VisualAge Generator

Installation Guide

Version 4.5

GH23-0257-01

Note

Before using this document, read the general information under "Notices" on page vii.

First Edition (September 2000)

This edition applies to the following licensed programs:
- IBM VisualAge Generator Developer for OS/2 and Windows NT Version 4.5
- IBM VisualAge Generator Server for OS/2, AIX, Windows NT, HP-UX, and Solaris Version 4.5
- IBM VisualAge Generator Server for AS/400 Version 3.1
- IBM VisualAge Generator Server for AS/400 Version 3.6
- IBM VisualAge Generator Server for MVS, VSE, and VM Version 1.2

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Terminology used in this document

Unless otherwise noted in this publication, the following references apply:

- MVS CICS applies to Customer Information Control System/Enterprise Systems Architecture (CICS/ESA) systems.
- CICS applies to CICS for VSE/ESA, CICS/ESA, CICS for OS/2, CICS for AIX, CICS for Windows NT, and CICS for Solaris.

- CICS for Windows NT refers to IBM TXSeries for Windows NT Version 4.2.
- CICS for AIX refers to IBM TXSeries for AIX Version 4.2.
- CICS for Solaris refers to IBM WebSphere Enterprise Edition Version 3.0.
- IMS/VS applies to Information Management System/Enterprise System Architecture (IMS/ESA) and IMS/ESA Transaction Manager systems.
- IMS applies to IMS/ESA and IMS/ESA Transaction Manager, and to message processing program (MPP), IMS Fast Path (IFP), and batch message processing (BMP) regions. IMS/VS is used to distinguish MPP and IFP regions from the IMS BMP target environment.
- LE applies to the IBM Language Environment for MVS and VM.
- COBOL applies to any of the following types of COBOL:
  - IBM VisualAge for COBOL for OS/2
  - ILE COBOL/400
  - IBM COBOL for VSE
  - IBM COBOL for MVS and VM
- "Region" and "CICS region" correspond to the following:
  - CICS for MVS/ESA region
  - IMS region
  - CICS for VSE/ESA partition
  - CICS for OS/2 system
  - CICS for AIX system
  - CICS for Windows NT system
  - CICS for Solaris system
- DB2/VSE refers to SQL/DS Version 3 Release 4 or later. Any references to SQL/DS refer to DB2/VSE and SQL/DS on VM. In addition, any references to SQL/400 refer to DB2/400.
- OS/2 CICS applies to CICS Operating System/2 (CICS for OS/2).
- Workstation applies to a personal computer, not an AIX workstation.
- The make process applies to the generic process not to specific make commands, such as make, nmake, pmake, polymake.
- Unless otherwise noted, references to VM apply to Virtual Machine/Enterprise Systems Architecture (VM/ESA) environments.
- References to VM batch apply to any batch facility running on VM.
- DB2/2 applies to DB2/2 Version 2.1 or later, and DB2 Universal Database (UDB) for OS/2 Version 5.
- DB2/6000 applies to DB2/6000 Version 2.1 or later, and DB2 Universal Database (UDB) for AIX Version 5.
- Windows applies to Windows 95, Windows 98, Windows NT, and Windows 2000.
- Unless a specific version of Windows NT is referenced, statements regarding Windows NT also apply to Windows 2000.

Terminology differences between Java and Smalltalk

VisualAge Generator Developer can be installed as a feature of VisualAge for Java or VisualAge Smalltalk. Where appropriate, the documentation uses terminology that is specific to Java or Smalltalk. But where the information is specific to VisualAge Generator and virtually the same for both environments, the Java/Smalltalk term is used.

Table 1. Terminology differences between Java and Smalltalk

Java term	Combined Java/Smalltalk term	Smalltalk term
Project	Project/Configuration map	Configuration map
Package	Package/Application	Application
Workspace	Workspace/Image	Image
Beans palette	Beans/Parts palette	Parts palette
Bean	Visual part or bean	Visual part
Repository	Repository/ENVY library	ENVY library manager
Options	Options/Preferences	Preferences

About this document

This document provides information for installing, customizing, maintaining, and getting support for VisualAge Generator for the OS/2, Windows, AIX, HP-UX, and Solaris environments.

Documentation provided with VisualAge Generator

VisualAge Generator documents are provided in one or more of the following formats:

- Printed and separately ordered using the individual form number.
- Online book files (.pdf) on the product CD-ROM. Adobe Acrobat Reader is used to view the manuals online and to print desired pages.
- HTML files (.htm) on the product CD-ROM and from the VisualAge Generator web page (**http://www.ibm.com/software/ad/visgen**).

The following books are shipped with the VisualAge Generator Developer CD. Updates are available from the VisualAge Generator Web page.

- *VisualAge Generator Getting Started* (GH23-0258-01) [1,2]
- *VisualAge Generator Installation Guide* (GH23-0257-01) [1,2]
- *Introducing VisualAge Generator Templates* (GH23-0272-01) [2,3]

The following books are shipped in PDF and HTML formats on the VisualAge Generator CD. Updates are available from the VisualAge Generator Web page. Selected books are available in print as indicated.

