

IBM Sterling Gentrán

System Requirements



Copyright

This edition applies to the IBM® Sterling Gentran Product Line. Before using this information and the products it supports, read the information in *Notices* on page N-1.

Licensed Materials - Property of IBM

IBM® Sterling Gentran:Basic® for z/OS®

IBM® Sterling Gentran:Server® for UNIX

IBM® Sterling Gentran:Director®

IBM® Sterling Gentran:Server® for UNIX - Workstation

IBM® Sterling Gentran:Server® for Microsoft Windows.

IBM® Sterling Gentran:Server® for iSeries

© Copyright IBM Corp. 1988, 2011. All Rights Reserved.

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

Contents

Sterling Gentran:Basic for zSeries 6.6 System Requirements	5
Introduction	5
Installer System Requirements	5
Hardware Requirements	5
Software Requirements	6
Sterling Gentran:Director 5.5 System Requirements	7
Introduction	7
Hardware Requirements	7
Software Requirements	7
Sterling Gentran:Server for iSeries 3.6 System Requirements	8
Introduction	8
OS/400 Versions Supported	8
DASD Requirements	8
Sterling Gentran:Server for UNIX 6.2 System Requirements	9
Introduction	9
Windows Client	9
UNIX Host	9
Operating Systems	9
Networking Requirements	10
Lifecycle Requirements	10
Sterling Gentran:Server for UNIX - Workstation 6.2 System Requirements	11
Hardware and Software Requirements	11
Sterling Gentran:Server for Microsoft Windows 5.3 System Requirements	12
Introduction	12
Hardware Requirements	12
Supported Operating Systems	14
Supported Databases	15
Obtaining Additional Files	17
Clustering and Resident/Non-Resident Databases	17

Sterling Gentran:Basic for zSeries 6.6 System Requirements

Introduction

This topic describes the hardware and software requirements for IBM® Sterling Gentran:Basic® for z/OS® Release 6.6.

Installer System Requirements

To install Sterling Gentran:Basic, you need the following:

- ◆ A personal computer running a Microsoft® Windows® operating system
- ◆ A CD-ROM drive, if you are installing from the CD-ROMs
- ◆ 750 MB of available hard disk space
- ◆ FTP capability

Hardware Requirements

Sterling Gentran:Basic operates on any IBM mainframe running the z/OS operating system.

Host System Disk Space Requirements:

Disk space requirements listed below are based on the use of IBM 3390 disk drives:

Component	Tracks Required
Batch Load Library	150
Online Load Library	300
System JCL Library	90
System Test Data	10
Utility Source Library	30
VSAM Base Files	300
VSAM Standards Files	3,000
VSAM Mapping Files	1,000
VSAM Databank Files	150

VSAM space requirements previously listed are enough for your initial use of the Sterling Gentran:Basic system. As you increase the number of partners, applications, and maps you use, you may need additional space.

See the section corresponding to each individual Databank file in the *IBM® Sterling Gentran:Basic® for z/OS® Release 6.6 Technical Reference Guide* for disk space requirements.

The installation process also requires approximately 18,000 tracks of temporary space for sequential seed and work files. You may delete these temporary files after the Sterling Gentran:Basic installation is complete, using the DELFILES job.

Software Requirements

To operate properly, the following software must reside on the host system:

- ◆ z/OS operating system
- ◆ CICS Transaction Server for z/OS
- ◆ Language Environment run-time support

Additional CICS software environment:

- ◆ CICS command-level support for COBOL and Assembler languages
- ◆ CICS Language Environment run-time modules
- ◆ VSAM support
- ◆ 3270-type terminal support

Sterling Gentran:Director 5.5 System Requirements

Introduction

This topic describes the hardware and software requirements for IBM® Sterling Gentran:Director® 5.5.

