

New Features Mainframe Connect™ IPS 12.6

Document ID: DC00182-01-1260-03

Last revised: May 2006

This document describes new features available for Mainframe Connect Integrated Product Set (IPS) 12.6.

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DB2 stored procedures support in the DB2 UDB Option for CICS

Using the DB2 UDB Option for CICS, a client application can now invoke a DB2 stored procedure as a Server Option remote procedure call (RPC). Client applications can access the DB2 UDB Option for CICS directly or through the Transaction Router Service (TRS) component of the DirectConnect for z/OS Option. For more information, see the Mainframe Connect DB2 UDB Option for CICS *Installation Guide*.

DB2 version 8.1 support in the DB2 UDB Option for CICS

The DB2 UDB Option for CICS supports the new metadata in DB2 version 8.1. For more information on the DB2 UDB Option for CICS and DB2 metadata, see the Mainframe Connect DB2 UDB Option for CICS *Installation Guide*.

DirectConnect for z/OS Option as a Windows service

Sybase provides a simplified, user-friendly means of setting up the DirectConnect for z/OS Option as a Windows service. For more information, see the Enterprise Connect Data Access and Mainframe Connect *Server Administration Guide for DirectConnect*.

DirectConnect Manager

DirectConnect Manager, the DirectConnect plug-in for Sybase Central, is compatible with the version of Sybase Central 4.x currently in use by ASE and Replication Server. Additional upgrades include:

- DirectConnect Manager help windows now work with Sybase Central 4.x.
- DirectConnect Manager is compliant with US Government Section 508 standards for accessibility.

- DirectConnect Manager supports DirectConnect for Oracle.
- DirectConnect Manager can now be installed on all DirectConnect for z/OS Option platforms: Microsoft Windows and UNIX.
- DirectConnect Manager is compatible with the latest available versions of Open Client, Open Server, and jConnect™ for JDBC™.
- DirectConnect Manager supports TRS services.
- DirectConnect Manager supports gatewayless servers.

IBM CICS sockets interface for Mainframe Connect Server and Client Options

ESD2 for Mainframe Connect Server Option for CICS and Client Option for CICS contains modules needed to run IBM CICS sockets interface. IBM CICS sockets interface eliminates TCP/IP interference problems caused by changes IBM made to CICS Transaction Server (CICS/TS) versions 2.x through version 3.1. Due to those changes, a CICS region running the Sybase task-related user exit (TRUE) started by SYBOPEN through the PLT or SYOP transaction causes thread or dubbing errors when running Java or Web applications.

The IBM CICS sockets interface uses IBM TRUE. Use of IBM TRUE eliminates compatibility issues and provides additional advantages, including:

- An individual listener can handle a socket pool of up to 1000 sockets.
- A new listener can be added without requiring system intervention.
- An individual listener can be used as both gateway and gatewayless.

For compatibility reasons, ESD2 includes the default Sybase TCP/IP interface (SYBTRUE, listener, and so on). If your CICS region does not experience any Java or other conflicts, you are not required to upgrade immediately to the CICS sockets interface implementation. However, future enhancements to the products will be made only to the CICS sockets interface implementation.

Installation and configuration

ESD2 for Mainframe Connect Server Option for CICS and Client Option for CICS contains all of the modules needed to run the original Sybase listener and TCP/IP interface or the new Sybase TCP/IP implementation based on the IBM CICS sockets interface. You can choose to configure and use either implementation, but not both at the same time. The two implementations cannot co-exist in the same CICS region.

Because the two implementations cannot co-exist, the original Sybase TCP/IP configuration and control tools cannot be used with the CICS sockets interface implementation. For example, the Sybase transactions SYCM, SYOP, SYCL and the configuration module SYLSCFG are replaced by the IBM transactions EZAC and EZAO, along with the new configuration module SYBTPSEC. Also, the Socket Handler transaction SYSH replaces the gatewayless Context Handler SYCH.

Original Sybase
TCP/IP interface

To configure and use the original Sybase listener and TCP/IP interface, follow the procedures described in the Mainframe Connect Server Option 12.6 for CICS *Installation and Administration Guide* and Mainframe Connect Client Option 12.6 for CICS *Installation and Administration Guide*.

IBM CICS sockets
interface

Before using the CICS sockets interface and the new Sybase TCP/IP listener, make sure that a CICS region has the IBM CICS sockets interface installed and configured. Refer to *z/OS Communications Server: IP CICS Sockets Guide* for details.

