

Sterling Connect:Direct for Microsoft Windows



Release Notes

Version 4.6.0.3

Sterling Connect:Direct for Microsoft Windows



Release Notes

Version 4.6.0.3

Note

Before using this information and the product it supports, read the information in "Notices" on page 11.

This edition applies to version 4.6.0.3 of Sterling Connect:Direct for Microsoft Windows and to all subsequent releases and modifications until otherwise indicated in new editions.

© **Copyright IBM Corporation 1995, 2016.**

US Government Users Restricted Rights – Use, duplication or disclosure restricted by GSA ADP Schedule Contract with IBM Corp.

Contents

IBM Sterling Connect:Direct for Microsoft Windows Version 4.6.0.3

Release Notes 1

IBM Sterling Connect:Direct for Microsoft Windows Version 4.6.0.3 Release Notes	1
Requirements	1
Features and Enhancements	3
Special Considerations	4
Known Restrictions	5
Restrictions for Sterling Connect:Direct for Microsoft Windows	5
Restrictions for Related Software.	7
Installation Notes.	7
Installation Notes for Sterling Connect:Direct Requester	8

Installation Notes for Sterling Connect:Direct File Agent.	8
Sterling Connect:Direct Secure Plus for Microsoft Windows	8
Upgrading Guidelines	8
Upgrading Guidelines for Sterling Connect:Direct for Microsoft Windows	9
Upgrading Guidelines for Related Software	9

Notices 11

Trademarks	13
Terms and conditions for product documentation.	14

IBM Sterling Connect:Direct for Microsoft Windows Version 4.6.0.3 Release Notes

IBM Sterling Connect:Direct for Microsoft Windows Version 4.6.0.3 Release Notes

The IBM® Sterling Connect:Direct® for Microsoft Windows Version 4.6.0.3 Release Notes document supplements Sterling Connect:Direct for Microsoft Windows version 4.6 documentation and the documentation for the following Sterling Connect:Direct for Microsoft Windows related software: IBM Sterling Connect:Direct Requester, IBM Sterling Connect:Direct File Agent, and IBM Sterling Connect:Direct Secure Plus for Microsoft Windows. Release notes are updated with each release of the product and contain last-minute changes and product requirements. Read the document before installation.

Requirements

Sterling Connect:Direct for Microsoft Windows has the following requirements.

Hardware and Software

Sterling Connect:Direct for Microsoft Windows and related software require the following hardware and software.

Component	Hardware	Software
Sterling Connect:Direct for Microsoft Windows	<ul style="list-style-type: none"> • 512 MB RAM (min.) 1 GB or more recommended • 200 MB disk space 	<p>Microsoft Windows operating system options:</p> <ul style="list-style-type: none"> • Microsoft Windows 10 (V4.6.0.5 or later) • Microsoft Windows XP Professional, SP3 or later • Microsoft Windows 2003 Server, SP 2 <ul style="list-style-type: none"> – 32-bit version – 64-bit version on Itanium – x64—64-bit version on Xeon, Pentium with EM64T • Microsoft Windows Vista Enterprise, SP 2 • Microsoft Windows 2008 Server, SP 2 • Microsoft Windows 2008 Server R2 • Microsoft Windows 7 • Microsoft Windows Server 2012 • Microsoft Windows 8 Pro <ul style="list-style-type: none"> – 32-bit version – 64-bit version • Virtualization software—All of the above options running under VMware Infrastructure 3 (VMware ESX server) • Clustered environment supported on: <ul style="list-style-type: none"> – Microsoft Windows 2003 Server – Microsoft Windows 2008 Server – Microsoft Windows 2008 Server R2 – Microsoft Windows 2012 Server
Microsoft TCP/IP Support	Token ring or ethernet interface card	Microsoft TCP/IP WinSOCK interface installed as part of the Microsoft Windows system
SNA Connectivity		<p>Install one of the following:</p> <ul style="list-style-type: none"> • Microsoft SNA Server version 4.0, SP 3 • Microsoft SNA Client version 4.0 • Microsoft Host Integration Server 2006 • IBM eNetwork Communications Server for Windows version 6.1 <p>Note: The SNA API client is not supported when installed on a stand-alone computer. The server and client components must be installed on the same computer.</p>

