, capture processing might fail with the following error message after an ADD *column_name datatype* NOT NULL DEFAULT operation occurred on a source table:

```
PWX-15748 Invalid Capture data for table schema.table_name, column column_name. Found
NULL data expected non-NULL.
```

PowerExchange processed the added columns after an Update or Delete occurred on the source, but the captured before image showed null values for the not-null columns.

In PowerExchange 10.1, PowerExchange populates the added columns in the before image with an appropriate default non-null value, which is based on the column datatype. PowerExchange then continues capture processing. You cannot change the default values that PowerExchange uses. If the use of these default values is not acceptable in your environment, you must rebuild the source table after the columns are added. Then restart CDC.

For more information, see the "Microsoft SQL Server Change Data Capture" chapter of the *PowerExchange CDC Guide for Linux, UNIX, and Windows*.

PowerExchange 10.0 - New Features and Changes for SQL Server

This section describes PowerExchange 10.0 new features and changes that are related to Microsoft SQL Server data sources or targets.

Behavior Changes in 10.0

PowerExchange 10.0 introduces the following behavior change for SQL Server data sources:

Installation of the DataDirect ODBC Driver for SQL Server

The PowerExchange installation wizard for Windows now installs the DataDirect ODBC driver for SQL Server in the *PowerExchange_root_installation*\ODBC7.1\Drivers directory.

In PowerExchange 10.0, the PowerExchange Navigator requires this driver to connect to a SQL Server source database when you create capture registrations or perform other tasks that access the source database to read data or metadata.

You still need to install the SQL Server 2008 SMO objects and packages by using the .msi files in the *PowerExchange_root_installation*\packages\mssqlInstalls\2008 directory. However, you no longer need to install the SQL Server 2012 Native Client unless directed to do so by Informatica Global Customer Support.

For more information, see the "Microsoft SQL Server CDC" chapter in the *PowerExchange CDC Guide for Linux, UNIX, and Windows*.

Parameter and Option Changes in 10.0

PowerExchange 10.0 introduces the following parameter and option changes for SQL Server sources.

DBMOVER Configuration File Statements

You can now specify the following new statements in the dbmover.cfg configuration file:

MSSQL_SERVER_CONNECT_TIMEOUT=*seconds*

New. Specifies the timeout interval, in seconds, for a PowerExchange Navigator, DTLUCBRG utility, or DTLURDMO utility connection to a Microsoft SQL Server Management Objects (SMO) interface to manage SQL Server publications. After this interval elapses, the connection times out with error message PWX-15700. If you receive PWX-15700 messages for a timeout error, use this statement to increase the timeout interval. Valid values are 1 to 86400. Default is 60 seconds.

MSSQL_SERVER_STATEMENT_TIMEOUT=*seconds*

New. Specifies the timeout interval, in seconds, for processing a Transact-SQL statement issued by the PowerExchange Navigator, DTLUCBRG utility, or DTLURDMO utility to the Microsoft SQL Server Management Objects (SMO) interface. After this interval elapses, processing of the Transact-SQL statement stops with error message PWX-15700. If you are receive PWX-15700 messages related to this error, use this statement to increase the timeout interval. Valid values are 1 to 86400. Default is 60 seconds.

For more information, see the "DBMOVER Configuration File" chapter in the *PowerExchange Reference Manual*.

PowerExchange 9.6.1 HotFix 3 - New Features and Changes for SQL Server

This section describes PowerExchange 9.6.1 HotFix 3 new features and changes that are related to Microsoft SQL Server data sources or targets.

New Features in 9.6.1 HotFix 3

PowerExchange 9.6.1 HotFix 3 introduces the following new features for SQL Server CDC:

CDC Support for SQL Server Databases That Use TDE

PowerExchange can capture change data from SQL Server distribution databases for which Transparent Data Encryption (TDE) is enabled. No special configuration tasks are required.

For more information, see *PowerExchange CDC Guide for Linux, UNIX, and Windows*.

Behavior Changes in 9.6.1 HotFix 3

PowerExchange 9.6.1 HotFix 3 introduces the following behavior change for SQL Server data sources:

PowerExchange Handling of SQL Server Date Columns

In PowerCenter, when you import a PowerExchange extraction map that includes date columns for a SQL Server source, PowerExchange converts the date columns to timestamp columns. PowerCenter then handles these columns as timestamp columns. Previously, PowerExchange converted date columns to varchar(10) columns.

Note: If you use the SQL Server Native Client ODBC driver to import SQL Server table definitions that include date columns, PowerCenter imports the date columns as varchar(10) columns. If you use the DataDirect ODBC driver, PowerCenter imports the date columns as datetime columns.

For more information, see the *PowerExchange CDC Guide for Linux, UNIX, and Windows*.

PowerExchange 9.6.1 HotFix 2 - New Features and Changes for SQL Server

This section describes PowerExchange 9.6.1 HotFix 2 new features and changes that are related to Microsoft SQL Server data sources or targets.

New Features in 9.6.1 HotFix 2

PowerExchange 9.6.1 HotFix 2 introduces the following new features for SQL Server CDC:

PowerExchange 32-bit Windows Installation Delivers 64-bit SQL Server Client and SMO Objects

The PowerExchange 32-bit (x86) Windows installation file now delivers the 64-bit installation packages for the following Microsoft SQL Server 2008 SMO objects that are required for PowerExchange CDC:

- Microsoft SQL Server 2008 Management Objects
- Microsoft SQL Server 2008 Replication Management Objects
- Microsoft SQL Server 2008 Native Client
- Microsoft SQL Server System CLR Types

The PowerExchange 32-bit Windows installation also now delivers the 64-bit installation package for the Microsoft SQL Server 2012 Native Client. The Client must be installed on the same Windows system as the PowerExchange Navigator.

PowerExchange delivers the SQL Server 64-bit installation packages in the following subdirectories of the PowerExchange root installation directory:

- `packages\x64\2008` for the 64-bit SQL Server 2008 SMO objects
- `packages\x64\2012` for the 64-bit SQL Server 2012 Native Client

Note: PowerExchange already delivers the 32-bit installation packages for the SQL Server SMO objects and Client, beginning with PowerExchange 9.6.0. These packages are available in the `packages\mssqlInstalls\2008` and `packages\mssqlInstalls\2012` subdirectories.

For more information, see the *PowerExchange CDC Guide for Linux, UNIX, and Windows*.

PowerExchange 9.6.1 HotFix 1 - New Features and Changes for SQL Server

This section describes PowerExchange 9.6.1 HotFix 1 new features and changes that are related to Microsoft SQL Server data sources or targets.

Parameter and Option Changes in 9.6.1 HotFix 1

PowerExchange 9.6.1 HotFix 1 introduces the following parameter and option changes for SQL Server sources.

DBMOVER Configuration File Statements

The DBMOVER configuration file includes the following changed statement:

CAPI_CONNECTION=(NAME=*capi_connection_name*,TYPE=(MSQL,DISTDB=*distribution_database*,DISTSRV=*distribution_server*[,ENABLELWM={Y|N}]...))

The MSQL CAPI_CONNECTION statement includes the following new parameter:
ENABLELWM={N|Y}

New. When you use the PowerExchange Logger for Linux, UNIX, and Windows, controls whether the PowerExchange consumer API (CAPI) connection process deletes data read from the SQL Server distribution database after the data has been hardened to PowerExchange Logger log files or after the PowerExchange publication expiry time has elapsed. You can use this parameter to improve distribution database performance and to prevent the distribution database from growing too large in size when the PowerExchange Logger is in use.

Enter one of the following options:

- **N**. The distribution database cleanup job deletes data from the distribution database after the expiry time for the PowerExchange publications elapses. This option might degrade the performance of the distribution-database cleanup job and cause excessive growth of the distribution database.

- **Y**. The CAPI connection process deletes processed data from the distribution database after the data has been hardened to the PowerExchange Logger log files. After a log file switch, the PowerExchange Logger sends a low water marker to the CAPI connection process to identify the last end UOW prior to the file switch. At the end of the next capture cycle, after the CAPI connection process has read to the end of the available data in the distribution database, the CAPI deletes all of the processed data for the PowerExchange publications up to and including the low water mark data from the distribution.dbo.MSrepl_commands table in the distribution database.

  Note: The user ID under which the PowerExchange Logger runs must have delete authority on the MSrepl_commands table.

  This option can help improve distribution-database performance and control distribution-database size. However, if the SQL Server Log Reader Agent is writing very large UOWs to the distribution database when the CAPI connection processes the low water mark data, the performance of the distribution database might be temporarily degraded because the CAPI connection process must wait for a lock on the MSrepl_commands table.

  Note: If you run multiple extractions against a single distribution database for different publication databases and use ENABLELWM=Y for one CAPI connection and ENABLELWM=N with a RSTRADV value for another CAPI connection, PowerExchange might issue error message PWX-15756 for the connection with ENABLELWM=N. The message incorrectly reports that change data has been lost. To suppress this error, add the DWFLAGS=NNYN parameter to MSQL CAPI_CONNECTION statement.

Default is N.

PowerExchange 9.6.1 - New Features and Changes for SQL Server

This section describes PowerExchange 9.6.1 new features and changes that are related to Microsoft SQL Server data sources or targets.

Parameter and Option Changes in 9.6.1

PowerExchange 9.6.1 introduces the following parameter and option changes for SQL Server sources.

DBMOVER Configuration File Statements

In the MSQL CAPI_CONNECTION statement of the DBMOVER configuration file, you can now specify the following new optional parameter:

UIDFMT={DBNAME|NONE}

New. Controls the type of value that PowerExchange uses to populate the generated DTL__CAPXUSER column in each change record. Options are:

- **DBNAME**. Returns the Microsoft SQL Server publication database name.
- **NONE**. Returns a null because a user ID is not available.