Hardware Requirements

- ◆ 150 MB free disk space
 - ◆ Processor size and speed: See the Microsoft documentation or Web site for their recommendations for the operating system you are using.
<http://www.microsoft.com>
 - ◆ RAM: See the Microsoft Web site for their recommendations for the operating system you are using.
<http://www.microsoft.com>
 - ◆ Hayes®-compatible modem with MNP or V.42 support with a minimum baud rate of 28800 (higher rate recommended)
–or–
Dialup connection to an Internet Service Provider (ISP) or a LAN connection with ports 110 and 25 open
- Note:** If you are planning to connect to a VAN other than Sterling Information Broker and do not know the protocol you need, please contact IBM Customer Support.
- ◆ CD-ROM drive (Required for installation, optional for updates)
 - ◆ DVD drive (Optional for installing Standards updates. You can also download them from the Sterling Support Center Web site.)
 - ◆ SVGA color monitor
 - ◆ Mouse

Software Requirements

- ◆ Operating System:
Must be one of the following operating systems, at the version and service pack level listed.
 - * Windows 7
 - * Windows 2000 Professional, v. 5.0, SP4
 - * Windows XP Professional, v. 1.0, SP2
 - ◆ Microsoft Data Access Components (MDAC) v. 2.8 or higher
- Note:** MDAC v. 2.8 is included on the Sterling Gentran:Director Connection product CD-ROM.

Sterling Gentran:Server for iSeries 3.6 System Requirements

Introduction

This topic describes the hardware and software requirements for IBM® Sterling Gentran:Server® for iSeries® 3.6.

OS/400 Versions Supported

Sterling Gentran:Server provides support for the OS/400 versions that IBM supports. If you are using a version of OS/400 that IBM does not support, you must upgrade the operating system before installing Release 3.6.

DASD Requirements

At a minimum, your system must have available the required DASD amounts shown below. All numbers are rounded up to the next megabyte (MB).

Installation	RISC
Minimum DASD available needed for installation	290MB
If you plan to install the sample tutorial library, add:	66MB
If you plan to install the TOOLS library, add:	4MB
If you plan to install all EDI standards versions, add:	605MB

Note: The amount of DASD needed for the standards varies depending on the number of versions you want to install. You need a minimum of 60MB to install two or three versions.

Sterling Gentran:Server for UNIX 6.2 System Requirements

Introduction

This topic describes the requirements for IBM® Sterling Gentran:Server® for UNIX® 6.2.

Windows Client

Each Windows client must have:

- ◆ A CD-ROM drive
- ◆ Microsoft Windows XP® SP2®, or Windows 7®
- ◆ A minimum of 1 GB of free disk space

Note: Your Windows operating system may require updates to work correctly. Check the following Microsoft web site to determine and download the latest service packs for your operating system:

<http://www.microsoft.com/windows/downloads/default.asp>

UNIX Host

The UNIX host computer must have:

- ◆ A minimum of 100 MB free disk space
- ◆ A minimum of 500 MB memory
- ◆ Additional disk space for customer data, archives, etc.

Note: For IBM® Sterling Gentran:Server® for UNIX, the UNIX host *must* include the Korn shell.

Operating Systems

This table lists the minimum operating system requirements for supported Sterling Gentran:Server for UNIX platforms.

Hardware Platform	Operating System and Version
HP 9000	HP-UX 11.31
IBM RS6000	A minimum of AIX 5.3
SUN	A minimum of Solaris 10

Patches

Hewlett-Packard provides service patches to their operating systems. You may need the service patches if you experience problems with message queues, the dynamic loader, performance, or the translator. Check

the Hewlett-Packard web site, or contact your Hewlett-Packard representative to obtain the most recent information about service patches.

Networking Requirements

Your Sterling Gentran:Server for UNIX installation must satisfy the following networking requirements.

- ◆ Appropriate software for the EDI administrator to access the UNIX command line (Telnet or an x-emulation package).
- ◆ TCP/IP connectivity between UNIX host and Windows client computers.

Lifecycle Requirements

The Sterling Gentran:Server Life Cycle auditing facility interfaces with most versions of:

- ◆ Informix
- ◆ Oracle
- ◆ Sybase

Contact IBM Customer Support to verify that a particular version of a database is supported.

This table lists, by vendor, the software that may be required to run Life Cycle:

Vendor	Required Software	Description
Informix	ESQL/C Openline	Embedded SQL precompiler
	I-SQL Openline	SQL statement interpreter
	Informix Standard Engine (SE)	Standard database engine
Oracle	PRO*C	Embedded SQL precompiler for C source code
	Oracle RDBMS	Database server
	PL/SQL	SQL statement interpreter
Sybase	Sybase SQL Server	Database server
	Open Client/C	Necessary libraries to communicate with Sybase
	Embedded SQL/C	Embedded SQL precompiler for C source code

Note: Check with your database vendor for current requirements.

