



**CONNIX 12 SP3**

**Release Notes**

**March 10, 2016**

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## CONNX 12 SP3 Release Notes

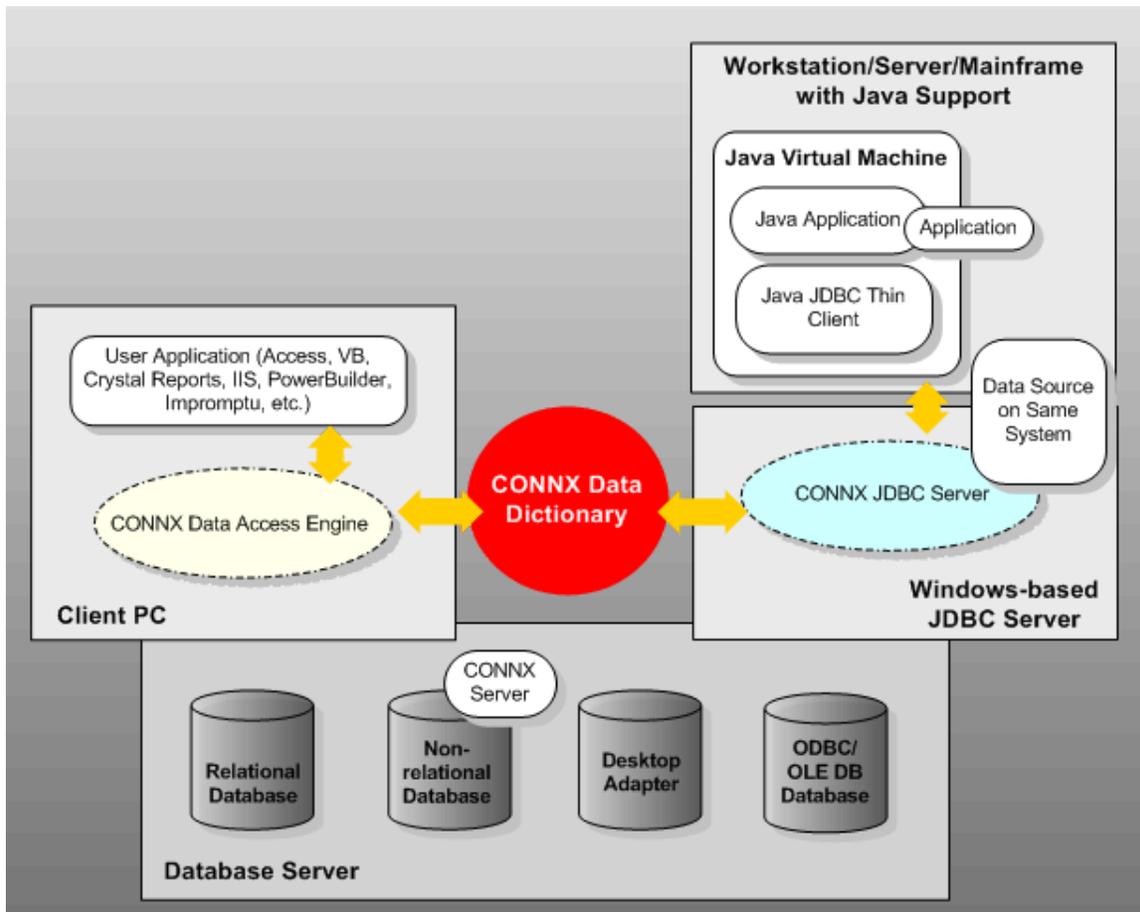
### *Overview*

CONNX provides businesses secure read/write real-time access to all enterprise data from any platform as if all the data existed in one relational database. All data is then accessible using standard SQL and any standards-based application. CONNX acts as a reusable data access framework for projects throughout the enterprise. CONNX supports Adabas, C-ISAM, DB2, DISAM, MicroFocus, VSAM, IMS, Oracle, RMS, Rdb, PostGreSQL, DBMS, DataFlex, POWERflex, SQL Server, Sybase, Informix, and any OLE DB, ODBC, .NET, JDBC, UNIX, or Linux data source.

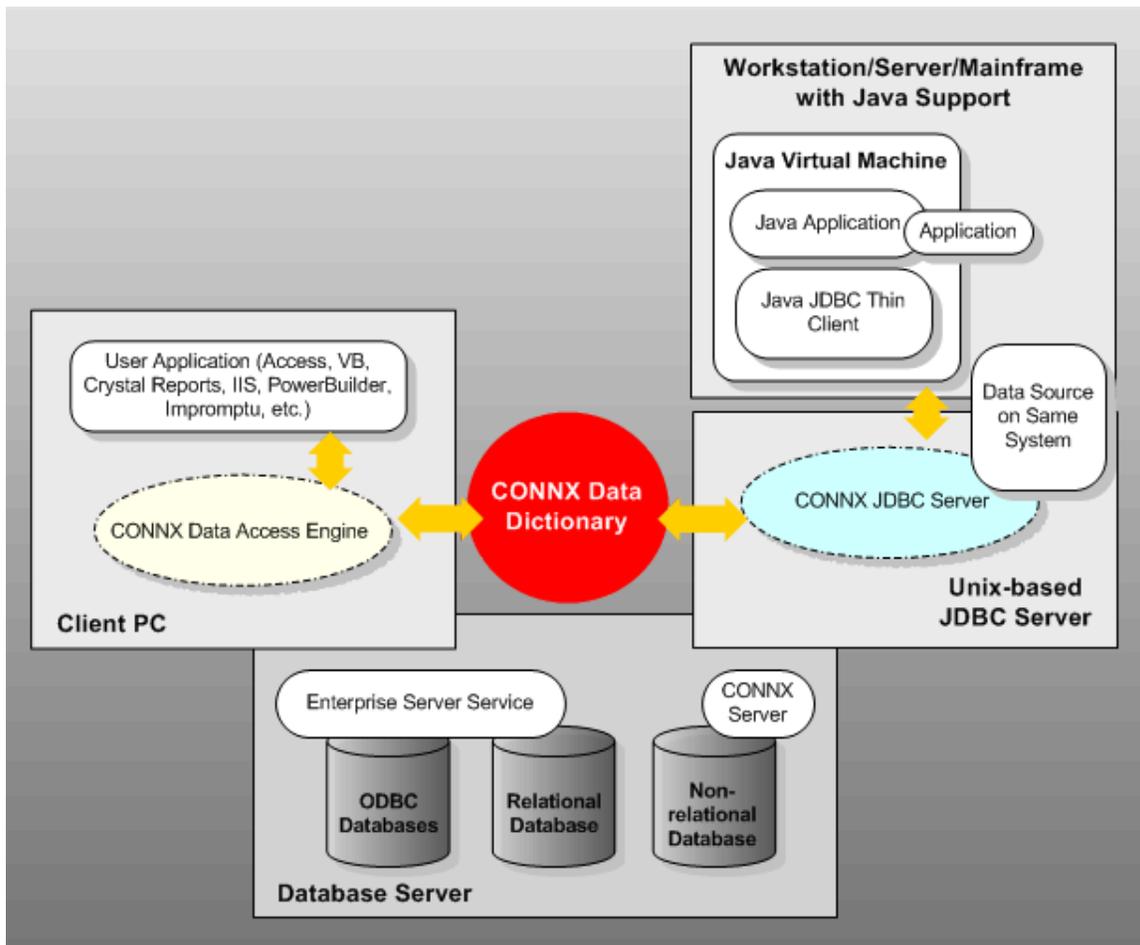
Here are just some of the implementations in which CONNX 12 can be utilized:

Data Migration	Web Development
Application/ Data Integration	Application Development
Ad Hoc Reporting	Data Warehousing

### CONNX Architecture on Windows



### CONNX Architecture on UNIX



### ***CONNX Architecture (ODBC/JDBC/OLEDB/.NET Provider)***

CONNX initially began as an ODBC Driver to RMS Data sources but since has evolved into a middleware product that has drivers/adapters for many different interfaces and data sources. The client is based on an ODBC driver, which is a dynamic link library that applications call to access data located in remote systems. The CONNX ODBC driver processes the ODBC function calls, submits requests to the appropriate data source, and then returns the results.