Default is NONE.

For more information, see the *PowerExchange Reference Manual*.

Behavior Changes in 9.6.1

PowerExchange 9.6.1 introduces the following behavior change for SQL Server data sources:

PowerExchange Handling of SQL Server Date Columns

PowerExchange now treats SQL Server date columns as varchar(10) columns.

In PowerCenter, when you import source metadata or an extraction map from PowerExchange to create a source definition for bulk data movement or CDC, PowerExchange converts date columns to varchar(10) columns. This conversion is for consistency with PowerCenter datatype handling.

Previously, PowerExchange treated date columns as datetime columns, which caused datatype conversion errors in PowerCenter.

PowerExchange 9.6.0 - New Features and Changes for SQL Server

This section describes PowerExchange 9.6.0 new features and changes that are related to Microsoft SQL Server data sources or targets.

New Features in 9.6.0

PowerExchange 9.6.0 introduces the following new features for SQL Server CDC:

Microsoft SQL Server Client and Packages Delivered in a Windows Installation

PowerExchange now delivers the Microsoft SQL Server 2008 Management Objects (SMO) framework, related packages, and Native Client as part of a Windows installation. PowerExchange requires these items for CDC operations that have SQL Server sources. PowerExchange also delivers the 2012 Native Client for bulk data movement operations.

PowerExchange delivers this SQL Server software in the `packages\mssqlInstalls` folder of the Windows installation directory for your convenience. Use this deliverable to install these items for PowerExchange use, if they are not already installed.

For more information, see the *PowerExchange Installation and Upgrade Guide*, *PowerExchange Bulk Data Movement Guide*, and *PowerExchange CDC Guide for Linux, UNIX, and Windows*.

CHAPTER 19

PowerExchange for Oracle

This chapter includes the following topics:

PowerExchange 10.2 - New Features and Changes for Oracle

This section describes PowerExchange 10.2 new features and changes that are related to Oracle data sources or targets.

New Features in 10.2

PowerExchange 10.2 introduces the following new features for Oracle:

Reporting DDL Operations on Registered Oracle Source Tables

You can configure PowerExchange Express CDC for Oracle to report the DDL operations that it encounters in the Oracle redo logs for Oracle source tables with active capture registrations.

To enable DDL reporting, specify the REPORTDDL=Y parameter in the OPTIONS statement of the pwxorad.cfg configuration file. This parameter is optional.

When REPORTDDL=Y is set, PowerExchange Express CDC reports all of DDL operations that it detects in the Oracle redo logs for registered tables, such as ALTER TABLE operations that add, drop, or modify a column or that add or drop a partition. Express CDC writes information for each DDL operation to a file that is generated in the directory from which Express CDC runs. The following file naming conventions are used:

- For RAC systems:

  PWX_ORL_DDL_D*yyyymmdd*_T*hhmmss*.MBR*node*_sequence#.rpt

- For non-RAC systems:

  ```
  PWX_ORL_DDL_Dyyyymmdd_Thhmmss.sequence#.rpt
  ```

In these file names, the *sequence#* is a generated number that starts from 0001 and that is incremented by 1 for each new file. A new file is generated every 20 MB of DDL change records.

The following example report shows a single DDL operation:

```
--DDL found at Location : redo log position SCN 0x0000.00ff2e85.0001 (16723589) RBA
0x0007cd.000050a9.0010 (file: 1997)
-- Owner Number : 111, DDL Object 95944 Sequence 1 of total 1
-- DDL String :
alter table TSTV11.DDLTEST001 add COL04 varchar2(10) default 'xxxx'
```

For more information, see the "Express CDC for Oracle" chapter in the *PowerExchange CDC Guide for Linux, UNIX, and Windows*.

Parameter and Option Changes in 10.2

PowerExchange 10.2 introduces the following changes to PowerExchange for Oracle configuration parameters:

PowerExchange Express CDC for Oracle Configuration File

PowerExchange 10.2 introduces a new parameter for the OPTIONS statement in the PowerExchange Express CDC for Oracle configuration file, pwxorad.cfg.

OPTIONS Statement

You can now specify the following optional parameter in the statement:

REPORTDDL={Y|N}

New. Controls whether PowerExchange Express CDC reports all of the DDL operations that it encounters in the Oracle redo logs for Oracle source tables with active capture registrations. Express CDC writes the following information for each DDL operation to a file that is generated in the directory from which Express CDC runs: the DDL statement, log position, owner number, DDL object number, and sequence number. The file naming conventions are:

- For RAC systems:

  ```
  PWX_ORL_DDL_Dyyyymmdd_Thhmmss.MBRnode_sequence#.rpt
  ```

- For non-RAC systems:

  ```
  PWX_ORL_DDL_Dyyyymmdd_Thhmmss.sequence#.rpt
  ```

In these file names, *sequence#* is a generated number that starts from 0001 and that is incremented by 1 for each new file. A new file is generated every 20 MB of DDL change records.

Options are:

- **Y**. Generate the report of DDL operations for registered source tables.
- **N**. Do not generate the report of DDL operations.

Default is N.

For more information, see the "Express CDC for Oracle" chapter in the *PowerExchange CDC Guide for Linux, UNIX, and Windows*.

PowerExchange 10.1 - New Features and Changes for Oracle

This section describes PowerExchange 10.1 new features and changes that are related to Oracle data sources or targets.

New Features in 10.1

PowerExchange 10.1 introduces the following new features for Oracle:

PowerExchange Express CDC for Oracle Supports Oracle Direct-Path Operations

In PowerExchange 10.1, PowerExchange Express CDC for Oracle can capture direct-path operations such as direct-path INSERT operations and SQL*Loader direct-path load operations on all supported Linux, UNIX, and Windows platforms.

To enable the capture of direct-path operations, you must set the SUPPORT_DIRECT_PATH_OPS parameter to Y in the OPTIONS statement of the PowerExchange Express CDC configuration file.

Restriction: PowerExchange Express CDC cannot capture direct-path operations from source tables that use Oracle Exadata Hybrid Columnar Compression (EHCC).

For more information about CDC support of direct-path operations, see the "Express CDC for Oracle" chapter in the *PowerExchange CDC Guide for Linux, UNIX, and Windows*.

This feature is also available in 9.6.1 HotFix 4. It is not available in 10.0.

PowerExchange Express CDC for Oracle Ability to Read Copies of Archived Redo Logs

Effective in PowerExchange 10.1, you can configure PowerExchange Express CDC for Oracle to read change records from archived redo logs that have been copied to an alternate file system.

Use this feature in the following situations:

- You do not have the authority to access the Oracle archived redo logs directly.
- The archived redo logs are written to ASM, but you do not have access to ASM.
- An aggressive archived log retention policy is in effect on the database server, which causes the archived logs to not be retained long enough.

To configure PowerExchange Express CDC to read copies of archived redo logs, set the MODE parameter to ARCHIVECOPY in the READER statement of the PowerExchange Express CDC for Oracle configuration file, pwxorad.cfg. Then specify the name of the base directory that contains the copies of the archived redo logs in the new DIR parameter. Optionally, use the new FILE parameter to filter the copies of the archived logs that reside under the base directory.

For more information, see the "Express CDC for Oracle" chapter in the *PowerExchange CDC Guide for Linux, UNIX, and Windows*.

PowerExchange Express CDC for Oracle Support for Oracle RESETLOGS Operations

Previously, PowerExchange Express CDC capture processing and the PowerExchange Logger for Linux, UNIX, and Windows ended with multiple error messages after the log reader encountered a RESETLOGS event in the archived redo logs. Effective in PowerExchange 10.1, PowerExchange Express CDC can detect a RESETLOGS event and continue capture processing across the RESETLOGS boundary in the archived redo logs.

The PowerExchange Express CDC restart token has been modified to add the resetlogs ID at the end of the token value. At initialization, PowerExchange Express CDC uses the resetlogs ID to check whether the database has undergone a RESETLOGS event. If a RESETLOGS event occurred, PowerExchange Express CDC verifies that the restart information and the last change data that was hardened to the PowerExchange Logger log files are valid and have not been orphaned by the event. If the information is valid, PowerExchange continues capture processing.

Note: To restart a CDC session, you can still use the restart tokens of the older format, without the resetlogs ID. However, PowerExchange Express CDC then cannot check for RESETLOGS events or orphaned data. Errors might occur.

For more information, see the "Express CDC for Oracle" chapter in the *PowerExchange CDC Guide for Linux, UNIX, and Windows*.

PowerExchange Express CDC for Oracle Support for Amazon EC2 Cloud Environments

PowerExchange Express CDC can capture change from an Oracle database in an Amazon Elastic Compute Cloud (EC2) environment. The Amazon EC2 instances must run on a 64-bit Red Hat Linux server. The configuration of PowerExchange, the Oracle database, the PowerCenter Integration Service, and Informatica domain is flexible. All of these applications can run on EC2 instances in the cloud, or some of them can run on premise.

PowerExchange Express CDC requires no special configuration tasks. As usual, ensure that Express CDC can access to the Oracle archive redo logs.

For more information, see the "Express CDC for Oracle" chapter in the *PowerExchange CDC Guide for Linux, UNIX, and Windows*.

Parameter and Option Changes in 10.1

PowerExchange 10.1 introduces the following changes to PowerExchange for Oracle configuration parameters:

PowerExchange Express CDC for Oracle Configuration File

PowerExchange 10.1 introduces new parameters in the OPTIONS statement of the PowerExchange Express CDC for Oracle configuration file, pwxorad.cfg.