- *VisualAge Generator Client/Server Communications Guide* (SH23-0261-01)[1, 2]
- *VisualAge Generator Design Guide* (SH23-0264-00) [1]
- *VisualAge Generator Generation Guide* (SH23-0263-01) [1]
- *VisualAge Generator Messages and Problem Determination Guide* (GH23-0260-01) [1]
- *VisualAge Generator Programmer's Reference* (SH23-0262-01) [1]
- *VisualAge Generator Migration Guide* (SH23-0267-00) [1]
- *VisualAge Generator Server Guide for Workstation Platforms* (SH23-0266-01) [1,4]
- *VisualAge Generator System Development Guide* (SG24-5467-00) [2]
- *VisualAge Generator User's Guide* (SH23-0268-01) [1, 2]
- *VisualAge Generator Web Transaction Development Guide* (SH23-0281-00) [1]

1. These documents are available as HTML files and PDF files on the product CD.
2. These documents are available in hardcopy format.
3. These documents are available as PDF files on the product CD.
4. This document is included when you order the VisualAge Generator Server product CD.

The following documents are available in printed form for VisualAge Generator Server for AS/400 and VisualAge Generator Server for MVS, VSE, and VM:

- *VisualAge Generator Server Guide for AS/400* (SH23-0280-00) [2]
- *VisualAge Generator Server Guide for MVS, VSE, and VM* (SH23-0256-00) [2]

The following information is also available for VisualAge Generator:

- *VisualAge Generator External Source Format Reference* (SH23-0265-01)
- *Migrating Cross System Product Applications to VisualAge Generator* (SH23-0244-01)
- *VisualAge Generator Templates V4.5 Standard Functions—User's Guide* (SH23-0269-01)[2, 3]

Part 1. Planning for product installation

Chapter 1. Considering overall VisualAge Generator planning issues

This chapter describes planning issues that you should consider before you install VisualAge Generator.

Migrating from a previous version of the product

If you are migrating from a previous version of the product, please refer to the *VisualAge Generator Migration Guide* before you install VisualAge Generator.

Accessing the VisualAge Generator Readme file and Web sites

Before you install the VisualAge Generator product, please take the time to read the Readme file shipped on the product's compact disk (CD). This file contains late-breaking installation news and tips. For the latest information, see the online version of this installation guide at the IBM VisualAge Generator World Wide Web site listed below.

The Readme file is provided in both HTML (**readme.htm**) and flat text (**readme.txt**) formats. Both files are located in the Readme directory on the VisualAge Generator CD.

You can use any Web browser to open the HTML version of the Readme file. You can use your favorite text editor to view the text version of the Readme file.

You can find more information about VisualAge Generator and other IBM products on the following Web sites:

IBM VisualAge Generator
http://www.ibm.com/software/ad/visgen

IBM VisualAge Smalltalk
http://www.software.ibm.com/ad/smalltalk

IBM VisualAge for Java
http://www.software.ibm.com/ad/vajava

IBM VisualAge Resource Catalog
http://www.software.ibm.com/ad/visage/rc

IBM Software: Application Development and Object Technology
http://www.software.ibm.com/ad

IBM Software home page
http://www.software.ibm.com

IBM Corporation home page
http://www.ibm.com

Future fixes to VisualAge Generator will also be made available on the Internet via anonymous FTP from the following site:

`ftp://ps.software.ibm.com/ps/products/visualagegen/fixes/v4.5`

Chapter 2. Planning to install VisualAge Generator Developer

This chapter describes planning issues that you should consider before you install VisualAge Generator Developer.

VisualAge Generator Developer must be installed in the same directory as VisualAge Smalltalk Enterprise Client or VisualAge for Java. You should install VisualAge Smalltalk or VisualAge for Java before installing VisualAge Generator Developer. If you try to install VisualAge Generator Developer before you install Smalltalk or Java, the installation software will ask you to install Smalltalk or Java.

Installing stand-alone versus client and repository server

If you are working alone and not planning to share your source code repository, you will probably want to install VisualAge Generator Developer stand-alone. If you want multiple programmers to share the repository, install the repository on a server and the client on each workstation. You specify this choice when you install VisualAge Smalltalk or VisualAge for Java.

Figure 1 illustrates a stand-alone installation.

Figure 1. Stand-alone installation

Figure 2 on page 6 illustrates a shared-repository installation with a generation server (described below).

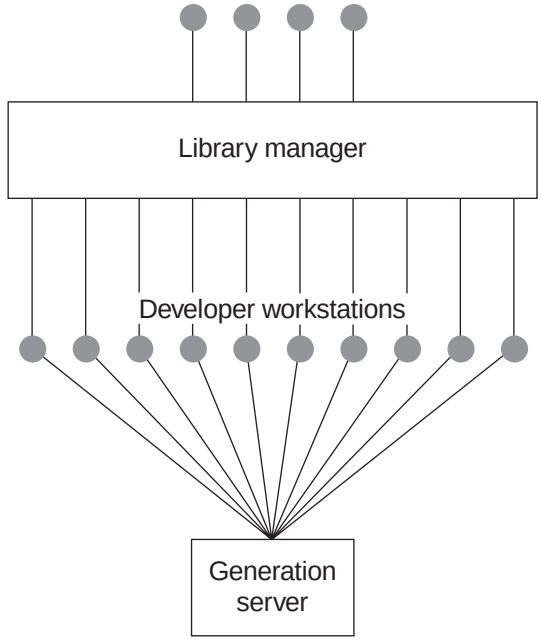

Figure 2. Shared-repository installation

Installing stand-alone on VisualAge Smalltalk

To install VisualAge Generator stand-alone, do the following:

1. Install VisualAge Smalltalk 5.0.
   a. In the VisualAge 5.0 Installation window, select **Install Manager Library**.
   b. In the Select Products and Components window, select **VisualAge Smalltalk Enterprise - Manager Library**.
   c. Select File I/O as the access method.
2. Install VisualAge Smalltalk 5.0 again on the same system.
   a. In the VisualAge 5.0 Installation window, select **Install Client**.
   b. In the Select Products and Components window, select **VisualAge Smalltalk Enterprise - Client**.
   c. Select File I/O as the access method.
3. Install VisualAge Generator Developer on top of the VisualAge Smalltalk client.