### ***CONNX Client Engine for Windows***

The CONNX Client Engine is based on an ODBC driver, which is a dynamic link library that applications call to access data located in remote systems. The CONNX ODBC driver processes the ODBC function calls, submits requests to the appropriate data source, and then returns the results.

### ***CONNX Client Engine for Unix***

The CONNX Unix Client is based on an ODBC driver, which is a shared library that applications call to access data located on remote systems.

### ***CONNX Data Dictionary***

The CONNX Data Dictionary (CDD) is a repository of information about the database tables and fields accessed through CONNX, including structure and security. It contains the metadata about the source information and provides a GUI screen for easy and intuitive maintenance of the metadata, stored procedures, security, and views.

### ***CONNX Server***

All CONNX servers are full-featured and translate SQL requests into native database requests. The CONNX ODBC driver makes the server transparent to the end user. Server functions for DataFlex, Oracle, and DB2 are resident on the client PC. The third-party driver determines the location of the server components for ODBC and OLE DB data sources.

### ***CONNX JDBC Thin Client***

The CONNX JDBC thin client allows read/write access to a CONNX data source from any client machine possessing a JDK (1.3+). JDKs exist for most platforms. The CONNX JDBC thin client is a Type 3 driver that processes the JDBC function calls and submits requests to the CONNX JDBC Server and then returns the results.

### ***CONNX JDBC Server***

The CONNX JDBC server handles requests from the CONNX JDBC thin client and accesses the target data sources. The CONNX JDBC server component is available as either a Microsoft Windows or Unix server component that enables access to multiple heterogeneous data sources.

### ***CONNX JDBC Router***

The CONNX JDBC Router component is necessary only if Web applets are served by a non-Windows Web server. The router is a Java application placed on the non-Windows Web server. It is designed to route JDBC requests to the CONNX JDBC server.

The CONNX JDBC Router is required for installation if any of the following conditions apply:

- The Java Applet is served by a Web server that is hosted on a different machine than the JDBC Server that is being called by the applet; for example, when the JDBC Server is on machine PROD1 and the Web Server is on machine PROD2.
- The Java Applet is served by a Web Server that is running in a browser.

### ***CONNX DataSync***

The CONNX DataSync component is a stand-alone product available to customers who purchase a CONNX DataSync License. It offers the ability to synchronize tables and views from a source database to a target database. It includes a scheduler to specify at which times the synchronizations can take place. It also offers the ability to incrementally synchronize the target feed when changes take place on the source.

### ***CONNX DataSync Transformation Server***

The CONNX DataSync Transformation Server component is a standalone product available to customers who purchase a CONNX DataSync Transformation Server License. It extends the functionality of CONNX DataSync by offering the ability to create data transformations; for example, a source feed that includes multiple tables joined together, aggregate queries, or complex functions. The product offers many features that allow it to be classified as an ETL Tool.

### ***CONNX Excel Add-in (new in CONNX 12 SP1)***

The Excel Add-In allows for a quicker and easier data access to any data source within Microsoft Excel. The CONNX wizard will allow a streamlined connection and data selection for the over 100 supported data sources. CONNX extends Excel to allow for connection to multiple data sources and allows joins between tables from different data sources

### ***CONNX KPiSync (new in CONNX 12 SP1)***

CONNX KPiSync is a Mobile Application to help users 'Visualize their Key Business Metrics on any device in real time'. The CONNX KPiSync solution was designed with the purpose of providing users with a quick and easy method of delivering Key Performance Indicators from all facets of a business to users via any device, smartphone tablet, or PC.

CONNX KPiSync keeps you in touch with your critical business information (KPI's - key performance indicators) from any corporate application or data store, any time, all the time, real-time, whether you are in the office, on the go, or at home. KPiSync makes it simple to keep track of your critical business metrics simply by defining a key performance indicator which will query your enterprise data. These indicators are then pushed to your desktop, laptop, tablet, or mobile devices, using our secure Microsoft Azure Cloud.

### ***CONNX Client PC Functions***

Functions for the client PC in the CONNX distributed architecture include the following:

Data Conversion	Sorting
Metadata Retrieval (CONNX CDD)	Grouping
First Pass SQL Optimization	Extended SQL Functions
Partial Joins	CONNX Security

***CONNX Server Functions***

Functions for the data server in the CONNX distributed architecture include the following\*:

Indexed Retrieval	Data Compression (on Request)
Non-Index Retrieval	Remote Procedure Calls (RPCs)
Partial Joins	Database Security Client

\*DataFlex, POWERflex, Oracle, and DB2 the server functions are resident on the client PC.

## Requirements for CONNX 12 SP3

### *Data (Host) Server Requirements*

Please see the accompanying documentation for additional System Requirements.

<b>Database</b>	<b>Hardware</b>	<b>Network</b>	<b>Operating System</b>	<b>Memory/ HD requirements</b>
Digital RMS (any version)	Compaq/DEC VAXServer Compaq/DEC AlphaServer	UCX 3.0 or above compatible TCP/IP Software or DECnet Phase IV or above	OpenVMS/VAX OpenVMS/Alpha {AXP] VMS 5.3 and above Itanium 64-bit	12mb VAX 32 mb Alpha Working Memory 20k Blocks HD avail
Oracle Rdb (version 4.1) (version 6.0 and above)	Compaq/DEC VAXServer Compaq/DEC AlphaServer	UCX 3.0 or above Compatible TCP/IP Software or DECnet Phase IV or above	OpenVMS/VAX OpenVMS/Alpha [APX] VMS 5.3 and above	12mb VAX 32 mb Alpha Working Memory 20k Blocks HD avail
Oracle DBMS (version 4.3 and above)	Compaq/DEC VAXServer Compaq/DEC AlphaServer	UCX 3.0 or above Compatible TCP/IP Software or DECnet Phase IV or above	OpenVMS/VAX OpenVMS/Alpha [APX] VMS 5.3 and above	12mb VAX 32 mb Alpha Working Memory 20k Blocks HD avail
Oracle RDBMS (version 7.3 and above)	Compaq/DEC VAXServer Compaq/DEC AlphaServer Personal Computer (Intel) Sun Workstation IBM RS/6000(AIX)	SQLNet 2.x And TCP/IP Or IPX/SPX	OpenVMS/VAX OpenVMS/Alpha VMS 5.3 and above [APX] Microsoft Windows NT UNIX(ANY)	12mb VAX 32 mb Alpha Working Memory 20k Blocks HD avail