OPTIONS Statement

The OPTIONS statement can now include the following optional parameters:

LOGARCHIVEWAIT

New. After an Oracle online redo log starts being overwritten, the number of seconds that PowerExchange Express CDC waits for the copy of the log to become available as a new archived redo log for change data capture processing. In an Oracle Data Guard environment, if Express CDC captures change data from a physical standby database, this parameter specifies the number of

seconds that Express CDC waits for the next archived redo log to be transported from the primary database to the standby database.

Valid values are 0 through 86400. Default is 30. If you use any value less than the value of the STATUSCHECKINTERVAL parameter in the READER statement, Express CDC waits for the STATUSCHECKINTERVAL period.

This parameter is also available in 9.6.1 HotFix 4. It is not available in 10.0.

PARTITION_DROP_FAIL

New. Controls whether PowerExchange Express CDC for Oracle ends with an error or continues processing when the log reader encounters an ALTER TABLE DROP PARTITION operation for a registered Oracle source table.

Options:

- **Y**. Express CDC processing ends with error message PWX-36332, which reports the log position of the DROP PARTITION operation that caused the failure.
- **N**. Express CDC ignores the DROP PARTITION operation and continues change capture processing. Message PWX-36390 reports that Express CDC encountered a DROP PARTITION operation for a source table.

Default is Y.

RETRYONKILLSESSION

New. Controls whether PowerExchange Express CDC can detect when an Oracle KILL SESSION event occurs for a specific PowerExchange connection to an Oracle source instance and then retry the connection so that the Express CDC log reader and PowerExchange Logger for Linux, UNIX, and Windows process do not end abnormally. A KILL SESSION event occurs when a user issues the following SQL statement:

```
ALTER SYSTEM KILL SESSION 'sid,serial_number' [IMMEDIATE]
```

In this statement, the variable *sid* is the session ID and the variable *serial_number* is the session serial number, as shown in the V$SESSION view.

Options:

- **N**. PowerExchange does not try to re-establish killed sessions for Express CDC processes. If a KILL SESSION event occurs, the PowerExchange Express CDC log reader and PowerExchange Logger end abnormally.
- **Y**. PowerExchange tries to re-establish killed sessions for Express CDC processes. Also set the CONNRETRYMAX parameter to a value greater than 0 to indicate the maximum number of times that PowerExchange retries the connection to the source instance.

  Tip: The RETRYONKILLSESSION, CONNRETRYMAX, and CONNRETRYWAIT parameters help improve connection resiliency.

Default is N.

Important: Before setting this parameter to Y, consult with your Oracle database administrator to ensure that no unintended consequences occur.

This parameter is also available in 9.6.1 HotFix 4. It is not available in 10.0.

SUPPORT_DIRECT_PATH_OPS

New. Controls whether Express CDC captures or ignores Oracle direct-path operations, such as direct-path INSERT operations, on registered source tables.

Options:

- **N**. Disables the capture of direct-path operations. If the log reader encounters a redo log record for a direct-path operation, Express CDC ignores the direct-path operation with an informational message and continues.
- **Y.** Enables the capture of direct-path operations.

  Note: Express CDC does not capture direct-path operations for tables that use Oracle Exadata Columnar Compression (EHCC).

Default is N.

This parameter is also available in 9.6.1 HotFix 4. It is not available in 10.0.

READER Statement

The READER statement can now include the following optional parameters:

MODE=ARCHIVECOPY

New. Allows the PowerExchange Express CDC log reader to read archived redo logs that have been copied to an alternate file system. Use this option in the following situations:

- You do not have the authority to access the Oracle archived redo logs directly.
- The archived redo logs are written to ASM, but you do not have access to ASM.
- An aggressive archived log retention policy is in effect on the database server, which might cause the archived logs to not be retained long enough.

You must implement a script to copy the archived redo logs from their primary location to the alternate location. To copy the archived logs, you can use any method that does not corrupt them, for example, FTP in binary mode. You must also specify the DIR parameter to indicate the name of base directory that the log reader scans for the copies of the archived logs. Optionally, you can use the FILE parameter to filter the copies of the archived logs that reside under the base directory.

Unlike the other MODE options, ARCHIVECOPY identifies candidate archived redo logs by scanning the file system directories. This process ignores the ARCHIVEDEST*n* parameters and does not filter candidate logs by their DELETED status in v$archived_log.

Default option is still ACTIVE.

DIR

New. When MODE parameter is set to ARCHIVECOPY, this parameter is required. It specifies the name of the base directory that PowerExchange Express CDC log reader scans for the copies of the archived redo logs to read. To filter the copies of the logs that reside under this base directory, you can also specify the FILE parameter.

FILE

New. Optional. When the MODE parameter is set to ARCHIVECOPY, you can use this parameter to specify a mask for filtering the copies of the archived redo logs that the PowerExchange Express CDC log reader reads. PowerExchange matches the mask against the subdirectories and files under the base directory that is specified in the DIR parameter. Enter a mask for the subdirectory name, log file names, or both.

For more information, see the "Express CDC for Oracle" chapter in the *PowerExchange CDC Guide for Linux, UNIX, and Windows*.

PowerExchange 10.0 - New Features and Changes for Oracle

This section describes PowerExchange 10.0 new features and changes that are related to Oracle data sources or targets.

New Features in 10.0

PowerExchange 10.0 introduces the following new features for Oracle:

PowerExchange Express CDC for Oracle Supports Oracle Index-Organized Tables

Effective in PowerExchange 10.0, PowerExchange Express CDC for Oracle can capture change data from Oracle index-organized tables (IOTs).

To capture change data from IOTs, you must grant the following privileges to the Oracle user that you defined for CDC:

```
GRANT SELECT on "SYS"."IND$" TO "ORACAPTL";
GRANT SELECT ON "SYS"."INDPART$" TO "ORACAPTL";
```

In these statements, "ORACAPTL" is the name of the CDC user.

For more information, see the "Express CDC for Oracle" chapter in the *PowerExchange CDC Guide for Linux, UNIX, and Windows*.

PowerExchange Express CDC for Oracle Supports Oracle 12*c* Multitenant Pluggable Databases

Effective in PowerExchange 10.0, PowerExchange Express CDC for Oracle can capture change data from a pluggable database (PDB) in an Oracle 12*c* multitenant container database (CDB).

PowerExchange Express CDC can capture change data from only a single PDB at a time. If you want to capture change data for another PDB in the same CDB, you must configure a separate CDC environment.

To configure change data capture from a PDB, you must perform the following tasks:

- Verify that the CDB is running in ARCHIVELOG mode.
- Enable minimal global supplemental logging for either the PDB or CDB.
- Add a PDB entry that includes the PDB service name to the tnsnames.ora file. For example:

```
PDB1234=
  (DESCRIPTION=
    (ADDRESS=(PROTOCOL=TCP)(HOST=host1)(PORT=1521))
          (CONNECT_DATA=
            (SERVER=DEDICATED)
            (SERVICE_NAME=pdb1234.informatica.com)))
```

- If you log in to CDB$ROOT as a user with the DBA role, execute the following SQL statement to switch the session to the source PDB:

```
ALTER SESSON SET CONTAINER=pdb_name
```

- After you define an Oracle user for CDC, such as "ORACAPTL1," grant the following privileges to this user:

```
GRANT CREATE SESSION TO “ORACAPTL1”;
GRANT SELECT on “PUBLIC”.”V$PDBS” TO “ORACAPTL1”;
```

- In the dbmover.cfg configuration file on the system where change capture occurs, configure the ORACLEID statement to point to the name of the database that contains the PDB and the name of the PDB service entry in the tnsnames.ora file. For example:

  ```
  ORACLEID=(PDB1234,ORADBNAME,tns_connection,PDB1234)
  ```

  In this example statement:

  - The first positional parameter, *collection_id*, identifies the ORACLEID statement. In this case, it is also the PDB name. This parameter cannot be empty.
  - The second positional parameter, *oracle_db*, is the name of the Oracle database that contains the PDB. This parameter cannot be empty.
  - The third positional parameter, *source_connect_string*, is an Oracle connection string defined in the Oracle tnsnames.ora file for connection to the database. For PDBs, this parameter cannot be empty.
  - The fourth positional parameter, *capture_connect_string*, is the name of the PDB service entry in the Oracle tnsnames.ora file. For PDBs, this parameter cannot be empty.

If you move or clone the PDB for which PowerExchange Express CDC is capturing change data to another CDB, the PowerExchange Logger for Linux, UNIX, and Windows connection to the Oracle database is lost. You must cold start the PowerExchange Logger to prevent loss of change data.

For more information, see the "Express CDC for Oracle" chapter in the *PowerExchange CDC Guide for Linux, UNIX, and Windows*.

Parameter and Option Changes in 10.0

PowerExchange 10.0 introduces the following changes to PowerExchange for Oracle configuration parameters:

PowerExchange Express CDC for Oracle Configuration File

PowerExchange 10.0 introduces a new parameter in the OPTIONS statement of the PowerExchange Express CDC for Oracle configuration file, pwxorad.cfg.

OPTIONS statement

The OPTIONS statement can now include the following optional parameter:

TRUNCINVALIDCHARS

Indicates whether to detect and remove invalid multibyte characters that appear at the end of a character field in an Oracle source table. The characters are invalid because they have been truncated. If you allow these invalid characters to be passed to a PowerCenter workflow that has an Oracle target, PowerCenter might corrupt subsequent columns in the target table when running in Unicode mode.

Options are:

- **Y**. Remove invalid multibyte characters from the source data. The invalid characters are not passed to PowerCenter or applied to the target database.
- **N**. Capture the invalid multibyte characters and pass them to PowerCenter. When the PowerCenter workflow tries to write the invalid characters to the target, Oracle issues an ORA-02290 error that reports a check constraint violation on the target database. Also, PowerCenter might corrupt data in the subsequent columns in the target table.