Installing with a shared repository on VisualAge Smalltalk

To install VisualAge Generator with a shared repository, do the following:

1. Install VisualAge Smalltalk 5.0. on the system that you want to contain the shared repository. (The repository is also called the manager library.)

a. In the VisualAge 5.0 Installation window, select **Install Manager Library**.
b. In the Select Products and Components window, select **VisualAge Smalltalk Enterprise - Manager Library**.
c. Select EMSRV as the access method.
d. Finish installing VisualAge Smalltalk.

2. Run ipconfig/all to get the host name and IP address of the system on which the repository is installed.
3. Set up EMSRV. This process is described in detail in the VisualAge Smalltalk Installation Guide. A simple sample installation using the default installation directory and not using password checking involves the following steps on a Windows NT system:
   a. Add a user account named EMSRV with a password, for example, repos4vg.
   b. Add a EMSRV to the Administrators group.
   c. Under User Rights Policies, grant the Administrators group the privilege of acting as part of the operating system.
   d. Reboot to make the changes to user rights take effect.
   e. Go to C:\Program Files\VAST\bin and run the following command:
      ```
      emsrv -u EMSRV -p repos4vg -rd
      ```
   f. In the same directory, run the following command to begin installing EMSRV as a service:
      ```
      emsrv -install
      ```
   g. Finish installing EMSRV as a service by going to the control panel, selecting the Services icon, and starting the service with the same parameters that were used in the previous step.
4. Install VisualAge Smalltalk 5.0. on the system on which VisualAge Generator Developer will be run.
   a. In the VisualAge 5.0 Installation window, select **Install Client**.
   b. In the Select Products and Components window, select **VisualAge Smalltalk Enterprise - Client**.
   c. Select EMSRV as the access method.
   d. When you specify the Manager Library Filename on EMSRV Machine, specify the absolute path name. For example:
      ```
      C:\Program Files\VAST\manager\mgr50.dat
      ```
5. Install VisualAge Generator Developer on top of the VisualAge Smalltalk client.
6. If you are running EMSRV on an AIX machine, copy the following files from C:\Program Files\VAST\import on your VisualAge Generator Developer system to the importDirectory listed in the abt.ini file (remember that AIX is case sensitive):

```
Hpt40DV.dat
Hpt40GS.dat
Hpt40PS.dat
Hpt40SP.dat
hptvf400.dat
Mdl3To4.dat
Mdl40s.dat
```

For more details about setting up a shared repository on VisualAge Smalltalk, including how to use passwords to maintain an audit trail of library content, see the *VisualAge Smalltalk Installation Guide*.

To stop the EMSRV service, run the following command in the same directory in which emsrv was run:

```
emadmin stop
```

To list who is currently logged in to the repository, run the following command in the same directory in which emsrv was run:

```
emadmin list
```

Installing stand-alone on VisualAge for Java

To install VisualAge Generator stand-alone, do the following:

1. Install VisualAge for Java 3.5.
   a. In the VisualAge for Java, Version 3.5 - Install window, select **Install VisualAge for Java.**.
   b. In the Setup Type window, select **complete**.
   c. For the location of the repository, select **Local**.
   d. Toward the end of the installation, you will be prompted whether to continue with the secondary installation stage. Click **Yes**.
2. Install VisualAge Generator Developer on top of VisualAge for Java.

Installing with a shared repository on VisualAge for Java

To install VisualAge Generator with a shared repository, do the following:

1. Install VisualAge for Java Team Server 3.5. on the system that you want to contain the shared repository. Team Server includes EMSRV and the repository. For information on how to install Team Server, see the Team Server documentation.
2. Run ipconfig/all to get the host name and IP address of the system on which the repository is installed.
3. Set up EMSRV as described earlier under "Installing with a shared repository on VisualAge Smalltalk" on page 6, except that the product directory is C:\IBMVJava instead of C:\Program Files\VAST.
4. Install VisualAge for Java, Version 3.5. on the system on which VisualAge Generator Developer will be run.

a. In the VisualAge for Java, Version 3.5 - Install Selection window, select **Install VisualAge for Java, Version 3.5**.
b. In the Setup Type window, select **Full**.
c. For the location of the repository, select **Server**.
d. When you specify the location of the repository, make the path name relative to the host on which the repository resides. For example:

   ```
   C:\IBMVJava\IDE\repository\ivj.dat
   ```

5. Install VisualAge Generator Developer on top of VisualAge for Java, Version 3.5.

Setting up a generator server

If you want to free up processing resources on each developer workstation, you can set up a generator server that runs batch generations for each developer. For details on how to do this, see the *VisualAge Generator Generation Guide*.

Chapter 3. Planning to install VisualAge Generator Common Services

VisualAge Generator Common Services is used by VisualAge Generator Developer and VisualAge Generator Server. Table 2 on page 12 shows the server and client platforms supported by VisualAge Generator Common Services.