Component	Hardware	Software
Database Software		<p>Install one of the following before you install Sterling Connect:Direct for Microsoft Windows:</p> <p>Note: IBM solidDB is the default database provided and installed with Sterling Connect:Direct for Microsoft Windows.</p> <ul style="list-style-type: none"> • Microsoft SQL Server 2014 (V4.6.0.5 or later) • Microsoft SQL Server 2005 — <p>This software is not provided. You can configure SQL Server during the Sterling Connect:Direct installation.</p> <p>Note: Local-domain access must be available to Microsoft SQL Server.</p> <ul style="list-style-type: none"> • MySQL Community Edition 5.5 with My SQL Connector-ODBC 3.51 (x86, 32-bit version). Download the software from the MySQL Community website at http://www.mysql.com/products/community/. <p>For more information, see the <i>IBM Sterling Connect:Direct for Microsoft Windows Getting Started Guide</i>.</p>
Sterling Connect:Direct File Agent	Same as requirements for Sterling Connect:Direct for Microsoft Windows	Same requirements as Sterling Connect:Direct for Microsoft Windows
Sterling Connect:Direct Requester	Same as requirements for Sterling Connect:Direct for Microsoft Windows	Same requirements as Sterling Connect:Direct for Microsoft Windows
Sterling Connect:Direct for Microsoft Windows SDK	Same as requirements for Sterling Connect:Direct for Microsoft Windows	<ul style="list-style-type: none"> • Microsoft Visual C++ 2008 to build the C++ samples • Microsoft Visual Basic 2008 to build the Visual Basic samples <p>Note: This software is required to build the samples, but is not required to run the samples.</p>

Features and Enhancements

Sterling Connect:Direct for Microsoft Windows version 4.6.0.3 and its related software have the following features and enhancements:

- IBM solidDB[®] is the default database installed with Sterling Connect:Direct for Microsoft Windows.
- Adds 64-bit support for Sterling Connect:Direct for Microsoft Windows .NET SDK. The .NET samples support building 32- and 64-bit versions. The x64 directory includes release and debug builds of the 64-bit .NET SDK.

- Adds support for importing and exporting initialization parameters through the Configuration Utility. To perform the operation in silent mode, use the following commands:
 - `CdConfig.exe /Q /PInitparms.cfg /* Export */`
 - `CdConfig.exe /Q /I /FInitparms.cfg /LCdConfig.log /* Import */`

Attention: Make sure the service is stopped before running an import.

Attention: The node **name** and **server.path** initialization parameters cannot be changed and are ignored during the import.

Special Considerations

This section details special considerations to be aware of for your platform.

- The database retry feature retries a connection for up to eight minutes before a failure is allowed to continue. When you use client applications like Sterling Connect:Direct Requester, the application may appear to quit working. If this occurs, check the event log for database errors indicating a retry is in progress. If the retry is unsuccessful, you may need to recycle the Sterling Connect:Direct for Microsoft Windows server.
- IBM solid DB
 - If you do not install IBM solidDB as your database and would like to install it at a later time, re-run `setup.exe`. You can also install the solidDB feature using the "Add/Remove Programs" tool from the Windows XP/2003 Control Panel, or "Programs and Features" on Windows Vista, 2008R2 or Windows 7.
 - When you install Sterling Connect:Direct for Microsoft Windows version 4.6.0.1 to a system that has 4.6.00 installed, an in-place upgrade is performed, which does not install IBM solidDB. To add the IBM solidDB feature, re-run `setup.exe` or use the "Add/Remove Programs" tool from the Windows Control Panel, or "Programs and Features" on Windows Vista, 2008R2 or Windows 7.
- If Sterling Connect:Direct for Microsoft Windows version 4.6.0 is configured to use an instance of MySQL server that was installed/bundled with a previous version of Sterling Connect:Direct for Microsoft Windows, do not uninstall the previous version of MySQL from 4.6.0. However, it is strongly recommended that you use the IBM solidDB database instead of the previously distributed MySQL server.
- Microsoft SQL Server Express
 - Microsoft SQL Server Express is not supported on Itanium 64 bit hardware. You may install Microsoft SQL Server as your database by attaching to a remote SQL installation from the Itanium computer.
 - Microsoft SQL Server Express and Sterling Connect:Direct for Microsoft Windows must be installed by the same user. If you want to allow two different users to install the two components, download Microsoft SQL Management Studio Express and modify the user configurations.
 - Microsoft SQL Server Express fails to install when the computer name matches the user account performing the installation. Install Microsoft SQL Server using a different user account.
 - By default, Microsoft SQL Server Express allows only the installing user ID to access the message lookup database. Add a user to the Microsoft SQL Server Express database to allow access to Sterling Connect:Direct for Microsoft Windows by functional authorities and the message lookup utility. A login failure occurs if no additional user is added.
 - The use of SQL Server 2008 and SQL Server 2008 Express is deprecated.