Default is N. If you receive the ORA-02290 error in this situation, set this parameter to Y.

For more information, see the "Express CDC for Oracle" chapter in the *PowerExchange CDC Guide for Linux, UNIX, and Windows*.

PowerExchange 9.6.1 HotFix 4 - New Features and Changes for Oracle

This section describes PowerExchange 9.6.1 HotFix 4 new features and changes that are related to Oracle data sources or targets.

New Features in 9.6.1 HotFix 4

PowerExchange 9.6.1 HotFix 4 introduces the following new features for Oracle:

PowerExchange Express CDC for Oracle Supports Oracle Direct-Path Operations

In PowerExchange 9.6.1 HotFix 4, PowerExchange Express CDC for Oracle can capture direct-path operations such as direct-path INSERT operations and SQL*Loader direct-path load operations on Linux, UNIX, and Windows platforms other than AIX and HP-UX.

To enable the capture of direct-path operations, you must set the SUPPORT_DIRECT_PATH_OPS parameter to Y in the OPTIONS statement of the PowerExchange Express CDC configuration file.

Restriction: PowerExchange Express CDC cannot capture direct-path operations from source tables that use Oracle Advanced Compression or Oracle Exadata Hybrid Columnar Compression (EHCC).

For more information about all known limitations, see the *PowerExchange 9.6.1 HotFix 4 Release Notes*. EBFs that resolve the known limitations will be available shortly after PowerExchange 9.6.1 HotFix 4 release. To check on EBF availability, contact Informatica Global Customer Support.

For more information about CDC support of direct-path operations, see the "Express CDC for Oracle" chapter in the *PowerExchange CDC Guide for Linux, UNIX, and Windows*.

Parameter and Option Changes in 9.6.1 HotFix 4

PowerExchange 9.6.1 HotFix 4 introduces the following changes to PowerExchange for Oracle configuration parameters:

PowerExchange Express CDC for Oracle Configuration File

PowerExchange 9.6.1 HotFix 4 introduces new or changed parameters in the OPTIONS and RAC statements of the PowerExchange Express CDC for Oracle configuration file, pwxorad.cfg.

OPTIONS Statement

The OPTIONS statement can now include the following optional parameters:

LOGARCHIVEWAIT

New. After an Oracle online redo log starts being overwritten, the number of seconds that PowerExchange Express CDC waits for the copy of the log to become available as a new archived redo log for change data capture processing. In an Oracle Data Guard environment, if Express CDC captures change data from a physical standby database, this parameter specifies the number of seconds that Express CDC waits for the next archived redo log to be transported from the primary database to the standby database.

Valid values are 0 through 86400. Default is 30. If you use any value less than the value of the STATUSCHECKINTERVAL parameter in the READER statement, Express CDC waits for the STATUSCHECKINTERVAL period.

RETRYONKILLSESSION

New. Controls whether PowerExchange Express CDC can detect when an Oracle KILL SESSION event occurs for a specific PowerExchange connection to an Oracle source instance and then retry the connection so that the Express CDC log reader and PowerExchange Logger for Linux, UNIX, and Windows process do not end abnormally. A KILL SESSION event occurs when a user issues the following SQL statement:

```
ALTER SYSTEM KILL SESSION 'sid,serial_number' [IMMEDIATE]
```

In this statement, the variable *sid* is the session ID and the variable *serial_number* is the session serial number, as shown in the V$SESSION view.

Options:

- **N**. PowerExchange does not try to re-establish killed sessions for Express CDC processes. If a KILL SESSION event occurs, the PowerExchange Express CDC log reader and PowerExchange Logger end abnormally.
- **Y**. PowerExchange tries to re-establish killed sessions for Express CDC processes. If you specify Y, also set the CONNRETRYMAX parameter to a value greater than 0 to indicate the maximum number of times that PowerExchange retries the connection to the source instance.

  Tip: The RETRYONKILLSESSION, CONNRETRYMAX, and CONNRETRYWAIT parameters help improve connection resiliency.

Default is N.

Important: Before setting this parameter to Y, consult with your Oracle database administrator to ensure that no unintended consequences occur.

SUPPORT_DIRECT_PATH_OPS

New. Controls whether Express CDC captures or ignores Oracle direct-path INSERT operations and SQL*Loader direct-path load operations on registered source tables.

Options:

- **N**. Disables the capture of direct-path operations. If the log reader encounters a redo log record for a direct-path operation, Express CDC ignores the direct-path operation with an informational message and continues.
- **Y.** Enables the capture of direct-path operations.

  Note: Express CDC does not capture direct-path operations for tables that use Oracle Exadata Hybrid Columnar Compression (EHCC).

Default is N.

TRUNCINVALIDCHARS

New. Indicates whether to detect and remove invalid multibyte characters that appear at the end of a character field in an Oracle source table. The characters are invalid because they have been truncated. If you allow these invalid characters to be passed to a PowerCenter workflow that has an Oracle target, PowerCenter might corrupt subsequent columns in the target table when running in Unicode mode.

Valid values are:

- **Y**. Remove invalid multibyte characters from the source data. The invalid characters are not passed to PowerCenter or applied to the target database.
- **N**. Capture the invalid multibyte characters and pass them to PowerCenter. When the PowerCenter workflow tries to write the invalid characters to the target, PowerCenter might corrupt data in the subsequent columns in the target table.

Default is N.

RAC Statement

The RAC statement contains the following changed parameter:

MEMBERS

Changed. This parameter now specifies the maximum number of active redo threads with unique thread IDs that PowerExchange Express CDC for Oracle can track in an Oracle RAC, including open and closed threads. If the number of active threads is greater than this parameter value, CDC processing ends. Informatica recommends that you enter the lowest value that is suitable for your RAC environment to minimize the overhead of PowerExchange Express CDC tracking of threads.

Valid values are still 1 through 100. Default value is still 1.

For more information, see the "Express CDC for Oracle" chapter in the *PowerExchange CDC Guide for Linux, UNIX, and Windows*.

PowerExchange 9.6.1 HotFix 3 - New Features and Changes for Oracle

This section describes PowerExchange 9.6.1 HotFix 3 new features and changes that are related to Oracle data sources or targets.

New Features in 9.6.1 HotFix 3

PowerExchange 9.6.1 HotFix 3 introduces the following new features for Oracle:

PowerExchange Express CDC for Oracle Certification with Oracle Database 12*c* Sources

In PowerExchange 9.6.1 HotFix 3, certification of PowerExchange Express CDC for Oracle with Oracle Database 12*c* sources is complete.

Restriction: PowerExchange Express CDC for Oracle does not support change data capture from Oracle 12*c* multitenant environments.

For more information, see the *PowerExchange Installation and Upgrade Guide*.

PowerExchange 9.6.1 HotFix 2 - New Features and Changes for Oracle

This section describes PowerExchange 9.6.1 HotFix 2 new features and changes that are related to Oracle data sources or targets.

New Features in 9.6.1 HotFix 2

PowerExchange 9.6.1 HotFix 2 introduces the following new features for Oracle:

PowerExchange Express CDC for Oracle Support for TDE-encrypted Tablespaces

Effective in PowerExchange 9.6.1 HotFix 2, PowerExchange Express CDC for Oracle can capture change data from tablespaces that use Oracle Transparent Data Encryption (TDE).

To capture change data from TDE-encrypted tablespaces, perform the following tasks:

- In the DATABASE statement in the pwxorad.cfg configuration file, enter either the TDEWALLETPWD parameter or TDEWALLETEPWD parameter to specify the password for the Oracle TDE wallet.
- Grant the following privilege to the ORACAPTL user:

```
GRANT SELECT ON "PUBLIC"."V$ENCRYPTION_WALLET" TO "ORACAPTL";
```

- Ensure that the Oracle TDE wallet is on a device that PowerExchange Express CDC for Oracle can access with Read file permissions.
- Verify that the Oracle TDE wallet is open in the database.

Note: In PowerExchange 9.6.1 HotFix 2, Express CDC for Oracle does not capture change data from TDE-encrypted columns.

For more information, see the *PowerExchange CDC Guide for Linux, UNIX, and Windows*.

PowerExchange Express CDC for Oracle Support for Oracle Database 12*c*

PowerExchange 9.6.1 HotFix 2 software includes support for Oracle Database 12*c* sources for PowerExchange Express CDC for Oracle. However, this enhancement was deferred until after the January 2015 release of PowerExchange HotFix 2 to complete certification testing. For more information about the availability of this feature, contact Informatica Global Customer Support.

Bulk data movement and PowerExchange Oracle CDC with LogMiner support for Oracle 12*c* was added in an earlier release.

Restriction: PowerExchange does not support change data capture from Oracle 12*c* multitenant environments.

For more information, see the *PowerExchange Installation and Upgrade Guide*.

PowerExchange Express CDC for Oracle Support for TIMESTAMP WITH TIME ZONE Datatypes

PowerExchange Express CDC for Oracle can capture change data from Oracle source columns that have the TIMESTAMP WITH TIME ZONE or TIMESTAMP WITH LOCAL TIME ZONE datatype.

However, PowerCenter does not support these datatypes. If you use PowerCenter to materialize a target table from a source table that includes this datatype, manually override the datatype in Source Analyzer with

the timestamp datatype. Also, edit the generated SQL select statement that PowerCenter sends to PowerExchange to use the sys_extract_utc() function. Syntax:

```
select sys_extract_utc(tmstmpwith_tz) from schema.source_table
```

For more information, see the *PowerExchange CDC Guide for Linux, UNIX, and Windows*.