Database	Hardware	Network	Operating System	Memory/ HD requirements
C-ISAM	SunSparc RS/6000 Intel HP Server	TCP/IP	SunOS AIX Linux SCO HPUX Windows XP SP2 and above	5 mb of HD space 32mb RAM
DISAM	SunSparc RS/6000 Intel HP Server	TCP/IP	SunOS AIX Linux SCO HPUX Windows XP SP2 and above	5 mb of HD space 32mb RAM
Micro Focus	SunSparc RS/6000 Intel HP Server	TCP/IP	SunOS AIX Linux SCO HPUX Windows XP SP2 and above	5 mb of HD space 32mb RAM
DataFlex & PowerFlex (any version)	Personal Computer Sun Workstation	Any supported protocol under Windows	Windows, UNIX	
Any OLE DB Compliant data source Sybase Informix SQL Server	No requirements except those of the database itself and the third-party driver An ODBC Level 2- compliant driver must exist for the platform and database.	TCP/IP software Requirements of third-party driver	No requirements except those of the database itself and the third-party driver	No requirements except those of the database itself and the third- party driver

<b>DB2 Database</b>	<b>Hardware</b>	<b>Network</b>
DB2/6000; DB2 UDB for AIX	AIX 4.3 and above	TCP/IP and SNA/LU 6.2
DB2/MVS V4R1 and above	MVS	SNA/LU 6.2 only
DB2 UDB for z/OS and OS/390	z/OS and OS/390	TCP/IP and SNA/LU 6.2
DB2/400 V3R1 and above	OS/400	SNA/LU 6.2 only
DB2/400 V4R2 and above; DB2 UDB for iSeries	OS/400 and iSeries	TCP/IP and SNA/LU 6.2
DB2 UDB Enterprise Server Edition	Windows XP SP2 and above	TCP/IP and SNA/LU 6.2
DB2 UDB for Linux Enterprise Server Edition	Linux	TCP/IP
DB2 UDB for OS/2 Enterprise Edition (version 7.0 and below)	OS/2	TCP/IP and SNA/LU 6.2

<b>CONNX for VSAM Product</b>	<b>Operating System</b>	<b>Supported File Types</b>	<b>Network Software</b>	<b>CICS Version/Release</b>
CONNX for CICS/VSAM	OS/390 and z/OS	VSAM	TCP/IP V3R2 and above	V4R1 or TS 1.x and above
CONNX for VSAM / QSAM / PDS	OS/390 and z/OS	VSAM / QSAM / PDS	TCP/IP V3R2 and above	N/A
CONNX for CICS/VSAM	VSE 2.3 and below	VSAM	TCP/IP (CSI / IBM), Barnard TCP/IP Stack	V2R3 and below
CONNX for CICS/VSAM	VSE 2.4 and above	VSAM	TCP/IP (CSI / IBM), Barnard TCP/IP Stack	TS 1.1.1 and above

<b>Adabas SQL Gateway (CONNX for Adabas) Product</b>	<b>Operating System</b>	<b>Network Software</b>
Adabas	OS/390, z/OS, VSE, Windows XP SP2 and above, Solaris, HPUX, AIX, VSE, Linux Intel, Linux 390	TCP/IP, Barnard TCP/IP Stack (VSE only)

***CLIENT PC REQUIREMENTS***

	<b>Minimum</b>	<b>Recommended</b>
Available space on hard drive	150 MB	250 MB
OS	Windows XP SP2 and above (32/64bit)	Windows XP SP2 and above (32/64bit)
Network Connectivity	Microsoft TCP/IP OR DECNET Pathworks 7.0 + (RMS, RDB, DBMS Only) OR Oracle OCI Client (Oracle Only) OR SNA/LU.6.2 with TCP/IP or DLC Network Protocol (DB2 Only)	Microsoft TCP/IP OR Oracle OCI Client (Oracle Only)
Access or permission on the appropriate databases	YES	YES

### ***Unix Client System Requirements***

<b>PC Linux Client System Requirements</b>	
Hardware	Processor: Intel Pentium class Memory: 512 MB
Operating System	Any Linux OS which supports Linux Kernel 2.6.18 or above, for example, Fedora Core Release 6 or above, RedHat Enterprise Linux, version 4 or above, or SUSE Enterprise Linux 11 or above. Please see the documentation for your specific Linux distribution to determine the Linux kernel version.
Free Hard Disk Space	50 MB
Software – ODBC Driver Manager	Any ODBC Driver Manager

<b>Solaris Client System Requirements</b>	
Hardware	Processor: UltraSPARC Memory: 512 MB
Operating System	Sun OS 5.8 or above
Free Hard Disk Space	50 MB
Software – ODBC Driver Manager	Any ODBC Driver Manager

<b>AIX Client System Requirements</b>	
Hardware	Processor: IBM e-Server P-Series or RS/6000 Memory: 512 MB
Operating System	AIX 5.x Operating System: IBM AIX 5L Version 5.1, system maintenance level 2 (64-bit) or Version 5.2
Free Hard Disk Space	50 MB
Software – ODBC Driver Manager	Any ODBC Driver Manager

<b>HP-UX Client System Requirements</b>	
Hardware	Processor: PA-RISC Memory: 512 MB
Operating System	HP-UX 11.0 (64-bit) or HP-UX V11.11i (64-bit)
Free Hard Disk Space	50 MB
Software – ODBC Driver Manager	Any ODBC Driver Manager

### ***JDBC Pure Java Client Requirements***

<b>Requirement</b>	<b>Minimum</b>
JDK*	1.3 for JDBC server. 1.7 for JMS server
Hard Drive Space	10 MB Free
Network Connectivity	TCP/IP

### ***Obtaining a current JDK (Java Development Kit)\****

JDKs are available through your platform vendor.

<b>Platform</b>	<b>URL</b>
Windows XP SP2 and above	<a href="http://www.oracle.com/technetwork/java/archive-139210.html">http://www.oracle.com/technetwork/java/archive-139210.html</a>
Sun Solaris	<a href="http://www.oracle.com/us/sun/index.htm">http://www.oracle.com/us/sun/index.htm</a>
Linux	<a href="http://www.oracle.com/technetwork/java/javase/overview/index.html">http://www.oracle.com/technetwork/java/javase/overview/index.html</a>
VMS-Alpha	<a href="http://www.compaq.com/java/download/index.html">http://www.compaq.com/java/download/index.html</a>
SCO Unix	<a href="http://www.sco.com/developers/java/">http://www.sco.com/developers/java/</a>
IBM (AS/400, OS/390, VM/ESA, AIX, z/OS,VSE)	<a href="http://www.ibm.com/developerworks/java/jdk/">http://www.ibm.com/developerworks/java/jdk/</a>
SGI	<a href="http://www.sgi.com/partners/?/devtools/languages/javafaq.html">http://www.sgi.com/partners/?/devtools/languages/javafaq.html</a>
HP-UX	<a href="http://h18012.www1.hp.com/java/download/">http://h18012.www1.hp.com/java/download/</a>

\* The platform vendor is usually the best source for platform specific JDKs. JDK required for CONNX client machine using JDBC only. Please follow your vendor's instructions for installation.