Installing and configuring the Server Option of CICS sockets interface

Using the IBM CICS sockets interface and the new Sybase TCP/IP listener for Mainframe Connect Server Option for CICS requires:

- Installing IBM and Sybase RDO definitions for the required programs and transactions.
- Concatenating the new sockets load library.
- Configuring new listeners. You can install any number of new Sybase TCP/IP listeners and run them in a single CICS region. You can also configure each listener differently.
- Enabling CICS sockets interface automatically or by using the EZAO command.

❖ **To install and configure the Server Option of CICS sockets interface**

- 1 Add the IBM CICS sockets RDO entries to your CICS region. You can find input for DFHCSDUP in *tcphlq.SEZAINST(EZACICCT)*. Note that *tcphlq* refers to the high level qualifier of your system's IBM TCP/IP configuration.
- 2 Add the new Sybase RDO entries. Input for the DFHCSDUP command is located in *hlq.ESD2.OSC126.CICS.JCL(I2SOCRDO)*.

Note The Sybase listener program (SYBLSTNR) must run in the CICS key and have concurrency set to THREADSAFE. The listener tranid (SY01) is required to have TASKDATALOC set to ANY and TASKDATAKEY set to CICS. When adding listener definitions, Sybase suggests that you copy the SY01 transaction definition.

- 3 Define the *EZACONFG* dataset to contain the configuration data for CICS sockets and load the system configuration parameters. You can find IBM-supplied JCL for this in *tcphlq.SEZAINST(EZACICFG)*.
- 4 Add *tcphlq.SEZATCP* into the DFHRPL concatenation for the CICS region.
- 5 Add the configuration information for the first new Sybase listener (SY01) into the *EZACONFG* dataset. To do this, you can use the IBM EZACICD utility or an online transaction. A sample of EZACICD is shown in the following example:

```

EZACICD TYPE=LISTENER, Create Listener Record      X
  APPLID=CICSDEV1  APPLID of CICS                  X
  TRANID=SY01,    Use standard transaction ID      X
  PORT=3044,      Use port number 3010             X
  BACKLOG=40,     Set backlog value to 40          X
  ACCTIME=30,     Set timeout value to 30 seconds  X
  NUMSOCK=100,    Support 99 concurrent connections X
  SECEXIT=SYBTPSEC,
  USERID=DFHCICS,
  IMMED=NO        Start listener immediately
    
```

For more information about using EZACICD, refer to *z/OS Communications Server: IP CICS Sockets Guide*.

The new Sybase TCP/IP listener uses the following IBM parameters:

APPLID | The CICS region APPLID where the listener is run.

TRANID	The transaction ID defined for the listener. Each listener must have its own unique transaction ID. Sybase recommends using SY01, SY02, SY03 and so on.
PORT	The listener port number.
IMMEDIATE	The listener starts automatically when CICS sockets is started.
BACKLOG	Backlog value for the listener.
NUMSOCK	The size of the listener's socket pool ("Max Sockets").
ACCTIME	The timeout value of the accept select logic. The listener normally waits until action is pending for any of the sockets that it is currently managing. After processing pending actions, it also checks to see if there is a request pending to shut down the listener. If the ACCTIME value is reached, the listener checks for pending shutdown requests.
SECEXIT	The Sybase security extensions configuration module name (see "SYBTPSEC configuration module" on page 7).
USERID	The user ID that starts the listener. The listener issues the EXTRACT EXIT and SET FILE commands, and starts transactions with a surrogate user ID. The user ID specified must have authority to use EXTRACT EXIT and SET FILE commands, as well as the authority to start transactions.

- 6 Assemble and link the SYBTPSEC configuration module. For more information about the SYBTPSEC configuration module, see "SYBTPSEC configuration module" on page 7.
- 7 Concatenate the *hlq.OSC.CICS.LOADSOK* sockets load library before all Sybase libraries in the CICS DFHRPL concatenation.

Installing and configuring the Client Option of CICS sockets interface

Using CICS sockets interface for Mainframe Connect Client Option for CICS requires:

- Installing IBM RDO definitions for the required new programs and transactions.
- Concatenating the new sockets load library.
- Enabling CICS sockets interface by using the EZAO command or automatically.