Parameter and Option Changes in 9.6.1 HotFix 2

PowerExchange 9.6.1 HotFix 2 introduces the following changes to PowerExchange for Oracle configuration parameters:

PowerExchange Express CDC for Oracle Configuration File

PowerExchange 9.6.1 HotFix 2 introduces new parameters in the PowerExchange Express CDC for Oracle configuration file, pwxorad.cfg, to support change data capture from Oracle source tablespaces that use Transparent Data Encryption (TDE).

DATABASE statement

The DATABASE statement can now include the following parameters for processing TDE-encrypted tablespaces:

TDEWALLETEPWD

New. An encrypted password that PowerExchange requires to access the Oracle TDE wallet and get the master key that is required for reading and decrypting data from Oracle TDE-encrypted tablespaces. If you capture change data from TDE-encrypted tablespaces, you must specify either this parameter or the TDEWALLETPWD parameter. Do not specify both parameters.

Note: If you need to change the encryption password, first stop the PowerExchange Logger for Linux, UNIX, and Windows and the CDC session. Then edit the password, restart the PowerExchange Logger, and restart the CDC session.

TDEWALLETPWD

New. A clear text password that PowerExchange requires to access the Oracle TDE wallet and get the master key that is required for reading and decrypting data from Oracle TDE-encrypted tablespaces. If you capture change data from TDE-encrypted tablespaces, you must specify either this parameter or the TDEWALLETEPWD parameter. Do not specify both parameters.

Note: If you need to change this encryption password, first stop the PowerExchange Logger for Linux, UNIX, and Windows and the CDC session. Then edit the password, restart the PowerExchange Logger, and restart the CDC session.

For more information, see the *PowerExchange CDC Guide for Linux, UNIX, and Windows*.

Behavior Change in 9.6.1 HotFix 2

PowerExchange 9.6.1 HotFix 2 introduces the following behavior change for PowerExchange Express CDC for Oracle.

Changes to the GRANT Statements for the Express CDC User

The user privileges that you grant to the PowerExchange Express CDC for Oracle user, ORACAPTL, have changed.

- The following new GRANT statements are required:

```
GRANT SELECT ON "SYS"."DBA_USERS" TO "ORACAPTL";
GRANT SELECT ON "SYS"."DBA_TABLESPACES" TO "ORACAPTL";
```

- The following GRANT statement is no longer required:

```
GRANT SELECT ON "SYS"."USER$" TO "ORACAPTL";
```

  Use the preceding SYS.DBA_USERS grant instead.

- If you want to capture change data from Oracle TDE-encrypted tablespaces, use the following GRANT statement:

```
GRANT SELECT ON "PUBLIC"."V$ENCRYPTION_WALLET" TO "ORACAPTL";
```

PowerExchange 9.6.1 - New Features and Changes for Oracle

This section describes PowerExchange 9.6.1 new features and changes that are related to Oracle data sources or targets.

New Features in 9.6.1

PowerExchange 9.6.1 introduces the following new features for Oracle:

Support for Oracle Data Guard Physical Standy Databases as Sources

PowerExchange Express CDC for Oracle can capture change data from Oracle Data Guard physical standby databases. PowerExchange monitors the standby and archived redo logs and the database SCN on the standby system. As long as the database SCN is progressing, PowerExchange captures change data from the logs.

A PowerExchange CDC environment with a physical standby database source has the following characteristics:

- The primary database and the physical standby databases must use Oracle 11*g* or later.
- You must install and run PowerExchange on the machine with the physical standby database. A PowerExchange installation is not required on the primary database machine.
- The physical standby database can use real-time apply with standby redo logs or apply data directly from the archived logs only.
- The physical standby database can be open with read-only access, or it can be not open, such as when started with the mount option.
- PowerExpress Express CDC supports any configuration of primary and standby databases that Oracle Data Guard supports, including databases in RACs that use ASM. The number of nodes on the primary and standby systems do not need to match.

For more information about configuration and operational considerations, see the *PowerExchange CDC Guide for Linux, UNIX, and Windows*.

Oracle Database 12c Support by PowerExchange Oracle CDC with LogMiner and Bulk Data Movement

PowerExchange 9.6.1 adds support for Oracle Database 12*c* sources for PowerExchange Oracle CDC with LogMiner and bulk data movement. However, Oracle 12*c* sources for PowerExchange Express CDC for Oracle are not supported.

If you use PowerExchange Oracle CDC with LogMiner with Oracle 12.1.0.1 sources, set the SELRETRY parameter in the ORCL CAPI_CONNECTION statement to 0. If you set the SELRETRY parameter to 1 or greater, the Oracle LogMiner sessions for PowerExchange CDC fail when trying to fetch change data.

For more information, see the *PowerExchange Installation and Upgrade Guide*.

Parameter and Option Changes in 9.6.1

PowerExchange 9.6.1 introduces the following changes to PowerExchange for Oracle configuration parameters:

PowerExchange Express CDC for Oracle Configuration File

PowerExchange 9.6.1 introduces the following changes to the PowerExchange Express CDC for Oracle configuration file, pwxorad.cfg:

DATABASE Statement

Changed. If you want to capture change data from an Oracle Data Guard physical standby database that is open for read-only access, configure the DATABASE statement to connect to the standby database instance. If the standby database is not open for read-only access, configure the DATABASE statement to connect to the primary database instance and also define the STANDBY statement.

OPTIONS Statement

Changed. This statement can now include the following optional parameter:
AGEOUTPERIOD=*minutes*

New. The age, in number of minutes, that an outstanding UOW that has no change records of CDC interest must reach before it is removed from the calculation of the CDC restart point. The age is calculated as the time difference between the start of the outstanding UOW and the start of the most recent UOW. This age-out processing occurs during the monitoring interval.

Use this parameter to prevent CDC failures that can occur if you shut down and then restart capture processing while the transaction is outstanding. After the restart, the archived redo log in which the outstanding UOW started might not be available, causing the Express CDC log reader to fail.

Valid values are 60 to 43200. By default, no value is specified and this parameter is disabled.

Note: Oracle stores all time values in the log in local time. As a result, at the beginning or end of daylight saving time, a UOW might age out an hour late or an hour early.

READER Statement

Changed. The following optional parameter is no longer supported:
ASM_DBREADER

Dropped. This parameter enabled PowerExchange to use an efficient Oracle client API, large read buffers, and a database connection to read redo logs for an Oracle 11.2.0.4 or later database in an ASM environment. This parameter required the Oracle ENABLE_GOLDENGATE_REPLICATION initialization parameter to be set to true. In PowerExchange 9.6.1, this parameter is no longer supported because of Oracle restrictions and requirements related to the use of that Oracle initialization parameter.

STANDBY Statement

New. Defines a connection to an Oracle physical standby database for change data capture when the database is *not* open for read-only access. To access a database that is not open, you must have SYSDBA authority. Syntax is:

```
STANDBY CONNECT_STRING=capture_connect_string [ACTIVEAPPY={N|Y}]
[EPWD=database_encrypted_password|PASSWORD=database_password]
[USERID=database_user_id];
```

CONNECT_STRING

An Oracle connection string, defined in TNS, that PowerExchange Express CDC for Oracle uses to connect to the Oracle physical standby database for change capture when the database is not open for read-only access.

ACTIVEAPPLY

Indicates whether PowerExchange Express CDC can process the standby redo logs on the standby system up to the highest low SCN when the Oracle does not progress apply processing beyond the tip of the last archived log, even though more recent changes are available in the standby logs. Set this parameter to Y if you want to perform near-real-time capture in this situation. Default is N.

EPWD

An encrypted password that PowerExchange Express CDC for Oracle uses to connect to the Oracle physical standby database for change capture.

You must specify either the EPWD or PASSWORD parameter, but do not specify both.

PASSWORD

A clear text password that PowerExchange Express CDC for Oracle uses to connect to the Oracle physical standby database for change capture.

You must specify either the PASSWORD or EPWD parameter, but do not specify both.

USERID

A user ID that PowerExchange Express CDC for Oracle uses to connect to the Oracle physical standby database for change capture. This user ID must have SYSDBA authority.

For more information, see the *PowerExchange CDC Guide for Linux, UNIX, and Windows*.

Documentation Change in 9.6.1

A correction was made to the PowerExchange Express CDC for Oracle documentation.

Required GRANT Statement for the ORACAPTL User

To correctly capture change data with PowerExchange Express CDC for Oracle, you must grant the following privilege to the ORACAPTL user:

```
GRANT SELECT ON "PUBLIC"."V$SPPARAMETER" TO "ORACAPTL";
```

The PowerExchange Express CDC for Oracle chapter of the *PowerExchange CDC Guide for Linux, UNIX, and Windows* was updated to include this statement. Also, the sample ora_orad.sql script file was updated to indicate that this GRANT statement is required for capture processing rather than for the PowerExchange Navigator.

For more information, see the *PowerExchange CDC Guide for Linux, UNIX, and Windows*.

PowerExchange 9.6.0 - New Features and Changes for Oracle

This section describes PowerExchange 9.6.0 new features and changes that are related to Oracle data sources or targets.

New Features in 9.6.0

PowerExchange 9.6.0 introduces the following new features for Oracle:

PowerExchange Express CDC Capture Across Heterogeneous Platforms

The PowerExchange Express CDC for Oracle capture process and the Oracle source instance that contains the redo logs can run on machines that have different operating systems and architectures to a limited extent.

The following table indicates the combinations of system types that are certified:

Oracle Source System	Express CDC System
AIX Power 64-bit	Red Hat Linux x64
Red Hat Linux x64	Solaris Sparc 64-bit

To capture changes across heterogeneous platforms, the Oracle source tables must be registered on the Express CDC system.