Sterling Gentran:Server for UNIX - Workstation 6.2 System Requirements

Hardware and Software Requirements

Each workstation computer needs the following resources for you to install and run IBM® Sterling Gentran:Server® for UNIX - Workstation version 6.2.

- ◆ A CD-ROM drive
- ◆ Microsoft Windows XP® SP2, or Windows 7
- ◆ A minimum of 1 GB of free disk space

Note: Your Windows operating system may require updates to work correctly. Check the following Microsoft web site to determine and download the latest service packs for your operating system:

<http://www.microsoft.com/windows/downloads/default.asp>

Sterling Gentran:Server for Microsoft Windows 5.3 System Requirements

Introduction

This topic describes the hardware and software requirements for IBM® Sterling Gentran:Server® for Microsoft Windows 5.3.

Hardware Requirements

Introduction

This section describes our recommendations for the configuration of a Sterling Gentran:Server system. If you follow the recommendations outlined in this section, it is easier for you to install, maintain, administer, and support the system.

Distributed Environments

In a distributed environment, the recommended hardware and software configuration depends on which Sterling Gentran:Server system components are run on the machine. Production implementations should implement the recommended specifications to achieve maximum system performance.

Note: Significant performance improvements can be accomplished with additional RAM (memory). Processing a large number of documents may necessitate an increase from these recommendations.

Recommended Hardware

The following are our hardware recommendations. Production implementations should implement the recommended specifications to achieve maximum system performance. These recommendations assume that only the operating system, the database management system, and Sterling Gentran:Server are installed on your machine. Any additional software may require additional hardware.

Hardware	Recommended
Processor	Pentium 4 Processor or higher We strongly recommend that you purchase server class hardware instead of high-end desktop systems. This type of hardware is significantly more reliable and offers greater performance than desktop units. Implementations requiring concurrent translation or communications should consider multi-processor servers.

Hardware	Recommended																																																		
Disk Space Available	<p>The following calculation should yield an accurate approximation of the disk space required to implement Sterling Gentran:Server. We suggest that you implement some level of RAID.</p> <p>(Total Inbound Data times Data Retention Period) plus (Total Outbound Data times Data Retention Period) times 6 plus 500 MB (system overhead)</p> <p>For example: You process an average of 10 MB of inbound data and 20 MB of outbound data per day. You want to retain that data on the system for 14 days.</p> <p>The calculation is:</p> <table style="margin-left: auto; margin-right: auto;"> <tr> <td>Inbound – 10 MB</td> <td>X</td> <td>14 days</td> <td>=</td> <td>140 MB</td> </tr> <tr> <td>Outbound – 20 MB</td> <td>X</td> <td>14 days</td> <td>=</td> <td>280 MB</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td>-----</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td>420 MB</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td>X 6</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td>-----</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td>2620 MB</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td>+500 MB</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td>-----</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td>3120 MB or 3.2 GB</td> </tr> </table>	Inbound – 10 MB	X	14 days	=	140 MB	Outbound – 20 MB	X	14 days	=	280 MB					-----					420 MB					X 6					-----					2620 MB					+500 MB					-----					3120 MB or 3.2 GB
Inbound – 10 MB	X	14 days	=	140 MB																																															
Outbound – 20 MB	X	14 days	=	280 MB																																															

				420 MB																																															
				X 6																																															

				2620 MB																																															
				+500 MB																																															

				3120 MB or 3.2 GB																																															
Memory (RAM)	<p>The memory required can be approximated by the amount of data to be translated. This estimate is the amount of input data plus the amount of output data that is processed in a day. This assumes that the data to be processed is distributed throughout the day.</p> <p>If the data must be processed in less than a 4 hour window, use the next higher tier for required memory.</p>																																																		
	IF you have this amount of output data per day...	THEN you need at least this much RAM...																																																	
	Less than 25 MB data	64 MB RAM																																																	
	25 MB – 50 MB data	128 MB RAM																																																	
	50 MB – 100 MB data	256 MB RAM																																																	
> 100 MB data	consider upgrading to single server or distributed version of Sterling Gentran:Server																																																		
CD-ROM	Yes																																																		
Mouse	Yes (or other tracking device)																																																		
Monitor	<p>SVGA 256-color monitor (recommend 17" 1024 x 768 resolution for Application and Forms Integration)</p> <p>Note: Your monitor must support 800 x 600 pixel resolution.</p>																																																		
Communications	Modem to support external communications																																																		

Hardware	Recommended
Clustered System Requirements (for distributed environments only)	Requirements: <ul style="list-style-type: none"> ◆ A pair of Microsoft-verified SCSI adapters ◆ A SCSI quorum drive ◆ Two PCs (preferably identical)

Supported Operating Systems

Introduction

This section describes the Microsoft Windows systems that have been tested for use with Sterling Gentran:Server.