**Compatible Front Ends**

OLE DB	ODBC	JDBC	Application
	√	√	Any JDBC-compliant application
√	√		Any ODBC- or OLE DB-compliant application
		√	Apache Web Server
√	√		Borland C++
√	√	√	Borland Delphi
	√	√	Borland JBuilder
	√		Cognos Impromptu
√	√	√	Crystal Reports
	√		Dharma ODBC Integrator
	√		GIS (Geographical Information Software)
√	√	√	Internet Information Server (IIS)
	√		JetForms
√	√		Microsoft Access
	√		Microsoft Excel (MSQuery)
√	√		Microsoft SQL Server (linked server technology)
	√		Microsoft Transaction Server (MTS)
√	√		Microsoft Visual Basic
√	√		Microsoft Visual Basic for Applications (VBA)
√	√		Microsoft Visual C++, Microsoft Visual Studio
√	√		Microsoft Visual Studio .NET
	√	√	Netscape (iPlanet) Enterprise Server
	√		Oracle Developer/Designer 2000
	√		Oracle Discover
	√		Oracle Heterogeneous Services
√	√		PowerBuilder
√	√		Paradox for Windows
	√		Sagent
	√	√	Star Office

<b>OLE DB</b>	<b>ODBC</b>	<b>JDBC</b>	<b>Application</b>
		√	Sun Forte
		√	Sun Netbeans
		√	Sun Netra Web Server
	√		Visual FoxPro for Windows

## Installation Instructions

Installation instructions for CONNX are available from <http://www.connx.com/products/helpdesk.html>

### 64 bit Considerations

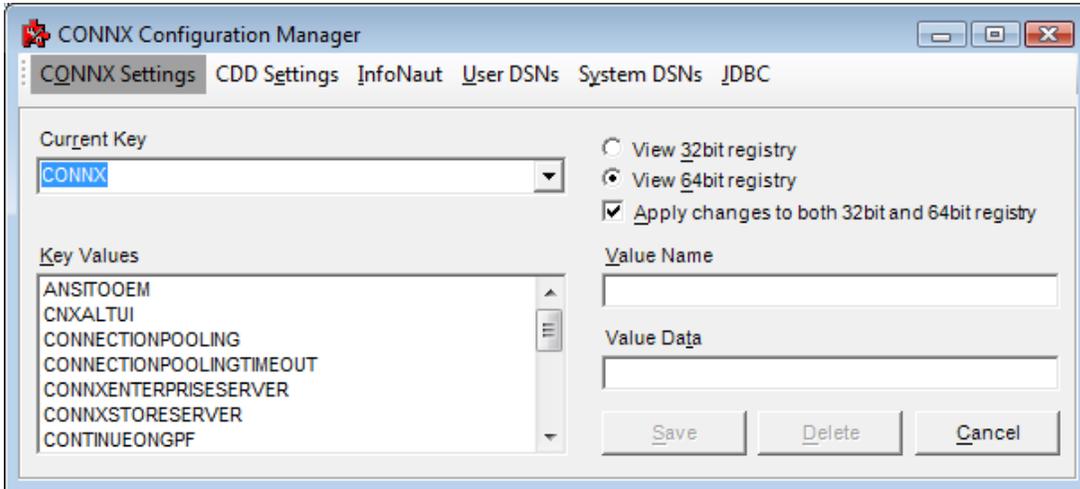
When CONNX 12 SP1 is installed on a 64 bit Windows operating system, both the 32 bit and the 64 bit components of CONNX are installed. By default, the 32 bit components are installed in C:\CONNX32 and the 64 bit components are installed in C:\Program Files\CONNX. Both 32 bit and 64 bit executables are accessible from the Start Menu. Note: When CONNX 12 SP1 is installed on a 32 bit Windows operating system, only the 32 bit components are installed.

#### **Accessing 32 bit only data sources from 64 bit applications**

It is possible to access a 32 bit only data source, such as Adabas on Windows, Dataflex on Windows, C-ISAM/D-ISAM on Windows, etc. from a 64 bit application using the CONNX 12 Enterprise Server Service (ESS). Using the ESS, a 64 bit application such as MS SQL Server can load the 64 bit CONNX 12 client. The CONNX Solutions CDD can then be configured to access the 32 bit data source via the 32 bit Enterprise Server Service. This configuration allows the 64 bit client to call into the 32 bit ESS via TCPIP which, in turn, is able to load the 32 bit only DLLs used to access the data. The opposite is also true: if you have a 64 bit only data source that you need to access from a 32 bit application, you can use the 64 bit ESS to access the data and pass it to the 32 bit CONNX client.

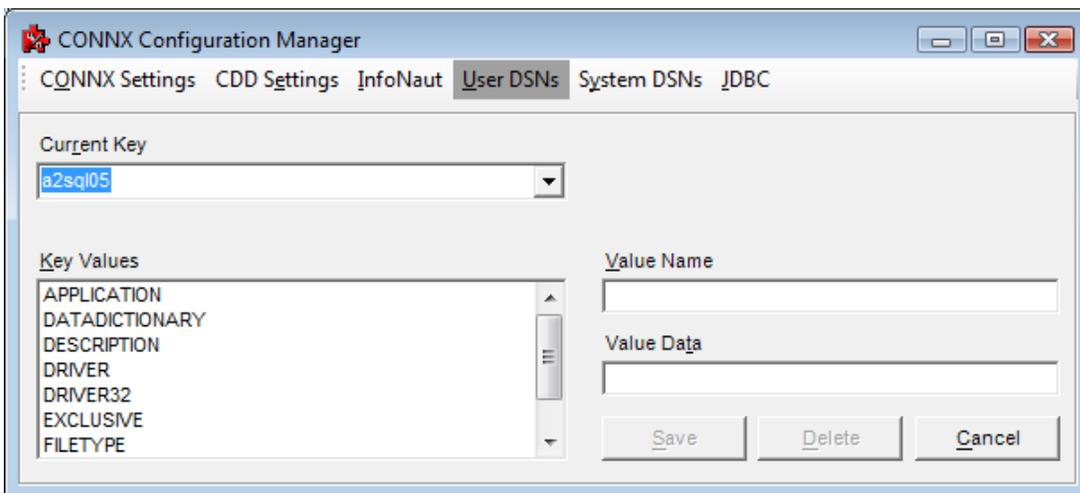
### Configuring 32 bit and 64 bit components

CONNX is configured with the CONNX Configuration Manager. With CONNX 12, the CONNX Configuration Manager can be used for managing both the 32 bit and 64 bit components.



There is a new radio button to select which registry setting to configure. Usually, the registry settings will be the same for both the 32 bit and 64 bit components. Checking the “Apply changes to both 32bit and 64bit registry” checkbox will cause a setting made for one component to be made for the other, as well. There are some settings, however, where it may be necessary to maintain different values for the two components; for example the port the ESS listens on. In these cases, this check box should be unchecked when changing the value.

On the InfoNaut tab and the User DSNs tab, the settings are not differentiated between 32 bit and 64 bit. The selection radio buttons are not displayed, and any settings that are made automatically apply to both.



**Default Ports**

The following is a list of 32 and 64 bit components and the default ports they listen on:

Component Name	Default Port
32 bit Enterprise Server Service	6500
64 bit Enterprise Server Service	6502
32 bit JDBC Server	7500
64 bit JDBC Server	7502
License Server	7501
Open Systems Event Replicator Message Queue	9200
Open Systems Event Replicator Controller	9205
JMS Server	7600

If CONNX is installed in an environment where a firewall is present, these ports need to be opened.

## User Account Control (UAC)

CONNX 12 fully supports environments running the Microsoft Windows User Account Control. Because the CONNX Configuration Manager and DataSync require read/write access to the registry, the following notes apply:

- **CONNX Configuration Manager**
  - **With the UAC on:**

The CONNX Configuration Manager requires administrator level permissions to have read/write access to all registry settings except for those located on the InfoNaut and User DSN tabs. If the user has administrator rights on the system, the CONNX Configuration Manager will request promotion to an administrator level. Depending on UAC settings, the user may or may not be prompted. If the user does not have administrator rights, the CONNX Configuration Manager will allow the user to view settings in a read-only mode. The InfoNaut and User DSN tabs will function in a read/write mode even if the user does not have administrator rights on the system.
  - **With the UAC off:**

No special permissions are required. The CONNX Configuration Manager will function without prompting as long as the user has authority to execute programs and has access to the CONNX directory.