❖ **To install and configure the Client Option of CICS sockets interface**

- 1 Add the IBM CICS sockets RDO entries to your CICS region. You can find input for DFHCSDUP in *tcpplq.SEZAINST(EZACICCT)*. Note that *tcpplq* refers to the high level qualifier of your system's IBM TCP/IP configuration.
- 2 Define the *EZACONFG* dataset to contain the configuration data for CICS sockets and load the system configuration parameters. You can find IBM-supplied JCL for this in *tcpplq.SEZAINST(EZACICFG)*.
- 3 Add *tcpplq.SEZATCP* into the DFHRPL concatenation for the CICS region.
- 4 Concatenate the *hlq.OSC.CICS.LOADSOK* sockets load library before all Sybase libraries in the CICS DFHRPL concatenation.

SYBTPSEC configuration module

You can find the JCL used to assemble and link the SYBTPSEC configuration module in *ESD2.OSC126.CICS.JCL(I5TPSEC)*. The macro fields, their defaults, and their meanings are listed in the following table.

SECURITY	<p>Security verification:</p> <p>Y (default) – The user ID and password are verified when a language request or RPC is started. For gatewayless connections, the connection occurs, but a security error can occur when processing the first request. Invalid user IDs are immediately rejected.</p> <p>H – The user ID and password are verified immediately when a gatewayless connection is established.</p> <hr/> <p>Note There is no difference between SEC=Y and SEC=H when running transactions from a gateway. When running gatewayless, SEC=Y emulates a gateway transaction by not returning any security errors until the client executes a language request or RPC. The setting SEC=H returns all user ID and password errors at connect time and drops the connection, as do ASE servers. There are rare instances where the interaction of RACF and CICS prevents a user ID or password error from being returned to a gatewayless client when SEC=Y is used. When this occurs, the gatewayless handler transaction SYSH ends abnormally without closing the socket. Therefore, Sybase suggests that you use SEC=H setting.</p> <hr/> <p>U – No password verification is performed. CICS assumes that the incoming user ID is correct and has the authority to run.</p> <hr/> <p>Note When this setting is used, CICS versions prior to CICS/TS 3.1 cannot detect if a user ID is revoked.</p> <hr/> <p>T – Use CICS Terminal Security.</p> <hr/> <p>Note This results in additional transaction processing that may reduce the listener efficiency.</p> <hr/> <p>N – No user ID and password verification occurs.</p>
GWTRAN	<p>The handler transaction called for gateway connections. The default is SYGH.</p>
GWLTRAN	<p>The handler called for gatewayless transactions. The default is SYSH.</p> <hr/> <p>Warning! This is a different transaction ID from the handler used by the traditional gatewayless listener. Do not set this to SYCH.</p> <hr/>

TERMON	The sign on transaction used for terminal security. The default is SYSO. Warning! This is a different transaction ID from the sign on transaction used by the traditional listener. Do not set this to SYSG.
TERMOFF	The sign off transaction used for terminal security. The default is SYSF.
PING	The transaction used for SYBPING. The default is SYPG.
PWTRAN	The transaction ID used by the SYBPEM (password change) RPC. The default is SYPM.

If you require different listeners to have different parameters, you must assemble and link the SYBTPSEC macro under different configuration module names. When configuring a listener, you set the value of the SECEXIT parameter to a specific configuration module name. You also must add an RDO program definition (by copying that of SYBTPSEC) for each new name used.

CICS sockets interface control

The following commands control the CICS sockets interface:

- EZAC for configuration
- EZAO for control

Use EZAC to configure listeners. Each listener is identified by its transaction ID. The following example shows the output of the EZAC,DISplay,LISTENER command:

```

APPLID ===> CICSDEV1    APPLID of CICS System
TRANID ===> SY01       Transaction Name of Listener
PORT ===> 03044        Port Number of Listener
AF ===> INET           Listener Address Family
IMMEDIATE ===> NO      Immediate Startup   Yes|No
BACKLOG ===> 020       Backlog Value for Listener
NUMSOCK ===> 100       Number of Sockets in Listener
ACCTIME ===> 060       Timeout Value for ACCEPT
GIVTIME ===> 000       Timeout Value for GIVESOCKET
REATIME ===> 000       Timeout Value for READ
MINMSGSL ===> 004      Minimum Message Length
TRANTRN ===> YES       Translate TRNID     Yes|No
TRANUSR ===> YES       Translate User Data Yes|No
SECEXIT ===> SYBTPSCY Name of Security Exit
    
```

```
GETTID   ===> NO           Get AT-TLS ID (YES|NO)
USERID   ===> DFHCICS      Listener User ID
WLM group 1 ===>          Workload Manager Group Name 1
WLM group 2 ===>          Workload Manager Group Name 2
WLM group 3 ===>          Workload Manager Group Name 3
```

Use the EZAO command to start or stop the entire sockets interface for the region, or to start and stop individual listeners.