The version and service pack numbers contained in this list are the releases that have been tested with Sterling Gentran:Server at the time this list was published.

Note: This information is intended to be used as a starting point for determining which versions of Sterling Gentran:Server and operating system are compatible. Refer to the IBM Sterling Customer Support website for the most current information on supported software:

<http://customer.sterlingcommerce.com>

Operating Systems

This table identifies the operating systems supported for use with Sterling Gentran:Server:

Sterling Gentran:Server System Component	Operating System	Service Pack
Single workstation license (non-distributed environment)	Windows 2000 Professional	SP4
	Windows 2000 Server	SP4
	Windows 2000 Advanced Server	SP4
	Windows Server 2003, Standard Edition	SP2
	Windows Server 2003, Enterprise Edition	SP2
	Windows XP Professional	SP2
	Windows Vista	
User Interface Client (distributed environment or single workstation)	Windows XP Professional	SP2
	Windows 2000 Professional	SP4
	Windows 2003 Professional	SP2
	Windows Vista	

Sterling Gentran:Server System Component	Operating System	Service Pack
Primary System Controller/ Process Controllers/ Communication Controllers (distributed environment)	Windows 2000 Server	SP4
	Windows 2000 Advanced Server	SP4
	Windows Server 2003, Enterprise Edition	SP2
	Windows Server 2003, Standard Edition	SP2
Node(s) in a Clustered Environment	Windows 2000 Advanced Server	SP4
	Windows Server 2003, Enterprise Edition	SP2

Operating Systems in a Distributed Environment

In a non-clustered environment, you must have Windows 2003 Enterprise Edition, Windows 2003 Standard Edition, Windows 2000 Server, Windows 2000 Professional, or Windows XP Professional (for user interface clients *only*) installed on each machine that is used in the Sterling Gentran:Server system. Depending on the type of system component that is installed on each machine, the operating system requirements vary.

In a clustered environment you must have Windows 2000 Advanced Server or Windows Server 2003 Enterprise Edition on all machines in the system.

You must have Windows 2000 Server, Windows 2000 Advanced Server, Windows 2003 Enterprise Edition, or Windows 2003 Standard Edition installed on your primary Sterling Gentran:Server system controller in a distributed system, because this allows you to administrate the domain.

Using VMWare Virtual Server Environment

With Sterling Gentran:Server for Windows release 5.3, IBM will offer standard support of Sterling Gentran:Server on supported versions of Microsoft Windows in a VMWare virtual server environment.

Customers who encounter problems that cannot be reproduced in a non-virtual Windows environment will be referred to VMWare for appropriate support. IBM support for Sterling Gentran:Server for Windows on Windows extends to VMWare virtualization products that are supported by VMWare/EMC as of August 1, 2008.

Supported Databases

Introduction

This section describes the database management systems that have been tested for use with Sterling Gentran:Server.

The version numbers contained in these list are the releases that have been tested with Sterling Gentran:Server at the time this list was published.

Note: This information is intended to be used as a starting point for determining which versions of Sterling Gentran:Server and databases are compatible. Refer to the IBM Sterling Customer Support website for the most current information on supported software:

<http://customer.sterlingcommerce.com>

Support for Oracle databases does not include support for the Oracle Exadata platform.

Database Management Systems

You must install a relational database management system (RDBMS). In a distributed environment, the RDBMS must be accessible to all machines on which Sterling Gentran:Server components are installed.

You must also install Open Database Connectivity (ODBC) on your machine (for a single workstation) or on each machine that has Sterling Gentran:Server components installed (for a distributed environment). In addition, you must install the appropriate drivers for your RDBMS. Sterling Gentran:Server uses ODBC to use databases from different vendors. Typically, ODBC and the correct drivers are installed with your RDBMS.

The following tables summarize the testing configurations with which Sterling Gentran:Server is tested.

Recommendation

Check with your vendor for available updates. We strongly recommend that you apply any updates to a test environment prior to upgrading your production system.