- To change the default authentication mode with Microsoft SQL Server Express, install the product using Tools, available from the Microsoft Website. Use Microsoft SQL Management Studio included with Tools, to make authentication mode changes.
- Microsoft SQL Server Express does not support clustering.

Known Restrictions

Sterling Connect:Direct for Microsoft Windows and its related software have the following known restrictions.

Restrictions for Sterling Connect:Direct for Microsoft Windows

Sterling Connect:Direct for Microsoft Windows version 4.6.0.3 has the following restrictions:

- When you install Sterling Connect:Direct Secure Plus on Microsoft Windows 8 or Microsoft Windows Server 2012, no shortcuts are created for the Administration Tool (Secure+ Admin Tool) and the Command Line Interface (Secure+ CLI) on the new **Windows Start** screen. You must launch the Secure+ Admin Tool and the Secure+ CLI using the **Run as Administrator** (RAA[®]) feature. Failure to do so can result in incorrect configuration or permission-related errors.

To launch the Secure+ Admin Tool, right-click *<install directory>\Server\Secure+SPAdmin.cmd* and select **Run as Administrator**. A User Account Control (UAC) prompt might appear.

To launch the Secure+ CLI, right-click *<install directory>\Server\Secure+SPCli.cmd* and select **Run as Administrator**. A UAC prompt might appear.

- You can keep an earlier version of Sterling Connect:Direct for Microsoft Windows on the computer on which you are installing Sterling Connect:Direct for Microsoft Windows version 4.6.0.
- Sterling Connect:Direct for Microsoft Windows version 4.6.0 SNMP and NT Broadcast do not send messages on 64-bit operating systems.
- Built-in variables should only be specified in a SUBMIT statement within a Process if the statement will be executed on a Sterling Connect:Direct for Microsoft Windows version 4.6 (or later) node or another Sterling Connect:Direct version that supports built-in variables.
- Temporary addresses, which are a security feature of the IPv6 protocol, are generated automatically by the operating system and are used only for outbound connections. These addresses have a short life span and are replaced by other temporary outbound addresses. This feature of the IPv6 protocol causes problems with Netmap Checking. If the outgoing address of the PNODE randomly changes and netmap checking is enabled by the SNODE, the SNODE always refuses the connection because the IP address of the PNODE never matches the IP address configured for it.

You can work around the problem created by temporary addresses in two ways:

- On the PNODE, configure **outgoing.address** in the initialization parameters file using the IPv6 address for the PNODE server. This ensures that the IP address that the PNODE uses to create a connection to a remote node is always constant. Consider the following:
 - If a PNODE has several IP addresses configured, for example, two IPv6 addresses and two IPv4 addresses, configure the **outgoing.address** initialization parameter with one IPv6 address. This address can then be used to connect to an SNODE configured with either IPv6 or IPv4 addresses.

- If a PNODE wants to use an IPv4 address to connect to an SNODE that has both IPv6 and IPv4 IP addresses, ensure that the **tcp.api.port** and **tcp.host.port** initialization parameters of the SNODE are configured with an IPv4 address and port.
- Disable temporary addresses for the PNODE. This is a configuration option in the Windows networking component. If the temporary addresses are not generated, connections to a remote that use the IPv6 protocol use the configured IPv6 address.

Note: To disable temporary addresses in the Windows Vista OS, issue the following command from a command prompt: **netsh interface ipv6 set privacy state=disabled**. For other Windows operating systems, see the Microsoft Windows documentation.

See RFC 3041 for more information on IPv6 temporary addresses.