Table 2. Platforms and protocols supported by Common Services

	Client platforms				
Server platforms	**OS/2**	**Windows 95 and Windows 98**	**Windows NT**	**AIX**	**Solaris**
AIX	TCP/IP, DCE	TCP/IP, DCE	TCP/IP, DCE	TCP/IP, DCE, IPC, DIRECT	TCP/IP, IPC, DIRECT
CICS for AIX	CICS Client	CICS Client	CICS Client	CICS Client	CICS Client
HP-UX	TCP/IP	TCP/IP	TCP/IP	TCP/IP	TCP/IP
IMS	APPC/IMS	APPC/IMS	APPC/IMS	(not supported)	(not supported)
CICS for MVS/ESA	CICS Client, LU2	CICS Client	CICS Client	CICS Client	CICS Client
OS/2	TCP/IP, DCE, IPC, DIRECT	TCP/IP, DCE	TCP/IP, DCE	TCP/IP, DCE	TCP/IP
CICS for OS/2	CICS Client	CICS Client	CICS Client	CICS Client	CICS Client
OS/400	CA/400	CA/400	CA/400	(not supported)	(not supported)
SCO	TCP/IP	TCP/IP	TCP/IP	TCP/IP	TCP/IP
Solaris	TCP/IP	TCP/IP	TCP/IP	TCP/IP	TCP/IP
CICS for Solaris	CICS Client	CICS Client	CICS Client	CICS Client	CICS Client
VM/ESA	TCP/IP	TCP/IP	TCP/IP	TCP/IP	TCP/IP
CICS for VSE/ESA	CICS Client	CICS Client	CICS Client	CICS Client	CICS Client
Windows NT	TCP/IP, DCE	TCP/IP, DCE	TCP/IP, DCE, IPC, DIRECT	TCP/IP, DCE	TCP/IP
CICS for Windows NT	CICS Client	CICS Client	CICS Client	CICS Client	CICS Client

Part 2. Installing and uninstalling VisualAge Generator on OS/2

Chapter 4. Installing VisualAge Generator Developer for OS/2

This chapter describes how to install VisualAge Generator Developer on OS/2. It includes the following information:

- What to do before you install the product
- Installation instructions

Sample applications are also installed with the product. See "Appendix D. Installing samples for VisualAge Generator Developer on Smalltalk" on page 117 for more information.

Before you install VisualAge Generator Developer

Before you begin installing VisualAge Generator Developer for OS/2, read the sections below for important information about uninstalling previous products and about hardware and software requirements.

Uninstalling previous products

If you are migrating from a previous version of VisualGen Developer or VisualAge Generator Developer, delete that version before installing Version 4.5 of VisualAge Generator Developer for OS/2; then reboot. Coexistence of Version 4.5 is not supported with any previous version of VisualGen Developer or VisualAge Generator Developer on the same workstation. For more information about deleting these products from your workstation, see "Chapter 11. Uninstalling VisualAge Generator on OS/2" on page 43.

In addition, before you delete the previous release of VisualAge Generator, do the following:

- Save copies of any templates or options (for example, reserved words) files you modified and which are still in the product directories
- Save the LAN generation command files (EFKSERV.CMD and EFKREQ.CMD) if you made modifications to these files.
- If you are migrating from a version of VisualAge Generator before 3.1, any programs for the C++ target environments must be regenerated for VisualAge Generator 4.5. If you are migrating COBOL programs, you do not need to regenerate unless you want to take advantage of new features in Version 4.5.
- For CICS OS/2, the default parmform option in the linkage table was COMMDATA. With VisualAge Generator 3.0 and 3.1, the option

COMMPTR is the default. Therefore, if you never specified linkage tables for CICS OS/2, you might need a linkage table now.

Then delete the previous version, reboot, install the new version and reboot again.

For more information about migrating from previous releases of VisualAge Generator, refer to the *VisualAge Generator Migration Guide* (SH23-0267-00) and *Migrating Cross System Product Applications to VisualAge Generator* (SH23-0244-01) documents.

Hardware and software requirements for VisualAge Generator Developer

Before you can run VisualAge Generator Developer for OS/2, you must install VisualAge Generator Common Services. For additional hardware and software requirements for the product, software requirements for program generation on OS/2, and software requirements for VisualAge Generator preparation on target environments, go to the IBM VisualAge Generator Web site (http://www.ibm.com/software/ad/visgen) and click on the "Hardware and software requirements" link.

Installing VisualAge Generator Developer

This section describes how to locally install VisualAge Generator Developer for OS/2. To install VisualAge Generator Developer locally, complete the following steps:

1. Open an OS/2 window or an OS/2 full-screen session.
2. Insert the VisualAge Generator Developer CD into your CD-ROM drive.
3. At the OS/2 prompt, type the following command:

   ```
   d:\xxx\install\install.exe
   ```

   where *d* is the CD-ROM drive containing the CD and *xxx* is the three-character NLS code. For more information on NLS codes see "VisualAge Generator Developer national language support" on page 107.
4. Follow the instructions on the install screens to complete the installation; but if you are installing remote DL/I support, do the following before rebooting:
   a. Open the file c:\config.sys.
   b. Provide an appropriate value in the SET statement for environment variable RMTDLI_PARTNER_LU, which specifies the name of the partner LU alias used during remote DL/I access.
   c. Provide an appropriate value in the SET statement for environment variable RMTDLI_PARTNER_TP, which specifies the TP name of the remote DL/I server used during remote DL/I access.
   d. Save the file.