Notes

- ◆ Using Windows 2000 service pack updates will affect the Microsoft for Oracle ODBC driver version.
- ◆ Using Windows 2000 or SQL Server service pack updates will affect the SQL Server driver version and update the version of MDAC installed on your system.

SQL Server with Windows

IF you have SQL Server database version...	Apply this SQL Service Pack...	Apply this ODBC Patch...	Supported MDAC
SQL Server 2000	SP4 (Please check with your vendor for recommended updates.)	N/A Controlled by MDAC version.	MDAC 2.7 or 2.8 (applied by the service pack)
SQL Server 2005	SP2 (Please check with your vendor for recommended updates.)	N/A Controlled by MDAC version and SQL Native Client.	MDAC 9.0 (applied by OS service pack)

Oracle with Windows

IF you have Oracle database version...	Apply this Oracle Patch Set...	Apply this ODBC Patch...	Supported MDAC
<ul style="list-style-type: none"> Oracle 10g Release 2 Oracle 9i Release 2 	None required. (Please check with your vendor for recommended updates.)	None required. (Please check with your vendor for recommended updates.)	MDAC 2.7 or 2.8
<ul style="list-style-type: none"> Oracle 11g 	None required. (Please check with your vendor for recommended updates.)	None required. (Please check with your vendor for recommended updates.)	MDAC 2.8

Obtaining Additional Files

ODBC Administrator

The ODBC Administrator is found within the Microsoft Data Access Components. You can download these from the Microsoft website:

www.microsoft.com/data/ (Follow the links to the download site.)

Oracle Patch Sets and Oracle Support Matrix

Please contact Oracle to obtain Oracle Patch Sets and up-to-date status on Oracle configurations, or see the Oracle website:

www.oracle.com

Clustering and Resident/Non-Resident Databases

Overview

The following table contains the operating system and database configurations that are supported for IBM® Sterling Gentran:Server® for Microsoft Windows version 5.3.

This table also describes the configurations in which resident or non-resident databases are supported:

	Operating System	Database	Sterling Gentran:Server in a Clustered System	Sterling Gentran:Server in a Non-Clustered System
Distributed System	Windows 2000 Advanced Server	SQL Server Oracle	Supported with resident and non-resident databases	Supported with resident and non-resident databases
	Windows Server 2003, Enterprise Edition	SQL Server Oracle	Supported with resident and non-resident databases	Supported with resident and non-resident databases
Single Workstation	Windows XP Professional	SQL Server	Not supported	Supported with resident and non-resident databases
	Windows Vista	SQL Server	Not supported	Supported with resident and non-resident databases
	Windows 2000 Professional	SQL Server	Not supported	Supported with resident and non-resident databases
	Windows 2000 Professional	Oracle	Not supported	Not supported

Notes

- ◆ See *Oracle with Windows* for supported versions of the Oracle database.
- ◆ Microsoft only supports clustering on Windows 2000 Advanced Servers and Windows 2003 Enterprise Edition. IBM supports clustering with a distributed license.
- ◆ Support for Oracle databases does not include support for the Oracle Exadata platform.

Notices

This information was developed for products and services offered in the U.S.A.

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

Armonk, NY 10504-1785

U.S.A.

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.

1623-14, Shimotsuruma, Yamato-shi

Kanagawa 242-8502 Japan

The following paragraph does not apply to the United Kingdom or any other country where such provisions are inconsistent with local law:

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 states 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 Web sites are provided for convenience only and do not in any manner serve as an endorsement of those Web sites. The materials at those Web sites are not part of the materials for this IBM product and use of those Web sites is at your own risk.

IBM may use or distribute any of the information you supply 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 Corporation

J46A/G4

555 Bailey Avenue

San Jose, CA__95141-1003

U.S.A.

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.

Any performance data contained herein was determined in a controlled environment. Therefore, the results obtained in other operating environments may

vary significantly. Some measurements may have been made on development-level systems and there is no guarantee that these measurements will be the same on generally available systems. Furthermore, some measurements may have been estimated through extrapolation. Actual results may vary. Users of this document should verify the applicable data for their specific environment.

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.

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

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 the names and addresses used by an actual business enterprise 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 follows:

© IBM 2011. Portions of this code are derived from IBM Corp. Sample Programs.

© Copyright IBM Corp. 2011.

If you are viewing this information softcopy, the photographs and color illustrations may not appear.

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](http://www.ibm.com/legal/copytrade.shtml)" 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.