- If you modify user authorizations from the Sterling Connect:Direct server and the Sterling Connect:Direct Requester is attached, you must detach and reattach to the Sterling Connect:Direct server. When you reattach to the Sterling Connect:Direct server, Sterling Connect:Direct Requester reads the updated user information.
- Sterling Connect:Direct for Microsoft Windows previously supported the DESKTOP(YES) parameter in the SYSOPTS statement of a Sterling Connect:Direct Process. This parameter enabled user programs launched by the Sterling Connect:Direct service to interact with the Windows desktop. Currently this parameter functions only on versions of Microsoft Windows prior to Windows Vista and Windows Server 2008. For security reasons, Microsoft has removed support for Interactive Services from those two operating systems. Microsoft blocks any attempt by a Windows service to interact with the desktop. Sterling Connect:Direct administrators should begin to remove the DESKTOP(YES) parameter from all Sterling Connect:Direct for Microsoft Windows Process scripts. Alternatively, you can switch DESKTOP(YES) references to DESKTOP(NO).

To ease the transition of upgrading to Sterling Connect:Direct for Microsoft Windows, Sterling Connect:Direct detects when a process using DESKTOP(YES) is submitted on a Windows system that does not support Interactive Services. When DESKTOP(YES) is detected, Sterling Connect:Direct dynamically switches to DESKTOP(NO) and records the following warning in the statistics:

```
LPRS020I Invalid DESKTOP value specified.
DESKTOP=YES is not supported on this version of Windows.
The RUN TASK / JOB will continue with DESKTOP reset to NO.
```

After this warning is written to Sterling Connect:Direct statistics, the Process is allowed to continue as if DESKTOP(NO) had been originally specified.

This transitional feature works only if the RUN TASK or RUN JOB is capable of running without desktop interaction. That is, if manually switching DESKTOP(YES) to DESKTOP(NO) would cause the Sterling Connect:Direct Process to fail, then the dynamic switch to DESKTOP(NO) will not be an effective solution. If the program executed by the RUN TASK/JOB is unable to execute without user interaction then that program must be changed so that it no longer needs user interaction.

- Under conditions of high CPU usage, a Sterling Connect:Direct Process running over UDT may be interrupted by a lost connection. Should this occur, Sterling Connect:Direct retries the Process. If connection losses due to high CPU usage

are occurring, their frequency can be reduced by restricting the number of concurrent UDT sessions through netmap session limits.

- For Sterling Connect:Direct for Microsoft Windows version 4.6.0 to work using the UDT protocol with servers running Sterling Connect:Direct for z/OS® 4.8.00, you must install a fix for the Sterling Connect:Direct for z/OS server. Without this fix (T014159), the first time a Process is initiated in Sterling Connect:Direct for Microsoft Windows using UDT, the Process will fail with a “Connection Broken” error. The RPLERRCK DD indicates the UDT error code of 2001.

Restrictions for Related Software

The related software has the following restrictions:

Related Software	Restriction
Sterling Connect:Direct Requester	<p>The following functions are not supported for Sterling Connect:Direct Requester connected to a Sterling Connect:Direct for UNIX or Sterling Connect:Direct for UNIX OpenVMS server:</p> <ul style="list-style-type: none"> • Server initialization parameters (initparms) maintenance • Network map maintenance • User authorization management • Remote user proxies • List all users • New translation table • Selecting statistics by copy file name (No statistics are available for OpenVMS servers.)
	<p>The following Trace facility options are not supported for Sterling Connect:Direct Requester connected to Sterling Connect:Direct for UNIX for or Sterling Connect:Direct OpenVMS servers:</p> <ul style="list-style-type: none"> • Ability to wrap file • Ability to set maximum file size • Ability to do MAIN trace • Ability to trace by Process number, Process name, or destination (advanced options)

Installation Notes

Before you install Sterling Connect:Direct and its related applications, read all the information in this section and follow all the guidelines.

- Complete any worksheets before installing Sterling Connect:Direct and its related software.
- For instructions on installing Sterling Connect:Direct for Microsoft Windows in a cluster environment, refer to the cluster deployment white paper, available at the following link: <http://www.ibm.com/support/docview.wss?uid=swg27040600>

Note: When installing in a clustered environment, you must deselect the Requester feature (do not install it at this time). Instead, do one of the following:

- Install the Sterling Connect:Direct Requester (Stand-Alone) using the CDRequester Setup.exe. See the *Getting Started Guide* for more information.
- Install the Requester feature on a different system outside the cluster environment.