## Changes/Bug Fixes for CONNX 12 SP3

### New Features

- **Open Systems Event Replicator:**
  - Support for Adabas to Adabas replication changes made via the adaopr command line utility
  - Added support for selectively undeploying replications from the Deployed Replications Tab
- **Added support for Adabas mixed case FDTs**
  - **To activate, set MIXEDCASEGRAMMAR to 1 in the CONNX\ADABAS key in the CONNX Configuration Manager for Windows or the CONNX.ADABAS key in the CONNX SQL Registry on Linux/UNIX.**
- **Added support for Teradata**
- **Added in support for getting the proper schema timestamp when importing Adabas tables**

These are the major issues that were resolved and features that were added in CONNX 12 SP3:

### CONNX client/server

- Fixed fractional error for timestamps in temporary tables
- Fixed error with unsupported Oracle time functions – now process by CONNX
- Fixed problem with NVARCHAR data not being returned correctly in Oracle
- Fixed error where data server on VSE did not always shut down properly when using the Barnard TCP/IP stack
- Added support for Teradata
- Fixed Group By error on column alias that is *\*also\** a column name
- Fix for problem with "ODBC Only" where an error returned by SQLFetch was not diagnosed properly
- Fixed DISAM error message on DROP TABLE when in same connection after insert
- Fixed problem where a trailing statement terminator semicolon caused a case statement query to fail
- Fixed errors with 8 byte integers (BIGINT)

- Fix for dataflex descending/ascending indexes
- Fixed RDB problem on Itanium systems where REAL data type not working correctly
- Added support for getting the proper schema timestamp when importing Adabas tables
- Added support for mixed case Adabas FDTs
- Fixed problem with keyword names and name quoting
- Added setting that will always allow NULLS to be inserted - useful for IMS variable length segments
- Fixed problem with ROLLBACK not working for IMS with the DLI (batch) interface
- IMS DLI - Add configurable CNXPARMS parameters for the DFSRRC00 parameters. They are in the form of IMSxxxx where xxxx is the IBM name of the parameter
- Fixed intermittent Oracle timestamp bug
- Fix for error reporting with ODBC interface

### **JDBC Server**

- Fixed error where we were not issuing rollback on transactions placed into the pool

### **CDD Manager**

- Fixed problem where when turning security on for one column of a table, the table is no longer visible to Infonaut
- Fixed problem with left over data when a user is deleted
- Added powerhouse import to DISAM
- Fixed errors with copybook imports for IMS
- Fix for IMS Import with occurs clause not setting code page properly
- IMS - fixed FABMMAIN output parsing error. If there were more than 9 PCBs and the 10th or greater PCB referenced a different DBD, it was not being processed

### **Open Systems Event Replicator**

- Fixed error in EC engine where it failed to initialize the record loaders after coming up from a bad shutdown
- Fixed problem where the EC was logging initial state replay errors when debug was turned off

- Added the ability to selectively undeploy a replication from the deployed replications tab. **Note:** For Adabas to Adabas replications, you will no longer be able to undeploy a replication from the deployed replications tab. For Adabas to Relational replications, this method will still work but is considered deprecated
- Replications added, removed or modified via the adaopr command line utility will now be picked up and displayed properly in the Replication Administrator.
- Fix to allow the Enterprise and Desktop adapters to create tables with Unicode wide characters
- Fixed a problem where if the user changes the CONNX User password in the cdd, but does not change it in the Rep Admin config servers screen before they deploy again it leaves the controller in a wait state

### **KPiSync**

- Fixed notification errors

### **InfoNaut**

- Fixed issues when doing updates in the grid

### **License Server**

- Fixed problem where the license server crashed if the license database was unreadable. It now issues an error message in the log

### **DataSync**

- Fixed error where transformation server was unable to create Oracle index when multiple indexes use the same column
- Fixed some cryptic error messages
- Prevent CONNXStore from logging to the Windows Event Viewer
- Solve problem where the hosts file contains an entry like <machine-address> localhost which effectively removes localhost from being used as a machine name with psql
- Corrected problem with inserts into RDB with NULL values



## **Install**

- Fixed problem where temp files were not being written to tempinst directory
- Prevent installation from continuing if the upgrade from previous version of CONNXStore fails
- Fixed error where installer would sometimes reboot without a prompt before the installation was finished
- Fixed error that occurred if the tempinst folder did not exist
- Fixed FTP errors when installing to VSE and OpenVMS
- Fixed JCL errors when installing IMS to zOS with SMS enabled
- Changed IMS Utility HLQ to fully qualified path

## **Changes/Bug Fixes for CONNX 12 SP2**

These are the major issues that were resolved and features that were added in CONNX 12 SP2:

### **CONNX client/server**

- DECNet is no longer supported on OpenVMS systems. This affects RMS, RDB and DBMS server components.
- Added new Wizards to simplify the creation and deployment of CONNX SSIS packages in SQL Server.
- Fixed crash on some Unix systems when gethostbyname was called and there was no entry in the hosts file.
- Added SESSION support for Adabas so that the RCI Session name appears in show sessions
- Added support for Redshift
- Added support for Netezza
- Added create table support for HIVE
- Added {noclientfilter} option so that all client filtering will be bypassed
- Fixed crash when stopping Adabas data server on mainframe.
- Fixed a bug found from the incorrect column size being returned on an nvarchar column in the schema tables
- Fix problem where OLEDBProvider would not properly handle multiple errors - last one was always overwritten

- Fix bugs in ODBC implementation of Create Table - and added redshift support to automatically lowercase the tablename
- Fixed Abend s913 on mainframe data servers. This error occurred if the user that the data server was running as did not have permission to open a spool file
- Fixed crash when querying schema table VIEW\_TABLE\_USAGE and there are views in the CDD that reference non-existent columns
- Fix problem where subqueries in UNION statements would incorrectly attempt to resolve columns from the "top" union statement instead of its parent.
- Fix so that a call to get next rowset does not destroy the context for prepared passthrough queries
- Fix problem with order in which we were releasing OLEDB Interfaces
- Fix for problem with mixed desc/asc indexes with Dataflex
- Added a guard to prevent a crash when a query is issued on a connection that has not been established.
- Fixed problem where we generated the wrong key length in the format buffer for MUs within a PE for Adabas
- Added the ability to create a TIMESTAMP column for Oracle
- Fixed a memory overwrite in the code that processes Adabas blobs
- Fixed IMS import errors
- Fixed memory leak in IMS DLI server
- Fixed bug where IMS DLI server was not issuing rollbacks
- Added a new setting FORCESHARECONNECTIONS that will force connection sharing on read/write connections (needed for IMS Batch - where we can only have 1 data server instance)
- Fix bug where {maxrows x} with order by was not returning correct data.

### **JDBC Server**

- Added support for updatable cursors
- Change default JDBC Packet size from 8k to 64k
- Adjusted JDBC logging so we redisplay the SQL statement on re-executes of prepared statements.
- Fix to set the Adabas session ID (even if not set) unconditionally, so old session IDs are not displayed if connection pooling is enabled

- Added USER name logging
- Fix case problem with connxJdbc.jar (should be connxjdbc.jar)

### **CDD Manager**

- Updates to the CDD Manager GUI. This updates the menu, toolbar, icons in tree view and the grid controls. Size and position of frames are now sticky.

### **Open Systems Event Replicator**

- Fixed timeout error when deploying a large number of producers
- Fixed error with mixed mode Adabase to Adabase (A2A) and Adabas to Relational (A2R). If an A2A and A2R replication were deployed from the same EP and then one of them was removed on a redeploy leaving only the other, the admin showed the replication as being removed, but it was still replicating in the EP.
- Fixed erroneous message stating possible skipped transaction.
- Fixed intermittent crash in engine when it was starting after a bad shutdown

### **KPiSync**

- Added subscription support. The KPiSync admin can now specify which KPi's or groups of KPi's will be seen by which users.