After you install VisualAge Generator Developer, you must load VisualAge Generator Developer into your image:

1. From the desktop, double-click on the **IBM VisualAge Generator V4.5** folder. Double-click on the **Developer on Smalltalk** icon to start VisualAge Smalltalk.
2. From the Organizer **Options** pull-down, select **Load/Unload features**.
3. On the Selection Required window:
   a. Make sure the **Show other features** checkbox is checked.
   b. In the **Available features** pane, select VAGen45 Developer.
   c. Select the >> button to move **VAGen45 Developer** to the **Loaded features** pane.
   d. If you want to use ITF partitioning, select **VAGen45 Partitioning Support**.
   e. Select **VAGen45 GUI Settings** if you need to use notebook style settings to access options that might not be available from the properties window.

      Note: Since VisualAge Smalltalk no longer supports this option, it is not recommended.
   f. If you want to use VisualAge Generator Templates, select **VAGTemplates Standard Functions**. You have the option of also selecting **VAGTemplates Quick Start 4.5** or **VAGTemplates V3 to V4 Migration 4.5**.
   g. Click on **OK**. The VisualAge Generator components are imported and loaded into your image. This might take 2 or more hours.
   h. After VAGen is loaded, you are prompted to save your image. Select **Yes** so you do not have to load VAGen the next time you start VisualAge Smalltalk. The image is saved as file abt.icx by default. After the image is saved, make a copy of the image file.

For more information, refer to the *VisualAge Generator System Development Guide*.

Preparing VisualAge Generator Developer to use DRDA to access a database

VisualAge Generator Developer uses access plan DEVELOP.xxx when accessing data from a relational database. The access plan, also known as a package, is used when developing, testing, and validating VisualAge Generator programs. When multiple developers are accessing the same database from VisualAge Generator, they all share the same access plan. Because of the potential for deadlock situations to occur, it is recommended that a database administrator performs the following tasks.

1. Creating the VisualAge Generator Collection

The VisualAge Generator access plan, when bound to the database, is created in a collection called DEVELOP. On most IBM relational database management systems, this collection is created automatically at bind time.

For DB2/400, the collection, DEVELOP, must first be created by issuing the following command from the SQL Interactive Session (STRSQL):

```
CREATE COLLECTION DEVELOP
```

For the following databases, the collection is created automatically when the access plan is bound, if you have database administrator authority:

- DB2/MVS
- DB2/VM
- DB2/VSE
- DB2/NT
- DB2/AIX

2. Preparing the access plan

   The VisualAge Generator access plan contains some SQL statements that are not supported by all databases. To account for these differences, you need to create the access plan outside of VisualAge Generator. To create the VisualAge Generator package on the target database system, the database administrator needs to perform the following steps on the DB2 Connect or DDCS/2 gateway machine:

   a. Make sure that the VisualAge Generator bind file HPTDB245.BND is accessible to the DB2 Connect or DDCS/2 gateway machine.

   b. Type the following commands in your DB2 command-line processor window:

      ```
      db2 connect to DBNAME user USERID using PASSWORD
      db2 bind path\HPTDB245.BND blocking all sqlerror continue messages
      vgbind.msg datatime XXX grant public
      db2 connect reset
      ```

      where DBNAME, USERID, and PASSWORD apply to the DRDA server and xxx is the desired date and time stamp format.

Chapter 5. Customizing VisualAge Generator Developer for OS/2

This chapter describes customizing VisualAge Generator Developer for OS/2. Before you begin customizing, complete all the appropriate steps in "Installing VisualAge Generator Developer" on page 16.

You can customize VisualAge Generator Developer for OS/2 by installing MVS support for transferring files. You can also customize VisualAge Generator Developer by using the VAGen Preferences notebook.

Installing MVS support for transferring files

The tasks in this section are needed only if you have variable-length VSAM files and you need to install the ELACOVTF utility.

Files that contain a file conversion utility, supporting JCL code, and a CLIST, are included with VisualAge Generator Developer in the product directory. These files have the following names:

EZERCLS2.DSN
EZERLMD2.DSN
EZERHOST.DSN

To install these files on your MVS host, complete the following steps:

1. Start Personal Communications.
2. Log on to an MVS host session and ensure that you are at a READY prompt.
3. Transfer the files to the MVS host system by using the following commands:

   ```
   SEND EZERCLS2.DSN A:'EZED30.SEZECLS2.OUTDSN'
   SEND EZERLMD2.NLS A:'EZED30.SEZELMD2.OUTDSN'
   SEND EZERHOST.NLS A:'EZED30.SEZEHOST.OUTDSN'
   ```

   where A: is the host session identifier.

   Notes:

   a. This step assumes you have authority to create MVS data sets with the EZED30 prefix. If not, specify your user ID instead of EZED30 and make the appropriate changes to the JCL and CLIST described below.

   b. You only need to transfer files if you have variable length VSAM files. See the *VisualAge Generator Server Guide* for download procedures. See the online help for information on how to use the SEND command.

If you are transferring from a DBCS operating system (OS/2J, OS/2H, OS/2T), you must append a left square bracket ([) at the end of the command. There should be at least one space between the command and the left bracket ([).