- Review your security configuration to ensure compatibility with Sterling products.
- Verify that you have the current updates for Sterling Connect:Direct for Microsoft Windows, Sterling Connect:Direct Requester, Sterling Connect:Direct for Microsoft Windows File Agent, and Sterling Connect:Direct Secure Plus for Microsoft Windows.
- Print and review *IBM Sterling Connect:Direct for Microsoft Windows Getting Started Guide*.

Installation Notes for Sterling Connect:Direct Requester

Before you install Sterling Connect:Direct Requester, complete the following pre-installation tasks:

- Define users for Microsoft Windows.
- Configure and test TCP/IP connectivity by configuring a valid IP address, IP subnet, and IP gateway, or configure and test SNA connectivity, if necessary.

If the communications partner is on another subnet or network and a firewall is between the communications partner and the computer, verify that the Access Control Lists (ACLs) are correctly configured to allow access to and from the IP address and IP ports. Contact the security administrator for more information on configuring the ACLs.

Installation Notes for Sterling Connect:Direct File Agent

Before you install Sterling Connect:Direct File Agent, read information in this section and follow the guidelines.

- Review the information on using and configuring Sterling Connect:Direct File Agent in *IBM Sterling Connect:Direct for Microsoft Windows Getting Started Guide*.
- When you install Sterling Connect:Direct File Agent initially or upgrade to a later version, it is installed as a service on Microsoft Windows using the Local System Account. If you change the user account for Sterling Connect:Direct File Agent after installation, each time you perform an upgrade, you must change from the Local System Account to a different user account for the service, if necessary.

Sterling Connect:Direct Secure Plus for Microsoft Windows

Before you install Sterling Connect:Direct Secure Plus for Microsoft Windows, read all the information in this section and follow the guidelines.

- Print and review *IBM Sterling Connect:Direct Secure Plus for Microsoft Windows Implementation Guide*.
- To install Sterling Connect:Direct Secure Plus for Microsoft Windows at the same time that you install Sterling Connect:Direct for Microsoft Windows, follow the instructions in *IBM Sterling Connect:Direct for Microsoft Windows Getting Started Guide*.
- When you upgrade from a previous version of IBM Sterling Connect:Direct Secure Plus for Microsoft Windows, the parameters file is converted and can be used with the new version.

Upgrading Guidelines

Observe the following guidelines for upgrading Sterling Connect:Direct for Microsoft Windows and its related software.

Upgrading Guidelines for Sterling Connect:Direct for Microsoft Windows

Observe the following guidelines:

- Before you perform any upgrade procedure, create backup copies of the following Sterling Connect:Direct for Microsoft Windows installation files:
 - Directory: C:\Program Files\Sterling Commerce\Connect Direct v4.n.n, where n.n represents your current version number
 - Registry: HKEY_LOCAL_MACHINE\SOFTWARE\Sterling Commerce\Connect:Direct for Windows NT\v4.n.n, where n.n represents your version number
- The Microsoft Access database is no longer supported.
- If you are upgrading from an earlier version of Sterling Connect:Direct for Microsoft Windows, the installation automatically copies the network map and user definitions. You no longer have to export the definitions before upgrading Sterling Connect:Direct Requester.
- Microsoft Installation (MSI) does not recognize the Install Shield installations; therefore, Install Shield and MSI cannot point to the same installation folder or you may have problems uninstalling Sterling Connect:Direct for Microsoft Windows. If you upgrade Sterling Connect:Direct for Microsoft Windows, the installation copies the folders of the older version of Sterling Connect:Direct for Microsoft Windows to the new installation directory before the new version is installed. The new version overwrites existing files in the destination folder.
- The ODBC DSN is updated to include new DSN names to prevent previous uninstalls from removing them. DBWiz updates the configuration of SQL Server databases.