If you want the CICS socket interface to start automatically when CICS is initialized, you must add the program EZACIC20 to the second stage of the startup PLT and the first stage of the shutdown PLT. Any sockets defined with IMMEDIATE=YES are automatically started.

The CICS sockets interface creates the required work areas for each listener only at startup. If a listener is created while the interface is running, the interface must be stopped and restarted using EZAO STOP CICS and EZAO START CICS. If not, the Sybase listener ends abnormally with code SB01, indicating that the required work area does not exist. Changes to existing listeners (such as port numbers, backlog, and so on) require only stopping and starting that listener using EZAO STOP LIST(SYxx) and EZAO START LIST(SYxx).

You can find detailed information about the EZAC and EZAO commands in *z/OS Communications Server: IP CICS Sockets Guide*.

InstallShield installation

InstallShield, which is Java-based and uses XML input, unloads and installs all Sybase components (including the ODBC drivers and DirectConnect Manager) using a consistent installation interface across all platforms. It creates the target directory (if necessary) and unloads all of the selected components. InstallShield installs the Client Option, Server Option, and DB2 UDB Option from a common CD and installs DirectConnect for z/OS Option for version 12.6 from a separate CD.

All components

The components of the Mainframe Connect IPS are installed from CD using InstallShield and click-through licensing. Components may also be configured from installation.

Note For Mainframe Connect Server Option for CICS and Client Option for CICS, you must determine whether to use the IBM sockets interface before you install and configure. See “IBM CICS sockets interface for Mainframe Connect Server and Client Options” on page 3 for more information.

For installation details specific to a particular option, see the appropriate installation guide.

DirectConnect for z/OS Option

InstallShield installs the DirectConnect for z/OS Option for version 12.6 from a CD separate from the Mainframe Connect IPS CD.

The DirectConnect for z/OS Option provides a streamlined, user-friendly uninstall procedure and enhanced installation interoperability with other Sybase products, including the following:

- Adaptive Server® Enterprise
- Open Client™ and Open Server™
- OpenSwitch
- RepConnector™, Replication Server®, and Replication Server Options
- Sybase® IQ
- Products in the Enterprise Connect™ Data Access product set

For installation information, refer to the Mainframe Connect DirectConnect for z/OS Option *Installation Guide*.

DirectConnect for z/OS Option platforms

InstallShield is supported for DirectConnect products on each of the following platforms: Windows 2000/2003, HP, Solaris, and AIX. InstallShield does not require user configuration at installation time, and the uninstall process using InstallShield is created at runtime. When installation completes, DirectConnect for z/OS Option has the minimum configuration required to function independently.

DirectConnect for z/OS Option products

InstallShield installs and supports the following DirectConnect for z/OS Option products:

- DirectConnect Access Services that provide access to DB2 UDB
- DirectConnect Transaction Router Services (TRS) that provide access to remote transactions (TRS TCP and TRS SNA)

Internationalization support

The products of the Mainframe Connect IPS have been internationalized. These products can also be localized, if necessary, and are also capable of handling multibyte character set input and output.

utf8 parsing in the Server Option

The Server Option parser now parses input in utf8. This functionality removes constraints formerly applied to Server Option remote procedure calls (RPCs) invoked through isql or similar applications. For more information, see the Mainframe Connect Server Option *Installation Guide*.

utf8 communication to DB2 in the DB2 UDB Option for CICS

The DB2 UDB Option for CICS can now communicate with DB2 in utf8. For more information, see the Mainframe Connect DB2 UDB Option for CICS *Installation Guide*.

Shared memory multiprocessor in DirectConnect for z/OS Option

DirectConnect 12.6 uses Open Server preemptive scheduling that uses native operating system threads. The operating system controls context switches that result in:

- Frequent context switches for improved time slicing

- More efficient CPU usage
- Higher throughput and greater scalability

Products affected

Shared Memory Multiprocessor Open Server (SMPOS) is implemented for the following DirectConnect for z/OS Option products:

- DirectConnect Access Services that provide access to DB2 UDB
- DirectConnect Transaction Router Services (TRS) that provide access to remote transactions (TRS TCP and TRS SNA)

SYGWMAP user exit in the Server Option

The Server Option provides a modifiable user exit, SYGWMAP, that can be used to change the processing of a language request. For more information, see the Mainframe Connect Server Option *Installation Guide*.