Note: If you do not use these combinations of systems, run the Express CDC capture process on the Oracle source system or on a machine that has the same operating system and architecture as the Oracle source system.

For more information, see the *PowerExchange CDC Guide for Linux, UNIX, and Windows*.

Parameter and Option Changes in 9.6.0

PowerExchange 9.6.0 introduces the following changes to PowerExchange for Oracle configuration parameters:

PowerExchange Express CDC for Oracle Configuration File

PowerExchange 9.6.0 introduces the following changes to the PowerExchange Express CDC for Oracle configuration file, pwxorad.cfg:

OPTIONS Statement

The following changed parameter can be specified in the OPTIONS statement:

MEMOPS={*number of log records*|5120}

Changed. The minimum MEMOPS parameter value is now 1000. The default value remains 5120.

READER Statement

The following READER parameter has a behavior change:

ASM_DBREADER={Y|N}

Behavior change. If you use Oracle 11.2.0.4 or later and set this parameter to Y, you must also set the Oracle ENABLE_GOLDENGATE_REPLICATION initialization parameter to true. Check with your Oracle representative to verify that you are allowed to enable this Oracle parameter.

For more information, see the *PowerExchange CDC Guide for Linux, UNIX, and Windows*.

Behavior Change in 9.6.0

PowerExchange 9.6.0 introduces the following behavior change for PowerExchange Logger for Linux, UNIX, and Windows processing of Oracle data sources.

Validation of Oracle Redo Log Availability Before a Logger Restart

When you restart the PowerExchange Logger for Linux, UNIX and Windows for PowerExchange Express CDC for Oracle processing, it validates that all of the Oracle redo logs from the restart point to the current redo log exist. If any logs are not available, the PowerExchange Logger reports which logs are needed and which logs are missing and then stops. Previously, the unavailable logs were not reported until PowerExchange CDC Express for Oracle attempted to read them.

CHAPTER 20

PowerExchange for VSAM and Flat Files

This chapter includes the following topics:

PowerExchange 10.2 - New Features and Changes for VSAM and Flat Files

This section describes PowerExchange 10.2 new features and changes that are related to VSAM and sequential or flat file data sources or targets.

Behavior Changes in 10.2

PowerExchange 10.2 introduces the following behavior changes for CICS/VSAM CDC sources:

Improved CICS/VSAM ECCR Reporting of Data Sets with CDC Disabled

The CICS/VSAM ECCR can now report the VSAM data sets for which CDC processing has been disabled by the `CAPTURE_vsam_dataset_type=OFF` or `DSN=dataset_name,NOCAPTURE` override option in the EDMKOVRD DD statement in the CICS region startup JCL or in the data set to which the DD statement points.

You might want to disable CDC for some data sets to reduce system overhead and unnecessary message output.

The following types of output now report the data sets that are excluded from CDC processing:

- The report that is generated by the EDMC DISP command now displays **NoCapture** in the **Warn/Error** column for any listed VSAM data set for which CDC is disabled. For example:

```
EDMC DISP            PWXEDM CICS/VSAM Change Capture        Init Date: 02/22/17
ID: CT52               Participating Files Display              Time: 23:27:53

File Name     Data set Name                                Type   Warn/Error
DFHCSD        <<EDM File Open currently in progress>>
EDMFIL01      PWX.VSAM.EDMVES01                            ESDS
EDMFIL02      PWX.VSAM.EDMVES02                            KSDS   NoCapture
EDMFIL03      PWX.VSAM.EDMVES03                            ESDS
EDMFIL05      PWX.VSAM.EDMVES05                            KSDS   NoCapture
EDMFIL06      PWX.VSAM.EDMVES06                            KSDS   NoCapture
EDMFIL07      PWX.VSAM.EDMVES07                            ESDS
EDMFIL08      PWX.VSAM.EDMVES08                            ESDS
EDMFIL09      PWX.VSAM.EDMVES09                            ESDS
EDMFIL10      PWX.VSAM.EDMVES10                            ESDS   Rcv(None)
```

- The PWXEDM176453I message now reports the registered or not registered ("excluded") VSAM data set that is associated with a file that does not participate in CDC processing. This message is issued when the CICS/VSAM ECCR checks VSAM data sets to determine if they are eligible for CDC processing. For example:

  ```
  PWXEDM176453I Excluded file(EDMFIL02) is associated with DSN(hlq.VSAM.EDMVES02)
  ```

  Previously, this message was issued only for registered data sets.

For more information, see the "CICS/VSAM Change Data Capture" chapter in the *PowerExchange CDC Guide for z/OS*.

PowerExchange 10.1.1 HotFix 1 - New Features and Changes for VSAM and Flat Files

This section describes PowerExchange 10.1.1 HotFix 1 new features and changes that are related to VSAM and sequential or flat file data sources or targets.

Behavior Changes in 10.1.1 HotFix 1

PowerExchange 10.1.1 HotFix 1 introduces the following behavior changes for CICS/VSAM CDC sources:

Improved CICS/VSAM ECCR Reporting of Data Sets with CDC Disabled

The CICS/VSAM ECCR can now report the VSAM data sets for which CDC processing has been disabled by the `CAPTURE_vsam_dataset_type=OFF` or `DSN=dataset_name,NOCAPTURE` override option in the EDMKOVRD DD statement in the CICS region startup JCL or in the data set to which the DD statement points.

You might want to disable CDC for some data sets to reduce system overhead and unnecessary message output.

The following types of output now report the data sets that are excluded from CDC processing:

- The report that is generated by the EDMC DISP command now displays **NoCapture** in the **Warn/Error** column for any listed VSAM data set for which CDC is disabled. For example:

```
EDMC DISP            PWXEDM CICS/VSAM Change Capture        Init Date: 02/22/17
ID: CT52               Participating Files Display              Time: 23:27:53
```

```
File Name     Data set Name                              Type   Warn/Error
DFHCSD        <<EDM File Open currently in progress>>
EDMFIL01      PWX.VSAM.EDMVES01                          ESDS
EDMFIL02      PWX.VSAM.EDMVES02                          KSDS   NoCapture
EDMFIL03      PWX.VSAM.EDMVES03                          ESDS
EDMFIL05      PWX.VSAM.EDMVES05                          KSDS   NoCapture
EDMFIL06      PWX.VSAM.EDMVES06                          KSDS   NoCapture
EDMFIL07      PWX.VSAM.EDMVES07                          ESDS
EDMFIL08      PWX.VSAM.EDMVES08                          ESDS
EDMFIL09      PWX.VSAM.EDMVES09                          ESDS
EDMFIL10      PWX.VSAM.EDMVES10                          ESDS   Rcv(None)
```

- The PWXEDM176453I message now reports the registered or not registered ("excluded") VSAM data set that is associated with a file that does not participate in CDC processing. This message is issued when the CICS/VSAM ECCR checks VSAM data sets to determine if they are eligible for CDC processing. For example:

  ```
  PWXEDM176453I Excluded file(EDMFIL02) is associated with DSN(hlq.VSAM.EDMVES02)
  ```

  Previously, this message was issued only for registered data sets.

For more information, see the "CICS/VSAM Change Data Capture" chapter in the *PowerExchange CDC Guide for z/OS*.

PowerExchange 10.1 - New Features and Changes for VSAM and Flat Files

This section describes PowerExchange 10.1 new features and changes that are related to VSAM and sequential or flat file data sources or targets.

New Features in 10.1

PowerExchange 10.1 introduces the following new feature for CICS Transaction Server data sources:

Support for CICS Transaction Server Version 5.3

PowerExchange 10.1 adds CDC support for CICS Transaction Server (CICS TS) version 5.3. PowerExchange can capture changes that CICS TS 5.3 transactions make to VSAM data sets.

The PowerExchange SAMPLIB library contains the new member #CICSV70 for defining the CICS/VSAM ECCR programs and transaction to CICS.

PowerExchange no longer supports CICS TS versions 3.1 and 3.2.

For more information, see the "Installation Planning" chapter in the *PowerExchange Installation and Upgrade Guide* and the "CICS/VSAM Change Data Capture" chapter in the *PowerExchange CDC Guide for z/OS*.

PowerExchange 10.0 - New Features and Changes for VSAM and Flat Files

This section describes PowerExchange 10.0 new features and changes that are related to VSAM and sequential or flat file data sources or targets.

New Features in 10.0

PowerExchange 10.0 introduces the following new features for CICS/TS, VSAM, and sequential or flat file data sources:

CICS/VSAM ECCR Support for VSAM ESDS Data Sets

Beginning in PowerExchange 10.0, the CICS/VSAM ECCR can capture change data from VSAM entry-sequenced data sets (ESDSs) in an online CICS Transaction Server (CICS TS) environment. In prior PowerExchange releases, only the Batch VSAM ECCR could capture change data from ESDSs.

The CICS/VSAM ECCR can capture change data from ESDS data sets that use both the 32-bit relative byte addressing (RBA) and 64-bit extended relative byte addressing (XRBA). However, the ECCR does not capture change data for the following types of ESDS items:

- Spanned ESDSs
- Paths defined over ESDSs
- Alternate Index (AIX) that points to an ESDS base cluster

To handle backouts for recoverable ESDS data sets that are registered for change data capture, PowerExchange requires additional exit programs at the following CICS global user exit (GLUE) points:

- **XFCBOUT**. At this GLUE point, define the PowerExchange EDMKBO*nn* exit program. This program captures the before image of each record in a recoverable ESDS that is to be backed out because of a transaction abend or syncpoint rollback.
- **XFCLDEL**. At this GLUE point, define the following exit programs:
  - An exit program that you define to mark backout records as logically deleted and to write them back to the ESDS data set. You must logically delete backout records because CICS TS does not provide a mechanism to delete individual records from an ESDS data set and VSAM does not support this action. To define this user exit program, use the sample program in the DFH$LDEL member of the CICS SAMPLIB library as a basis.
  - The PowerExchange EDMKLD*nn* exit program. This program retrieves the after image of a backout record that was logically deleted and then generates an UPDATE record that contains both the before and after images. The generated record is written to the Change Capture Log. The CICS/VSAM ECCR can then process the logically deleted record as an UPDATE to prevent transaction backout failures and the generation of numerous error messages. This program must be enabled last at the XFCLDEL exit point.