Upgrading Guidelines for Related Software

Observe the following additional guidelines:

Related Software	Guideline
Sterling Connect:Direct Requester	The installation has changed from a single-user installation to all users. Any user who is logged on can start Sterling Connect:Direct Requester. Because the configuration is user specific, Sterling Connect:Direct Requester automatically creates the base registry key if one does not exist.
	Microsoft Installation (MSI) does not recognize Install Shield installations; therefore, Install Shield and MSI cannot point to the same installation folder or you may have problems uninstalling Connect:Direct for Microsoft Windows. If you upgrade Sterling Connect:Direct Requester, the installation copies the folders of the older version of Sterling Connect:Direct Requester to the new installation directory before the new version is installed. The new version overwrites existing files in the destination folder.
Sterling Connect:Direct File Agent	When you upgrade Sterling Connect:Direct File Agent, it is installed as a service on Microsoft Windows using the Local System Account. If you change the user account for Sterling Connect:Direct File Agent after installation, each time you perform an upgrade, you must change from the Local System Account to a different user account for the service.

Notices

This information was developed for products and services offered in the US. This material might be available from IBM in other languages. However, you may be required to own a copy of the product or product version in that language in order to access it.

IBM may not offer the products, services, or features discussed in this document in other countries. Consult your local IBM representative for information on the products and services currently available in your area. Any reference to an IBM product, program, or service is not intended to state or imply that only that IBM product, program, or service may be used. Any functionally equivalent product, program, or service that does not infringe any IBM intellectual property right may be used instead. However, it is the user's responsibility to evaluate and verify the operation of any non-IBM product, program, or service.

IBM may have patents or pending patent applications covering subject matter described in this document. The furnishing of this document does not grant you any license to these patents. You can send license inquiries, in writing, to:

*IBM Director of Licensing
IBM Corporation
North Castle Drive, MD-NC119
Armonk, NY 10504-1785
US*

For license inquiries regarding double-byte character set (DBCS) information, contact the IBM Intellectual Property Department in your country or send inquiries, in writing, to:

*Intellectual Property Licensing
Legal and Intellectual Property Law
IBM Japan Ltd.
19-21, Nihonbashi-Hakozakicho, Chuo-ku
Tokyo 103-8510, Japan*

INTERNATIONAL BUSINESS MACHINES CORPORATION PROVIDES THIS PUBLICATION "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF NON-INFRINGEMENT, MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. Some jurisdictions do not allow disclaimer of express or implied warranties in certain transactions, therefore, this statement may not apply to you.

This information could include technical inaccuracies or typographical errors. Changes are periodically made to the information herein; these changes will be incorporated in new editions of the publication. IBM may make improvements and/or changes in the product(s) and/or the program(s) described in this publication at any time without notice.

Any references in this information to non-IBM websites are provided for convenience only and do not in any manner serve as an endorsement of those

websites. The materials at those websites are not part of the materials for this IBM product and use of those websites is at your own risk.

IBM may use or distribute any of the information you provide in any way it believes appropriate without incurring any obligation to you.

Licensees of this program who wish to have information about it for the purpose of enabling: (i) the exchange of information between independently created programs and other programs (including this one) and (ii) the mutual use of the information which has been exchanged, should contact:

*IBM Director of Licensing
IBM Corporation
North Castle Drive, MD-NC119
Armonk, NY 10504-1785
US*

Such information may be available, subject to appropriate terms and conditions, including in some cases, payment of a fee.

The licensed program described in this document and all licensed material available for it are provided by IBM under terms of the IBM Customer Agreement, IBM International Program License Agreement or any equivalent agreement between us.

The performance data and client examples cited are presented for illustrative purposes only. Actual performance results may vary depending on specific configurations and operating conditions.

Information concerning non-IBM products was obtained from the suppliers of those products, their published announcements or other publicly available sources. IBM has not tested those products and cannot confirm the accuracy of performance, compatibility or any other claims related to non-IBM products. Questions on the capabilities of non-IBM products should be addressed to the suppliers of those products.

Statements regarding IBM's future direction or intent are subject to change or withdrawal without notice, and represent goals and objectives only.

All IBM prices shown are IBM's suggested retail prices, are current and are subject to change without notice. Dealer prices may vary.

This information is for planning purposes only. The information herein is subject to change before the products described become available.

This information contains examples of data and reports used in daily business operations. To illustrate them as completely as possible, the examples include the names of individuals, companies, brands, and products. All of these names are fictitious and any similarity to actual people or business enterprises is entirely coincidental.