4. Before the data sets can be used on MVS, you must do a TSO RECEIVE for each data set, using the INDSN parameter. Type the following commands:

```
RECEIVE INDSN('EZED30.SEZECLS2.OUTDSN')
RECEIVE INDSN('EZED30.SEZELMD2.OUTDSN')
RECEIVE INDSN('EZED30.SEZEHOST.OUTDSN')
```

   If you are transferring from a DBCS operating system (OS/2J, OS/2H, OS/2T), you must append a left square bracket ([) at the end of the command. There should be at least one space between the command and the left bracket ([).

   For each of these commands you will be prompted for restore parameters. Specify one of the following commands:

```
DA('EZED30.SEZECLS2')
DA('EZED30.SEZELMD2')
DA('EZED30.SEZEHOST')
```

5. After the data sets have been successfully installed on MVS, complete the following steps:
   a. Run the job EZED30.SEZEHOST(EZECJVCL) to create a variable-blocked CLIST data set.
   b. If you use variable-blocked CLISTs, use JCL procedure EZED30.SEZEHOST(EZECOPRF) to run the EZECOVTF utility.

      Note: You can also copy EZED30.SEZEHOST(EZECOPRF) to a PROCLIB on your system.

Chapter 6. Installing VisualAge Generator Server for OS/2

This chapter describes how to install VisualAge Generator Server on OS/2. It includes:

- What to do before you install the product
- Installation instructions

Sample applications are also installed with the product. See "Appendix D. Installing samples for VisualAge Generator Developer on Smalltalk" on page 117 for more information.

Before you install VisualAge Generator Server

Before you begin installing VisualAge Generator Server for OS/2, read the sections below for important information about uninstalling previous products and about hardware and software requirements.

Uninstalling previous products

If you have a previous version of VisualGen Workgroup Services, VisualAge Generator Workgroup Services, or VisualAge Generator Server installed on a workstation, delete it before installing VisualAge Generator Server 4.5. Coexistence of VisualAge Generator Server for OS/2 4.5 is not supported with any previous version of the above-mentioned products on the same workstation. For more information about deleting these products from your workstation, see "Chapter 11. Uninstalling VisualAge Generator on OS/2" on page 43.

Hardware and software requirements for VisualAge Generator Server

Before you can run VisualAge Generator Server for OS/2 and CICS for OS/2, you must install VisualAge Generator Common Services. For additional hardware and software requirements, go to the IBM software Web site (http://www.ibm.com/software/ad/visgen) and click on the "Hardware and software requirements" link. The information listed includes requirements for installing VisualAge Generator Server for OS/2 and CICS for OS/2 and for running generated programs.

Installing VisualAge Generator Server

This section describes how to locally install VisualAge Generator Server for OS/2. To install VisualAge Generator Server locally, complete the following steps:

1. Switch to or start an OS/2 window or an OS/2 full-screen session.

2. Insert the VisualAge Generator Server CD into your CD-ROM drive.
3. At the OS/2 prompt, type the following command:

   ```
   d:\xxx\install\install.exe
   ```

   where *d* is the CD-ROM drive containing the CD and *xxx* is the three-character NLS code. For more information on NLS codes see "VisualAge Generator Developer national language support" on page 107.
4. Follow the instructions on the install screens to complete the installation.
5. The installation of your selected components is now complete. Select **Exit** to close the installation program.

You must customize certain aspects of VisualAge Generator Server before you begin using the product. See "Chapter 7. Customizing VisualAge Generator Server for OS/2" on page 23 for information about customizing VisualAge Generator Server.

Chapter 7. Customizing VisualAge Generator Server for OS/2

This chapter describes the following customization tasks:
- Customizing environment variables for OS/2, CICS for OS/2, and client/server communications support
- Customizing the VisualAge Generator Server run-time messages for OS/2 and CICS for OS/2
- Customizing the CICS for OS/2 environment

After the installation is complete, you can also customize the VisualAge Generator Server profiles. Refer to the *VisualAge Generator Server Guide for Workstation Platforms* document for more information about customizing the VisualAge Generator Server profiles.

Customizing environment variables for OS/2 and CICS for OS/2

By default, the installation utility updates the CONFIG.SYS file with the information that VisualAge Generator Server components need to run.

If you enable the installation utility to update the CONFIG.SYS file:
- You can still customize the environment later.
- The installation utility does not add any SET statements to the CONFIG.SYS file for any of the optional environment variables.
- The installation utility creates CONFIG.BAK, a backup copy of the CONFIG.SYS file, before any modifications are made to the CONFIG.SYS file. You can compare CONFIG.BAK to the modified CONFIG.SYS file to ensure the changes are appropriate for your workstation.

How to customize your workstation environment for CICS for OS/2

There are several ways to define your workstation environment with the environment variables required by VisualAge Generator Server for CICS for OS/2.

The LIBPATH statement can be defined only in the CONFIG.SYS file. Other environment variables can be customized by using any of the following methods:
- Define the environment variables using a command file or REXX program. These values are effective only in the OS/2 session where the command file or program has previously run.

- Define the environment variables using the ELAENV command file. These values are effective whenever ELAENV.CMD runs.

  ELAENV.CMD is used by VisualAge Generator Server commands and utilities to establish their run-time environment. ELARUNC accesses ELAENV.CMD. In addition, VisualAge Generator Developer preparation templates can be modified to access ELAENV.CMD. The ELAENV.CMD file should be reviewed and updated to reflect the correct directories and defaults that are being used by your workstation.