PowerExchange also requires a CICS task-related user exit (TRUE) program to capture relevant syncpoints and UOW information for each task that updates a registered data set. The ECCR uses this information to coordinate syncpoint processing with the PowerExchange Logger for MVS and to handle requirements related to CICS shutdown processing.

By default, change data capture for ESDSs is disabled. To enable change capture for ESDSs and override some default CDC options for ESDSs, specify the //EDMKOVRD DD statement or data set in the CICS startup

procedure. In the //EDMKOVRD DD statement or data set, you can enter the following CDC override options for ESDSs:

- **CAPTURE_ESDS={ON|OFF}**. You must specify ON to enable capture data capture for ESDS data sets.
- **BACKOUTRC={OVERRIDE|NOOVERRIDE}**. Controls whether to override the return codes from exit programs that run at the XFCLDEL exit point prior to the EDMKLD*nn* program.
- **ESDSFAIL={YES|NO}**. For recoverable ESDS data sets from which change data is captured, controls whether backouts are allowed to fail after a transaction abend or rollback. By default, the exit programs that you define at the XFCBOUT and XFCLDEL exit points handle the backouts as updates with before and after images so that the change can be processed during CDC.

To override any of these CDC override settings for a specific ESDS data set, use the **DSN** option with the appropriate keywords.

Also, this feature adds or enhances the following CICS/VSAM ECCR commands that are issued with the EDMC transaction code:

- **DISPLAY or DISP**. *Changed*. This command has been enhanced to display information for ESDS data sets.
- **OPTIONS or OPTS**. *New*. Displays the CDC override options that are defined in the //EDMKOVRD DD statement or data set.
- **REFRESH or REFR**. *New*. Re-reads and validates the CDC override options that are defined the //EDMKOVRD DD statement or data set.
- **RESTART or REST**. *New*. Re-initializes the CICS/VSAM ECCR in the CICS region by issuing the EDMC TERM command followed by the EDMC INIT command. Use this keyword after changing any of the CDC override options in the EDMKOVRID DD statement or data set for your changes to take effect.
- **EXITPGMS or XPGM**. *New*. Lists all of the exit programs that are defined at the CICS GLUE points and TRUE program that PowerExchange uses for CICS/VSAM CDC.

If you previously used the Batch VSAM ECCR to capture change data from ESDSs, you can optionally migrate to the CICS/VSAM ECCR.

For more information about migrating to the CICS/VSAM ECCR, the GLUE points and TRUE program, and all of the //EDMKOVRD DD override options, see the "CICS/VSAM Change Data Capture" chapter in the *PowerExchange CDC Guide for z/OS*.

For more information about the new CICS/VSAM ECCR commands, see the "CICS/VSAM ECCR Commands" chapter in the *PowerExchange Command Reference*.

Parameter and Option Changes in 10.0

PowerExchange 10.0 introduces the following parameter and option changes that affect VSAM data sources.

CDC Override Options in the EDMKOVRD DD Data Set

You can enter the new //EDMKOVRD DD statement in the CICS startup procedure to specify CDC override options that enable or disable CICS/VSAM ECCR change data capture by VSAM data set type or for specific data sets. You can also set some options that override default processing of backout records for ESDS data sets.

Note: To enable change data capture for ESDS data sets, you must add the //EDMKOVRD DD statement with the CAPTURE_ESDS=ON option. By default, change data capture is disabled for ESDS data sets.

In the EDMKOVRD DD statement or data set, enter any of the following options:

CAPTURE_ESDS={ON|OFF}

Enables or disables change data capture for ESDS data sets. You must explicitly enter ON to enable CDC for ESDS data sets. Default is OFF.

CAPTURE_KSDS={ON|OFF}

Enables or disables change data capture for KSDS data sets. Enter OFF if you need to disable CDC for KSDS data sets. Default is ON.

CAPTURE_RRDS={ON|OFF}

Enables or disables change data capture for RRDS and VRDS data sets. Enter OFF if you need to disable CDC for RRDS and VRDS data sets. Default is ON.

CAPTURE_CMDT={ON|OFF}

Enables or disables change data capture for CICS-maintained data tables. Enter OFF if you need to disable CDC for CICS-maintained data tables. Default is ON.

BACKOUTRC={OVERRIDE|NOOVERRIDE}

For recoverable ESDS data sets, controls whether to override the return codes from any other active exit programs that are invoked at the XFCLDEL global exit point prior to the PowerExchange EDMKLD*nn* exit program for processing backouts as logical deletions. Options are:

- **OVERRIDE**. Override the return codes from any prior exit programs at the XFCLDEL global exit point with the UERCLDEL return code from the EDMKLD*nn* program.
- **NOOVERRIDE**. Percolate the return codes from any prior exit programs at the XFCLDEL global exit point. In this case, the return code of a prior exit program might supercede the return code from the EDMKLD*nn* program. With this option, the ESDSFAIL option is ignored.

ESDSFAIL={YES|NO}

For recoverable ESDS data sets from which change data is captured, controls whether backouts are allowed to fail after a transaction abend or syncpoint rollback. By default, the PowerExchange exit programs that you define at the XFCBOUT and XFCLDEL global exit points handle backouts as logical deletions with before and after images so that the change can be processed during CDC. If you capture change data from recoverable ESDS data sets, set this option to NO. If you enter ESDSFAIL=YES, backouts will fail with many error messages.

If you specified BACKOUTRC=NOOVERRIDE, this option is ignored.

DSN=*data_set_name*[,*option*]…

To enter overrides for a specific VSAM source data set, specify the fully qualified data set named followed by one or more of the following optional options:

- **{CAPTURE|NOCAPTURE}**. Enter CAPTURE to enable change data capture for the specified data set, or enter NOCAPTURE to disable change data capture for the data set. If you specify NOCAPTURE, the BACKOUTOVERRIDE and BACKOUTFAIL options are ignored.
- **{BACKOUTOVERRIDE|NOBACKOUTOVERRIDE}**. For a recoverable ESDS data set, controls whether to override the return codes from any other active exit programs that are invoked at the XFCLDEL global exit point prior to the PowerExchange EDMKLD*nn* exit program. Enter BACKOUTOVERRIDE to override the return codes from any prior exit programs with the UERCLDEL return code from the EDMKLD*nn* exit program. Enter NOBACKOUTOVERRIDE to percolate the return codes from prior exit programs. If you specify NOBACKOUTOVERRIDE, do not specify NOBACKOUTFAIL.
- **BACKOUTFAIL|NOBACKOUTFAIL}**. For a recoverable ESDS data set, controls whether backouts are allowed to fail after a transaction abend or syncpoint rollback. Enter BACKOUTFAIL to allow backouts to fail, or enter NOBACKOUTFAIL to allow the PowerExchange exit programs that you define at the XFCBOUT and XFCLDEL global exit points to handle backouts as logical deletions with before and after images and continue CDC processing.

If you enter multiple options, separate them from one another with a comma. Do not also use a space between the options. For example:

```
DSN=EDM.VSAM.ESDS4,CAPTURE,BACKOUTOVERRIDE,NOBACKOUTFAIL
```

Note: You can use the options in the DSN statement to override the CAPTURE_*vsam_source_type*, BACKOUTRC, and ESDSFAIL settings for a specific data set only.

If the CICS/VSAM ECCR is active when you set these options, issue the EDMC RESTART command to re-initialize the CICS/VSAM ECCR so that the ECCR can start using the updated CDC override options.

For more information, see the "CICS/VSAM Change Data Capture" chapter in the *PowerExchange CDC Guide for z/OS*.

Command Changes in 10.0

PowerExchange 10.0 introduces changes to CICS/VSAM ECCR commands.

CICS/VSAM ECCR Commands

PowerExchange 10.0 introduces new and changed commands for the CICS/VSAM ECCR.

Enter the commands from the CICS terminal with the “EDMC” default CICS transaction code. Use the following syntax:

```
EDMC command_name
```

The following commands are new or changed:

DISPLAY or DISP

Changed. Now also displays the names of any open VSAM ESDS data sets that are registered for change data capture.

EXITPGMS or XPGM

New. Lists all of the user exit programs that are defined at the CICS global user exit (GLUE) points and task-related user exit (TRUE) that PowerExchange uses for CICS/VSAM CDC. If you have ESDS source data sets, you can use this list to verify that the PowerExchange exit program, EDMKLD*nn*, for handling logical deletes for ESDS backouts is listed last at the XFCLDEL exit point, as required.

OPTIONS or OPTS

New. Displays the CICS/VSAM CDC override options that are currently specified in the //EDMKOVRD DD statement in the CICS region startup JCL or in the data set to which this DD statement points.

REFRESH or REFR

New. Refreshes the display of the CICS/VSAM CDC override options that are currently specified in the //EDMKOVRD DD statement in the CICS region startup JCL or in the data set to which this DD statement points. Also validates these options and identifies any syntax errors. Use this command after you change the override options to identify any syntax errors.

RESTART or REST

New. Re-initializes the CICS/VSAM ECCR in the CICS region by issuing the EDMC TERM command followed by the EDMC INIT command. Issue this command after changing any of the CDC override options in the //EDMKOVRD DD statement in the CICS region startup JCL or in the data set to which this DD statement points so that your changes will take effect.