COPYRIGHT LICENSE:

This information contains sample application programs in source language, which illustrate programming techniques on various operating platforms. You may copy, modify, and distribute these sample programs in any form without payment to

IBM, for the purposes of developing, using, marketing or distributing application programs conforming to the application programming interface for the operating platform for which the sample programs are written. These examples have not been thoroughly tested under all conditions. IBM, therefore, cannot guarantee or imply reliability, serviceability, or function of these programs. The sample programs are provided "AS IS", without warranty of any kind. IBM shall not be liable for any damages arising out of your use of the sample programs.

Each copy or any portion of these sample programs or any derivative work must include a copyright notice as shown in the next column.

© 2015.

Portions of this code are derived from IBM Corp. Sample Programs.

© Copyright IBM Corp. 2015.

Trademarks

IBM, the IBM logo, and ibm.com are trademarks or registered trademarks of International Business Machines Corp., registered in many jurisdictions worldwide. Other product and service names might be trademarks of IBM or other companies. A current list of IBM trademarks is available on the web at "Copyright and trademark information" at www.ibm.com/legal/copytrade.shtml.

Adobe, the Adobe logo, PostScript, and the PostScript logo are either registered trademarks or trademarks of Adobe Systems Incorporated in the United States, and/or other countries.

IT Infrastructure Library is a registered trademark of the Central Computer and Telecommunications Agency which is now part of the Office of Government Commerce.

Intel, Intel logo, Intel Inside, Intel Inside logo, Intel Centrino, Intel Centrino logo, Celeron, Intel Xeon, Intel SpeedStep, Itanium, and Pentium are trademarks or registered trademarks of Intel Corporation or its subsidiaries in the United States and other countries.

Linux is a registered trademark of Linus Torvalds in the United States, other countries, or both.

Microsoft, Windows, Windows NT, and the Windows logo are trademarks of Microsoft Corporation in the United States, other countries, or both.

ITIL is a registered trademark, and a registered community trademark of the Office of Government Commerce, and is registered in the U.S. Patent and Trademark Office.

UNIX is a registered trademark of The Open Group in the United States and other countries.

Java[™] and all Java-based trademarks and logos are trademarks or registered trademarks of Oracle and/or its affiliates.

Cell Broadband Engine is a trademark of Sony Computer Entertainment, Inc. in the United States, other countries, or both and is used under license therefrom.

Linear Tape-Open, LTO, the LTO Logo, Ultrium and the Ultrium Logo are trademarks of HP, IBM Corp. and Quantum in the U.S. and other countries.

Connect Control Center[®], Connect:Direct[®], Connect:Enterprise[®], Gentran[®], Gentran[®]:Basic[®], Gentran:Control[®], Gentran:Director[®], Gentran:Plus[®], Gentran:Realtime[®], Gentran:Server[®], Gentran:Viewpoint[®], Sterling Commerce[™], Sterling Information Broker[®], and Sterling Integrator[®] are trademarks or registered trademarks of Sterling Commerce[®], Inc., an IBM Company.

Other company, product, and service names may be trademarks or service marks of others.

Terms and conditions for product documentation

Permissions for the use of these publications are granted subject to the following terms and conditions.

Applicability

These terms and conditions are in addition to any terms of use for the IBM website.

Personal use

You may reproduce these publications for your personal, noncommercial use provided that all proprietary notices are preserved. You may not distribute, display or make derivative work of these publications, or any portion thereof, without the express consent of IBM.

Commercial use

You may reproduce, distribute and display these publications solely within your enterprise provided that all proprietary notices are preserved. You may not make derivative works of these publications, or reproduce, distribute or display these publications or any portion thereof outside your enterprise, without the express consent of IBM.

Rights

Except as expressly granted in this permission, no other permissions, licenses or rights are granted, either express or implied, to the publications or any information, data, software or other intellectual property contained therein.

IBM reserves the right to withdraw the permissions granted herein whenever, in its discretion, the use of the publications is detrimental to its interest or, as determined by IBM, the above instructions are not being properly followed.

You may not download, export or re-export this information except in full compliance with all applicable laws and regulations, including all United States export laws and regulations.

IBM MAKES NO GUARANTEE ABOUT THE CONTENT OF THESE PUBLICATIONS. THE PUBLICATIONS ARE PROVIDED "AS-IS" AND WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING BUT NOT LIMITED TO IMPLIED WARRANTIES OF MERCHANTABILITY, NON-INFRINGEMENT, AND FITNESS FOR A PARTICULAR PURPOSE.



Product Number: 5725-C99

Printed in USA