### **InfoNaut**

- Added missing hotkeys to main window
- Fixed problem where infonaut was not using the correct regional date format for dbms date values in non-US regions.

### **License Server**

- Added support for offline revoke

## **DataSync**

- Fixed errors while upgrading from CONNXStore version 7 to version 9.
- Corrected CONNXStore errors when installed in a directory that contains spaces in the name.
- Fixed bug where Compact Database issued an error saying it couldn't find a role name
- Fix for DataSync CDC Transform bug, if multiple unique indexes were present, DataSync was just picking the best one. However now it saves the index that the user selects so the sync uses that one. Only for CDC transforms.

## **Install**

- Modernized server installer and Unix/Linux installer GUI's to be consistent with industry standard look and feel.
- Enhanced Unix/Linux installers to allow SFTP and SCP transfers in addition to the previous FTP and manual modes.
- Enhanced Mainframe installer to allow RMODE=SPLIT.
- Enhanced z/VSE installer to allow selection between active and passive FTP.
- Replaced CONNX Solutions program folder on the Windows Start menu with separate folders for each CONNX product. This change makes us consistent with the new Windows 10 menu structure.  
Note: the shortcuts that were previously in CONNX Solutions | CONNX are now in CONNX Driver.

## Changes/Bug Fixes for CONNX 12 SP1

### New Features

#### *CONNX Excel Add-in*

The Excel Add-In allows for a quicker and easier data access to any data source within Microsoft Excel. The CONNX wizard will allow a streamlined connection and data selection for the over 100 supported data sources. CONNX extends Excel to allow for connection to multiple data sources and allows joins between tables from different data sources

#### *CONNX KPiSync*

CONNX KPiSync is a Mobile Application to help users 'Visualize their Key Business Metrics on any device in real time'. The CONNX KPiSync solution was designed with the purpose of providing users with a quick and easy method of delivering Key Performance Indicators from all facets of a business to users via any device, smartphone tablet, or PC.

CONNX KPiSync keeps you in touch with your critical business information (KPI's - key performance indicators) from any corporate application or data store, any time, all the time, real-time, whether you are in the office, on the go, or at home. KPiSync makes it simple to keep track of your critical business metrics simply by defining a key performance indicator which will query your enterprise data. These indicators are then pushed to your desktop, laptop, tablet, or mobile devices, using our secure Microsoft Azure Cloud.

These are the major issues that were resolved and features that were added in CONNX 12 SP1:

#### **CONNX client/server**

- Added support for uniqueidentifier data type (GUID) in SQL Server
- Added a new function - datechar, that can be used to convert a date to char in 4 different formats - usa, iso, jis, eur - this matches the DB2 CHAR function capabilities
- Fix problem where using a subquery as a temp table with DB2 would generate a syntax error
- Added CONNX.ORACLE.SHOWBULKMODE configuration setting so a text file will be created to explain why bulk mode for oracle is not used
- Fixed errors with Oracle Bulk Mode
- Added feature to force bulk mode for Oracle
- Added support for Adabas Blobs on mainframe
- Made default data type on oracle table creation for longvarchar, longvarbinary and nlongvarchar as - CLOB, BLOB and NCLOB respectively

- Fixed errors in Unicode CLOB support in Oracle
- Fixed errors with Oracle Big Double data type
- Implemented ODBC based distributed XA transactions that work with the Microsoft Distributed Transaction Coordinator
- Fix Now, current\_date, current\_time function for informix – corrected to use TODAY instead of SYSDATE
- Added NULL\_SUPPRESSION column to the Adabas schema table COLUMNS
- Added RMS configuration option CNXRMSIGNOREERROR which will allow CONNX to skip corrupted RMS records
- Added support for password protected access to microfocus fileshare files - we now automatically pass the CONNX userid & password to microfocus for authentication
- Fix crash in 64bit ODBC Driver when using SQL Server linked server
- Fix for MySQL Driver crash when we attempt to reposition the cursor after we reach end of cursor
- Fix for Adabas response code 48 when making lots of simultaneous connections
- Added logic so that we propagate the SQL server isolation level to CONNX data server for distributed transactions
- Fixed problem where SQLCancel would sometimes hang
- Added SSIS Adapter support for SQL Server 2014
- Fixed problem where trailing spaces were being inserted on passthrough updates when the source was CHAR and the target was VARCHAR.
- Fixed a crash that was due to EXISTS being optimized in such a way that there were two references to the same subsql
- Fixed a problem where long running queries ( multiple days) would display incorrect time with {show sessions}
- REGION parameter in JCL for mainframe servers changed to OM.
- Mainframe servers - changed default for ALLOWMIXEDPWD from 0 to 1. This will allow mixed case passwords on the mainframe data servers. If mixed case passwords are not enabled on the mainframe, this setting should be set to 0 in CNXPARMs.
- Fix bug where GroupBy for CHAR data type did not honor the case sensitivity setting
- Fix to ensure that we do not fetch more elements that actually exist in an Adabas file (for mainframe)
- Fix for Adabas when MU within PE returning NULL for occurrences > 180 on mainframe when the MUX flag was not set on the Adabas file.
- Implemented DECODE/SWITCH for RDB
- Fix problem where RCIClient will be stuck in infinite loop if RECV returns zero due to JDBC server crashing.
- Fixed intermittent crash when using {showsessions}
- Added CLIENTID to {showsessions} output for Adabas

## **JDBC Server**

- Fix issue with GetMaxRows and GetFetchSize returning an error before statement execution
- Fixed problem where JDBC server would hang if there were more than 1024 connections

## **CDD Manager**

- Fix problem where precision was not being imported properly with quadword decimal with RDB
- Fixed rotated array assistant - was not indenting properly
- Fixed import problems with long column and table names
- Fix for VMSBrowse - so that we will try logicals both with and without [000000]

## **Data Dictionary Viewer**

- Added in display of Adabas short name of indexes in data dictionary viewer

## **Open Systems Event Replicator**

- JMS enhancements
  - Added JMS support for Software AG Universal Messaging Server
  - Added JMS support for any JNDI compliant JMS server
  - Added XML for Create Table which allows the JMS consumer to get the metadata for the target table
  - Added XML for Drop Table
- Fixed JMS bug where the XML was not properly escaping < (less than), > (greater than), ' (apostrophe), " (double quote) and & (ampersand). <>'"& are now escaped as &lt; &gt; &apos; &quot; &amp;
- Added support for SQL Server as a replication source.
- Fixed initial state bug where on-demand initial state was not working for replications that were deployed with the "suppress initial state" option.
- Replication is no longer supported on 32bit operating systems.
- Changed Replication Administrator to allow Oracle Targets to use Unicode Characters
- Fixed problem where we were getting two license locks for A2A replication instead of one when the Replication Administrator connected to an A2A cdd.
- Fixed controller bug where it was waiting 50+ minutes before timing out on a failed EP connection and was not responding to status or deploy requests.
- Corrected HPUX engine crash on undeploy
- Fixed UNIX/Linux crash when message queue was shut down
- Fixed deadlock situation when undeploy happens
- Fixed the Date formatting in the error messages on the status screen of the Replication Administrator.

- Allow failed deploy error messages to be displayed on the Replication Admin status screen.
- Added a “Clear Messages” button to the status screen of the Replication Admin.