  You should be aware of the following limitations when using ELAENV:

  – The LIBPATH cannot be set using ELAENV.
  – The LIBPATH can only be set in the CONFIG.SYS file.
  – The following environment variables are used by VisualAge Generator Server utilities before ELAENV is accessed. Therefore, these should be set in the CONFIG.SYS file.
    EZERNLS
    HELP
    PATH
- Define the environment variables in the CONFIG.SYS file. These values are effective in all OS/2 sessions. The installation utility can do this during the installation, or you can do the customization manually. Note that even if the installation utility updates CONFIG.SYS, there are other optional environment variables that you may want to add manually.

Customizing the product-specific environment variables

If you do not allow the installation utility to update the CONFIG.SYS file, some of the following product-specific environment variables must be defined for the environment so that they can be used by the VisualAge Generator Server for CICS for OS/2 and OS/2.

For a complete description of the environment variables, see "Appendix A. Environment variable values" on page 89.

Table 3 provides a summary of the CONFIG.SYS environment variables used by OS/2 and CICS for OS/2.

Table 3. Product-specific environment variables in CONFIG.SYS

Environment variable	OS/2	CICS for OS/2
BTRINTF		X
CICSRGRP		X
CICSWRK		X
CICSCOBCOPY		X
CICSCOBOL		X

Table 3. Product-specific environment variables in CONFIG.SYS (continued)

Environment variable	OS/2	CICS for OS/2
CICSRD		X
COBPATH		X
CSODIR	X	
CSOTROPT	X	
CSOTROUT	X	
ELAPATH		X
ELARTRDB_tttt		X
EZEREDIT		X
EZERGRGL_xxx	X	X
EZERGRGS_xxx	X	X
EZERJULL_xxx	X	X
EZERJULS_xxx	X	X
EZERNLS	X	X
EZERSQLDB	X	X
EZERSQLFT	X	X
EZERSQLM1		X
EZERSQLM2		X
EZERSQLMF		X
EZERSQLUS		X
FCWDBNAME_*progname*	X	
FCWDPATH	X	
FCWMAKE	X	
FCWRSC	X	
FCWTROPT	X	
FCWTROUT	X	

Customizing VisualAge Generator Server run-time messages for OS/2 and CICS for OS/2

Run-time messages report that a condition that is not handled by a program has occurred. These messages can be modified to provide more information to the user. You may also change the actual error map to display with additional information. See "Customizing the VisualAge Generator Server error maps" on page 28 for more information.

Error messages that are used by the generated COBOL programs provided with VisualAge Generator Server are stored in the ELAM*xxx*.TAB file. Error messages that are used by the generated C++ programs provided with VisualAge Generator Server are stored in the FCW*xxx*.TAB file. This file contains default messages that should be acceptable for most situations.

If you elect to customize these messages, do the following:

1. Import the external source format source information containing the VisualAge Generator Server error messages into a target ENVY application.

   For CICS for OS/2, this external source format information is available as ELAC*xxx*.ESF on the workstation in the C:\VGSVR45\SAMPLES directory. For OS/2, this external source format information is available as FCW*xxx*.ESF on the workstation in the C:\VGSVR45\SAMPLES directory.

   Note: The *xxx* refers to the language version. See "VisualAge Generator Server national language support" on page 110 for a listing of the language codes.

2. Use the VisualAge Generator Developer Table Editor to change the message text, which is in the second column in the table.

   Ensure that you do *not* modify anything other than the second column. The order of message inserts can change, but the number and format specifications for the message inserts must *not* be changed.

   A message insert appears as the following string format in the message text:

   `%nntll`

   nn Specifies the relative position of the text string to be substituted for the insert, such as 01 for the first text string or 02 for the second

   t Specifies the type of the insert:
   C Character
   D Numeric
   X Hexadecimal

   ll Specifies the maximum length of the text string to place in the message, such as `08` for 8 characters.

3. Using VisualAge Generator Developer, generate a new message table for the CICS for OS/2 or OS/2 environment. If you are generating for CICS for OS/2, a file named ELAC*xxx*.TAB should be created. If you are generating for OS/2, a file named FCW*xxx*.TAB should be created.

   Note: The *xxx* refers to the language version. See "VisualAge Generator Server national language support" on page 110 for a listing of the language codes.

Different types of files are generated for the message tables depending on your target environment.

For both CICS for OS/2 and OS/2 these files should be placed in the C:\VGSVR45\SAMPLES directory.

4. Make a backup copy of the current message table files.
5. Delete the existing message table files.
6. Copy the new message table files into the appropriate location.
7. Your customized message table will be in effect the next time you restart CICS for OS/2 or run a VisualAge Generator program on OS/2.

   Start CICS for OS/2 by double-clicking on the **Start CICS for OS/2 with VisualAge Generator Support** icon.

   If this icon does not start CICS successfully, see "How to customize your workstation environment for CICS for OS/2" on page 23 for information on ELARUNC.CMD.

   You can also use the **New Copy** utility to cause the new message table to be picked up while CICS for OS/2 is running.

Customizing the CICS for OS/2 environment

The following are the *required* tasks for customizing VisualAge Generator Server for the CICS for OS/2 environment:

- Customizing the COBOL environment
- Customizing for a specific CICS for OS/2 environment

The following are the *optional* tasks for customizing VisualAge Generator Server for the CICS for OS/2 environment:

- Customizing error reporting
- LAN considerations
- Saving customized files
- Distributing customized files

Customizing the COBOL environment

VisualAge Generator Server uses COBOL in the default directory C:\IBMCOBOL. If COBOL was installed on a different drive, or if the default directory was not used, the ELAENV.CMD file needs to be modified.