For more information, see the "CICS/VSAM ECCR Commands" chapter in the *PowerExchange Command Reference*.

PowerExchange 9.6.1 HotFix 1 - New Features and Changes for VSAM and Flat Files

This section describes PowerExchange 9.6.1 HotFix 1 new features and changes that are related to VSAM and sequential or flat file data sources or targets.

New Features in 9.6.1 HotFix 1

PowerExchange 9.6.1 HotFix 1 introduces the following new features for CICS/TS, VSAM, and sequential or flat file data sources:

Enhancement to the Data Map Creation Utility

PowerExchange 9.6.1 HotFix 1 provides an enhancement to the data map creation utility.

You can import COBOL copybooks with multiple 01-level records. For sequential and VSAM data maps, the utility creates one record and one table for each 01-level record in the copybook. The maxRedefines element applies to each 01-level record in the copybook.

To run the utility, issue the infacmd pwx createdatamaps command.

For more information, see the *PowerExchange Bulk Data Movement Guide*.

Support for CICS Transaction Server Version 5.2

PowerExchange 9.6.1 HotFix 1 adds CDC support for CICS Transaction Server (CICS/TS) version 5.2. PowerExchange can capture changes that CICS/TS 5.2 transactions make to VSAM data sets.

The PowerExchange SAMPLIB library contains the new member #CICSV69 for defining the CICS/VSAM ECCR programs and transaction to CICS.

For more information, see the *PowerExchange Installation and Upgrade Guide* and *PowerExchange CDC Guide for z/OS*.

PowerExchange 9.6.0 - New Features and Changes for VSAM and Flat Files

This section describes PowerExchange 9.6.0 new features and changes that are related to VSAM and sequential or flat file data sources or targets.

New Features in 9.6.0

PowerExchange 9.6.0 introduces the following new feature for CICS/TS, VSAM, and sequential or flat file data sources:

Data Map Creation Utility

PowerExchange 9.6.0 provides a utility to generate data maps for IMS, SEQ, and VSAM data sources from the command line. The utility provides an alternative to using the PowerExchange Navigator in certain cases and

allows you to generate or regenerate data maps noninteractively. To run the utility, issue the infacmd pwx createdatamaps command.

The infacmd pwx createdatamaps command uses the following syntax:

```
createdatamaps
[<-pwxLocation|-loc> pwx_location]
[<-pwxUserName|-pun> pwx_user_name]
[<-pwxPassword|-ppd> pwx_password]
[<-pwxEncryptedPassword|-epwd> pwx_encrypted_password]
[<-datamapOutputDir|-dod> datamap_output_directory]
[<-replace|-r> replace_existing_datamaps
<-controlFile|-cf> file_path_for_control_file
[<-logFile|-lf> file_path_for_log_file]
[<-verbosity|-v> logging_verbosity]
```

To run the createdatamaps command, the Informatica services or the Informatica Client must be installed on the machine on which you run the command.

You can create multiple data maps per run, but they must all be of the same data source type.

Caution: Use the createdatamaps utility to create new data maps only. Do not use the utility to modify data maps that are already in use.

For more information, see the *PowerExchange Bulk Data Movement Guide*.

Support for CICS Transaction Server Version 5.1

PowerExchange 9.6.0 adds CDC support for CICS Transaction Server (CICS/TS) version 5.1. PowerExchange can capture changes that CICS/TS 5.1 transactions make to VSAM data sets.

The PowerExchange SAMPLIB library contains the new member #CICSV68 for defining the CICS/VSAM ECCR programs and transaction to CICS.

Support for CICS/TS 2.3 is deprecated.

For more information, see the *PowerExchange Installation and Upgrade Guide* and *PowerExchange CDC Guide for z/OS*.

CHAPTER 21

PowerExchange ODBC

This chapter includes the following topics:

PowerExchange 10.2 - New Features and Changes for ODBC

This section describes the PowerExchange 10.2 new features and changes that are related to PowerExchange ODBC.

Parameter and Option Changes in 10.2

PowerExchange 10.2 introduces changed parameter options for the PowerExchange ODBC driver.

Level Property

Changed. The Level property or parameter for PowerExchange ODBC data sources has changed. This property now applies when you define a value of AES for the Option property and define a value of Y for the Encrypt property.

Enter one of the following values to indicate the encryption level:

- **1**. Use a128-bit encryption key.
- **2**. Use a 192-bit encryption key.
- **3**. Use a 256-bit encryption key.

Default is **1**.

You set the value of the Level property in either of the following places:

- On Linux or UNIX, in the LEVEL parameter in the odbc.ini file
- On Windows, in the **Level** field on the **PowerExchange Data Source** tab of the ODBC Data Source Administrator

For more information, see the "Using the PowerExchange ODBC Drivers" chapter in the *PowerExchange Reference Manual*.

Option Property

The supported values for the Option property or parameter for PowerExchange ODBC data sources have changed The following table identifies new and deprecated values:

Value	New or Deprecated
AES	New
DES	Deprecated
RC2	Deprecated

When you select Y for the Encrypt property, you must now select AES for the Option property.

Note: PowerExchange changes an Option value of DES or RC2 to AES.

You set the value of the Option property in either of the following places:

- On Linux or UNIX, in the ENCRYPT parameter in the odbc.ini file
- On Windows, in the **Encrypt** field on the **PowerExchange Data Source** tab of the ODBC Data Source Administrator

For more information, see the "Using the PowerExchange ODBC Drivers" chapter in the *PowerExchange Reference Manual*.

Array Size Option of the PWXOVERRIDES Parameter

PowerExchange introduces a change to the Array Size option of the PWXOVERRIDES parameter. The maximum value of the Array Size option has been reduced from 100000 to 5000. If you specify a value greater than 5000, PowerExchange changes the value to 5000 and issues warning message PWX-07630.

You can specify the PWXOVERRIDES paramter in the odbc.ini file on Linux or UNIX or in the PowerExchange Data Source wizard on Windows.

PowerExchange 10.0 - New Features and Changes for ODBC

This section describes the PowerExchange 10.0 new features and changes that are related to PowerExchange ODBC.

Parameter and Option Changes in 10.0

PowerExchange 10.0 introduces a changed parameter option for the PowerExchange ODBC driver.

Location Property

You can no longer specify **local** for the Location property or parameter for PowerExchange ODBC data sources on 32-bit Windows systems.

You set the location value in either of the following places:

- On Linux or UNIX, in the LOCATION parameter in the odbc.ini file
- On Windows, in the **Location** field on the **PowerExchange Data Source** tab of the ODBC Data Source Administrator

For more information, see the "Using the PowerExchange ODBC Drivers" chapter in the *PowerExchange Reference Manual*.

PowerExchange 9.6.1 - New Features and Changes for ODBC

This section describes the PowerExchange 9.6.1 new features and changes that are related to PowerExchange ODBC.

Parameter and Option Changes in 9.6.1

PowerExchange 9.6.1 introduces a changed parameter option for the PowerExchange ODBC driver.

DB2 for z/OS Load Options

An option name for the DB2 for z/OS load options changed. DB2 for z/OS load options indicate how the data that PowerExchange provides to the DB2 LOAD utility is loaded into a DB2 table.

You can specify DB2 for z/OS load options in the odbc.ini file on Linux or UNIX or in the Windows ODBC Data Source Administrator on Windows.

On Windows, select one of the following values for the **Load Options** property on the **DB2/S390 Bulk Load Properties** tab:

- **RESUME**. *Changed*. Generates a LOAD RESUME statement. This value replaces the INSERT option.
- **REPLACE**. *Unchanged*. Generates a LOAD REPLACE statement.

Default is RESUME.

The corresponding ODBC parameter on Linux and UNIX is LOADOPTIONS. Use the following LOADOPTIONS settings:

- LOADOPTIONS=1 is equivalent to RESUME.
- LOADOPTIONS=4 is equivalent to REPLACE.

PowerExchange 9.6.0 - New Features and Changes for ODBC

This section describes the PowerExchange 9.6.0 new features and changes that are related to PowerExchange ODBC.

New Features in 9.6.0

PowerExchange 9.6.0 introduces the following new feature for PowerExchange ODBC:

Passphrase Support in PowerExchange ODBC Connections

Effective in PowerExchange 9.6.0, you can enter a valid PowerExchange passphrase instead of password when configuring PowerExchange ODBC relational connections in PowerCenter for access to ODBC sources or targets on z/OS and i5/OS. Passphrases provide enhanced security because they are longer and contain a wide range of allowable character types. You can also use encrypted passphrases.

In PowerCenter Workflow Manager, you can enter a passphrase in the **Password** field of the **Connection Object Definition** dialog box.

An i5/OS passphrase can be from 9 to 31 characters in length. A z/OS passphrase can be from 9 to 79 characters in length. In contrast, passwords are limited to eight characters or less.

Passphrases can contain the following characters:

- Uppercase and lowercase letters
- The numbers 0 to 9
- Spaces
- The following special characters:

  ```
  ' - ; # \ , . / ! % & * ( ) _ + { } : @ | < > ?
  ```

  Note: The first character is an apostrophe.

Passphrases cannot contain single quotation marks (‘), double quotation marks (“), or currency symbols.

To use passphrases, ensure that the following requirements are met:

- The PowerExchange Listener runs with a security setting of SECURITY=(1,N) or higher in the DBMOVER member. For more information, see "SECURITY Statement" in the *PowerExchange Reference Manual*.
- All PowerExchange instances in your environment are at version 9.6.0 or later.

For more information, see *PowerExchange Interfaces for PowerCenter*.

INDEX

E

I

J

L

M

N

O

P

R

S

T

U

V

Z