### **InfoNaut**

- Update the data types shown in the Query Builder to show ANSI 92 datatypes instead of the .net datatypes.
- Fix for bug where the formatting was incorrect when a query with datetime fields was run before an SQL script.

### **DataSync**

- The underlying CONNXStore database has been upgraded to PostgreSQL version 9.3.4
- Fix problem with insert select from oracle LONG to SQL Server CLOB not working properly
- Added logic so if there is a general network error while we are testing the presence of the target table, we won't switch to full - we will just fail so we can attempt an incremental again in the future
- Fix to print message when a virus scanner is interfering with initdb.exe
- Fix for problem syncing CLOBs with DataSync for MySQL and Visual FoxPro
- Changed DataSync to make all target Date, time, timestamp fields as NULLABLE to deal with situations where different databases have different valid date ranges for dates and some treat values like 0000-00-00 as a real date
- Fixed bug where if "Create Transaction Log On Target" was checked, then CRC transformations did not work correctly.
- Fixed deadlock problem

### **Install**

- Fixed bug in Installconnx unix/linux script where the script failed to run when installing with enhanced security and the base installation directory was different then the location of the install script

## Changes/Bug Fixes for CONNX 12

These are the major issues that were resolved and features that were added in CONNX 12:

### CONNX client/server

- Fixed bug where like did not work with a literal ^ when properly escaped as ^^
- Added support for IBM DNS Name Resolver
- Fixed hang when reading large VSAM files on VSE with Barnard TCPIP stack.
- Fixed BLOB/CLOB errors in Oracle
- Fixed a problem on the mainframe dataserver where an existing listener would shut down if another instance attempted to start on the same port.
- Eliminated unneeded RC calls in Adabas data server.
- Fixed intermittent crash when doing select count(\*) type queries with Adabas.
- Fixed lock when {maxrows} is used.
- Fixed problem where SHA-512 passwords were not working on HPUX.
- Fixed crash in schema table logic
- Fix for Oracle LONG, LONG RAW,CLOB & BLOB memory leaks and broken functionality
- Fixed crash in Oracle when doing an INSERT/SELECT with a CLOB/BLOB field
- Fixed connection problems with newer versions of DB2/400
- Fix problem with system tables being intermittently locked
- Added OpenVMS logical called CNXTRUSTEDRPC that will allow DCL type RPCs to be executed with a captive account. (default is turned off)
- Fixed problem with optimizer when using the ansi join syntax
- Added new feature that allows the user to completely control the physical file name on create table for RMS, CISAM, DISAM. Example: create table test( a integer) {physicalnameoverride 'CNXDIR:MYNEWTABLE.DAT'}
- Fix performance issue with accessing catalog tables
- Fixed error in the data server where it was printing incorrect values for some parameters to the log file.
- Fix for Adabas problem where high value was not being generated correctly for unpacked & packed values for a superdescriptor of type 'A'
- Added ODBC function escape {fn ...} support for INSERT(), TRUNCATE() and DATABASE()
- Fixed Bulk load support for SQL Server native client 10
- Fixed problem with intermittent password rejections on Linux
- Fix query plan show to show additional adabas optimizations that occur on cross table joins
- Added SUBQUERYROWESTIMATE to allow more accurate query plan reporting with some types of queries. See the CONNX User's Guide for more information

- Fixed a crash when a query attempts to use parent field from correlated in order by or group by – now returns an error
- Change UPDATE so we always use bind parameters even for null values, so oracle can get better caching performance
- Added DDL support for the IBM CLOCK data type for create table description
- Fix crash found in Select Tables when table type filter is not %
- Added in new function cnxphysicalname so the physical table name can be retrieved from the CDD using SQL
- Fixed problem where bulk mode was not working if the user imported a table with the NUMBER data type with no precision or scale specified
- Added Adabas support for Create index <name> - and drop index <name> (instead of using the special table\_index\_# index names)
- Added Adabas support for Alter Table Add Column
- Added ability to pass the actual CONNX user name to Adabas in addition to the existing unique ID
- Added diagnostics to catch Adabas ADANUC errors
- Fixed error reporting so we get the proper error message for SendMessage failures
- Fixed oracle truncation error with LONG
- Added support for uniqueidentifier data type (GUID) in SQL Server

### **JDBC Server**

- Fix crash/hang with JDBCConnectionPooling when a connection in the pool becomes "dead"
- Fix bug where GetNextResult does not return NULL if there are no more results to return
- Fixed compatibility problems with DBVisualizer

### **License Server**

- Fix to license server logic - ensure that we re-establish the license server lock if we lose connection to the license server.
- Fix for problem where NTier would still open and maintain a socket connection to the license server for the non-ntier databases

## **CDD Manager**

- Fix problem where COBOLFD import would actually work - but report "no tables found"
- Fixed bug where CDD Manager crashes when checking syntax of a view and max CDD security is turned on
- Added Big Endian equivalents of the Long date data types.
- Fixed a crash when importing Adabas tables that contain more than 30,000 columns.
- Fixed import bug where tables would not go into existing Database container when trying to add Dataflex tables to the CDD
- Allow SCT import offset to be overridden
- Fixed bug in Adabas DDL import where we were throwing an error if the DDL specified the name of SEQNO(0) as "ISN\_<tablename>"
- Added the ability to not import normalized tables when doing Adabas FDT imports. (only import the "\_FLAT" table)

## **CDD Comparison Tool**

- Fixed memory leak
- Fixed performance problem when comparing very large tables
- Improved GUI performance when comparing very large CDDs.
- Fix problem with CDD compare tool - form was still disabled after the compare finished

## **Open Systems Event Replicator**

- Fixed errors when replicating BLOB/CLOB types to Oracle
- Fixed problem where the Replication Administrator was hanging while saving large CDDs
- Fixed problem with embedded double quotes when a JMS queue was the replication target
- Allow "no initial state" to be selected for JMS replication. The default was changed to suppress initial state when the target is a JMS queue.
- Fixed problem in XML for JMS queues where dots (".") in table names were being removed even with quoted table names
- Fixed problem where A2A initial state fails with very large tables
- Fixed A2A deploy failure when deploying more than 254 files at a time
- Added an enhancement which adds a "Use Existing Target Tables" checkbox when selecting tables.
- Removed stored procedures, views and functions from available source and target tables in replication. These are not valid targets.
- Added support for renumbering target tables when doing Adabas to Adabas (A2A) replication. LOB files can also be renumbered.

- Fixed bug in replication where the engine was putting "possible missed transaction" messages in the log at times where there were no missed transactions
- Added support for SQL Server XML data type
- Fixed A2A bug where if the initial state from one source/target batch failed, all the replications in the deploy were being marked inactive
- Fixed A2A bug where the status during initial state would be "replication paused" or "initial state pending" while the initial state was running.
- A2A replication initial state performance enhancement. When there are multiple batches of ADABCK calls, the controller sets a batch to active immediately after ADABCK returns success rather than waiting for all the batches to complete before any are set to active.
- Added the name of the Tables that were deleted outside of the replication admin to the warning message
- Fixed problem where message queue connections were being lost when the controller was running in the cloud

## InfoNaut

- Added a warning message and made the ODBC Trace button yellow when selected to make it obvious when ODBC tracing is on
- Added digital signature

## DataSync

- Improved performance when creating groups with large numbers of tables
- Added support for creating in separate schema for Oracle
- Fixed problem where non-cdc transforms were showing up in the cdc import list in the cdd manager
- Added ability for DataSync to detect column names with invalid characters and automatically quote those names
- Fixed errors with some incremental syncs on tables with timestamps
- Fixed problem with incremental syncs not working when the last column in a table is not mapped (transformation server only).
- Moved sendmail logic from schedule code to command line code - so emails get sent if the command line interface is used
- Fix problem where the clustered index for SQL server was always the first index, not the unique index
- Added logic so force meta upper or lower applies to table name as well as column name
- Fixed error when performing a Savepoint sync on a cdc transform and the "Store Transaction log on target." checkbox is checked

## Install

- Fixed bug in installconnx Unix script where we were doing an rm on the connx directory asynchronously in batch mode. This caused the script to check if the file was deleted before the delete was finished which resulted in an error
- Fixed bug where Open Systems Event Replicator Unix installation script always returned with 0 even when there was an error
- Fixed install errors with newer versions of RedHat Linux
- Fixed default value for CONNECTIONPOOLING. The correct default is 2.
- Added a “manual install” option on all Unix/Linux installers to allow an easier installation path for users who do not want to use the built-in ftp transfer method
- Added support to the RCI mainframe installer to allow the user to specify the target code page at install time.
- Changed default GROUP name for CICS server installations to be CNXGROUP instead of CNXvrr.
- Update the data types shown in the Query Builder to show ANSI 92 datatypes instead of the .net datatypes.

## New Platform Support

- Added JMS support for Universal Messaging Server as well as any JNDI compliant server.
- Added support for Teradata

## **Please take special note of the following corrections (listed above as well) as they may cause a change in expected behavior.**

- Changed default GROUP name for CICS server installations to be CNXGROUP instead of CNXvrr
- All shipping executables are now digitally signed
- Fixed default value for CONNECTIONPOOLING. The correct default is 2.
- Open Systems Event Replicator is no longer supported on 32bit operating systems.
- Made default data type on oracle table creation for longvarchar, longvarbinary and nlongvarchar as - CLOB, BLOB and NCLOB respectively
- The underlying DataSync database CONNXStore has been upgraded to PostgreSQL version 9.3.4. The installer will run a conversion process. The database will be backed up prior to conversion.
- Update the data types shown in the Query Builder to show ANSI 92 datatypes instead of the .net datatypes.
- REGION parameter in JCL for mainframe servers changed to 0M.
- Mainframe servers - changed default for ALLOWMIXEDPWD from 0 to 1. This will allow mixed case passwords on the mainframe data servers. If mixed case

passwords are not enabled on the mainframe, this setting should be set to 0 in CNXPARM.S.

- DECNet is no longer supported on OpenVMS systems. This affects RMS, RDB and DBMS server components.
- Replaced CONNX Solutions program folder on the Windows Start menu with separate folders for each CONNX product. This change makes us consistent with the new Windows 10 menu structure.
- Adabas to Adabas replications can no longer be undeployed by unchecking the active checkbox on the Replication Design tab and doing a redeploy. To undeploy selective Adabas to Adabas replications, they must be undeployed from the Deployed Replications tab. The redeploy method will still work for Adabas to Relational replications, but is considered deprecated.

### **Please take special note of the following changes to the CONNX License Administrator.**

There are some significant changes to the licensing starting with CONNX 12.

- Licenses have an embedded version – meaning that a CONNX 12 client will require a CONNX 12 (or higher) license. A CONNX license will work with a lower version client. For example a CONNX 12 license will work with a CONNX 11.x or CONNX 10.x client. The version of the CONNX license needed for a given version of the client is based on the major version number. For example, a CONNX 12 license will work with any minor version of CONNX 12 (i.e. CONNX 12.x, etc.)
- CONNX checks the CPU count of the data server against the CPU count generated in the license. On Unix, Windows and VMS platforms, the CPU count is the number of cores the processor or processors have. On an IBM Mainframe platform, the MSU count is used for licensing purposes. In the License Administrator, the column “CPU/MSU limit” specifies the number of CPUs or MSUs the license is valid for.
- A license may be activated only once and is associated with the license server it was activated on.
- The License Administrator has a “revoke” feature which will remove a license from a server, this will allow a license to be moved from one server to another.

### **Upgrading from prior versions of CONNX/DataSync**

- CONNXStore has been upgraded and is now based on PostgreSQL version 9.3.4 rather than version 7.
- When upgrading to CONNX 12 from an earlier version, the installer will upgrade the underlying CONNXStore database to the new version. A backup of the previous version database will be created. No update to the CDD is required.

- CDD files created in version CONNX 9.0 SP1 and earlier, must be opened in the current version of the CONNX Data Dictionary Admin tool and re-saved so that the CDD is saved in the correct format.
- The CONNXStore database will automatically be upgraded from prior versions of DataSync during installation. If there are any problems, a message should appear, and any problems should be listed in the datasync.log file.
- When upgrading from DataSync 9.0 SP2 and earlier, the first synchronization performed will be a Full Reload sync because the hash method for incremental synchronizations has changed.
- If prior versions of CONNX were not uninstalled, the CONNX installation may prompt for a reboot so that the new components are properly registered and saved. This prompt to reboot should not be ignored.

## CONNX .Net Data Provider - Connection Pooling and Pooled Connection Timeout

This covers the corrections to the pooling and timeout of connections in the CONNX .Net data provider along with some inconsistencies with Microsoft's generic .Net data provider implementation. The following is the correct way to turn on or off the CONNX .Net Data provider connection pooling, and how to set the pooled connection timeout.

### Connection Pooling

Turning connection pooling on/off; by default connection pooling is enabled. If connection pooling is enabled the .Net Data provider will hold a connection open for a specified amount of time after the `CNXConnection.Close()` function is called and use it the next time a connection is opened. Since the connection to the server was never closed, the opening of the new connection will be faster if a pooled connection is used.

- The first way to control connection pooling is through the `CNXConnection.PoolConnection` property.
- `CNXConnection.PoolConnection = true`; enables connection pooling in the provider,
- `CNXConnection.PoolConnection = false`; disables connection pooling in the provider.
- This property can be set before or after the connection has been opened, but must be assigned before the `CNXConnection.Close()` function is called.
- A second way to control connection pooling is through the connection string input to the `CNXConnection` object; Add "Pooling=true" to enable connection pooling, "Pooling=false" to disable connection pooling in the provider.
- Ex: "Persist Security Info=True;DD=c:\Test.cdd;UID=test;PWD=test;Mode=ReadWrite;Pooling=False;"

### Pooled Connection Timeout

Only used when connection pooling is enabled, this setting controls how long a connection will remain in the pool while not in use. The input is in seconds, so setting it to 20 would mean the connection will remain in the pool for 20 seconds before it is closed. The default setting is 60 seconds, an input value of 0 means there is no timeout. This setting is only used when connection pooling is enabled.

- The first way to set this is with the `CNXConnection.ConnectionPoolTimeout` property.
- `CNXConnection.ConnectionPoolTimeout=10`; connections will last in the pool for 10 seconds after the `CNXConnection.Close()` function is called, before the connection to the server is closed.
- This property can be set before or after the connection has been opened, but must be assigned before the `CNXConnection.Close()` function is called.

- The second way to set this property is through the connection string input to the CNXConnection object; Add “Connection Lifetime=25” to set the time in seconds the unused connection will last in the pool.
- Ex: “DD=c:\Test.cdd;UID=test;PWD=test;Pooling=true; Connection Lifetime=25;”

### **CNXConnection.ConnectionTimeout property change**

This property has been changed for clarity and consistency with the Microsoft generic .Net data provider implementation. The description that appears with this function in Visual Studio has been changed to “(Read Only) The time (in seconds) to wait for a connection to open. This is not controlled by the CONNX .Net Data Provider”. Also, since this property should have been read only, it has been changed to read only in the CONNX .Net Data Provider.