In ELAENV.CMD, do the following:

- Change

  ```
  cobol_install_drive
  ```

  to the drive in which COBOL was installed.
- Change

  ```
  cobol_install_dir
  ```

to the directory in which COBOL was installed.

Customizing a specific CICS for OS/2 environment

VisualAge Generator Server supports multiple types of CICS for OS/2 installations. By default, VisualAge Generator Server files assume that CICS for OS/2 is installed on the C-drive. If this is not the case, the ELAENV.CMD file needs to be modified as follows:

- Change

  ```
  cics_install_drive
  ```

  to the drive in which CICS for OS/2 was installed.
- Change

  ```
  cics_install_dir
  ```

  to the directory in which CICS for OS/2 was installed.

Customizing error reporting

This section discusses customizing the error reporting process. This process is about error maps and run-time messages. Error maps report that a severe error has occurred and can provide instructions about what to do next.

Customizing the VisualAge Generator Server error maps

VisualAge Generator Server supplies messages called error maps that CICS for OS/2 displays. These messages are acceptable for most situations. However, you can customize the error maps to provide information required by your establishment or enterprise. For example, you might choose to modify the error map ELAM02 to include information on contacting a support organization.

If you elect to customize these maps, do the following:

1. Import the external source format information containing the VisualAge Generator Server error map group into an ENVY application that VisualAge Generator Developer has access to. This external source format information is available as ELA*xxx*.ESF on the workstation in the C:\VGSVR45\SAMPLES directory. The *xxx* refers to the language version. See “VisualAge Generator Server national language support” on page 110 for a listing of valid language codes.
2. Use the VisualAge Generator Developer Map Editor to change the presentations of the error maps. While you are changing the maps, do *not* modify any of the following for the variable fields on the maps:
   - Size
   - Type
   - Edit order
   - Edit characteristics

3. Using VisualAge Generator Developer, generate a new set of the ELAxxx maps. The *xxx* refers to the language version. See "VisualAge Generator Server national language support" on page 110 for a listing of the valid language codes.
4. Prepare the generated map group.
5. Change directory to C:\VGSVR45\DLL\
6. Make a backup copy of the current map group DLL, ELAxxxFM.DLL. The *xxx* refers to the language version. See "VisualAge Generator Server national language support" on page 110 for a listing of the valid language codes.
7. Copy the modified map group DLL into C:\VGSVR45\DLL.

Local area network considerations

If you are running VisualAge Generator Server programs in a local area network (LAN) environment, you might choose to place some of the VisualAge Generator Server product files on a shared resource on the LAN server. If you decide to do this, you *must* ensure that you meet the licensing requirements of all products involved, including VisualAge Generator Server. The following sections list the advantages and disadvantages of placing some files on the LAN server.

Selecting files for LAN placement

Most VisualAge Generator Server product files are not modified by running programs or utility programs. This makes them excellent candidates for placement on a shared LAN server resource.

The files that are modified, such as your profiles, are generally *not* good candidates for placement on a shared LAN resource.

Note: If REXX files are selected for placement on the LAN, the REXX command files should be run first by a LAN administrator or a user with WRITE access to the LAN disk. Running the REXX file causes a precompile of the REXX command files. Precompiling increases performance and prevents WRITE errors for the audit log for the LAN disk.

Do the following to store a compiled image of each of the REXX command files. The output produced by the commands is not important.

1. Switch to the directory containing the REXX command files. The default directory is C:\VGSVR45\EXE.
2. Enter each of the following commands, one at a time, at the OS/2 command prompt:
   a. ELA2LVL.CMD
   b. ELARUNC.CMD

c. ELAENV.CMD

The extended attributes for these files are now nonzero.

Refer to your REXX documentation for more information concerning REXX commands.

Placing VisualAge Generator Server on a LAN

Do the following to place the product on a LAN:

1. Install VisualAge Generator Server on the LAN server following the information in "Installing VisualAge Generator Server" on page 21.
2. Create a LAN resource for the VisualAge Generator Server product directory and its subdirectories. Assign READ and EXECUTE authority to this resource.
3. Customize the product files using the LAN resource rather than the default locations. See "Chapter 7. Customizing VisualAge Generator Server for OS/2" on page 23 for more information on customizing VisualAge Generator Server.
4. Update the program group entries and the CONFIG.SYS file for each workstation.
5. If REXX files are selected for placement on the LAN, the REXX command files must be run first by a LAN administrator or a user with WRITE access to the LAN disk. An error occurs if a user without WRITE access first runs REXX command files because REXX is storing a compiled image of each command file with the extended attributes for the file.

Saving customized files

The following files are customized by the user. After you have modified these files, make a backup copy of these files so that if the files are reshipped for maintenance then your changes are not lost.

- ELAENV.CMD
- ELARUNC.CMD

Distributing customized files

If you have several workstations where you plan to make the same customized changes to the VisualAge Generator Server files, you can save time by customizing these files on one workstation and placing the updates on a LAN drive. By taking the time to do this first, all subsequent installations will install the customized files.

Take the following steps:

1. Install VisualAge Generator Server on a workstation. See "Installing VisualAge Generator Server" on page 21.

2. Customize the files following the steps described in “Chapter 7. Customizing VisualAge Generator Server for OS/2” on page 23.
3. Use the OS/2 XCOPY command with /S parameter to copy the VGSVR45 directory and all its subdirectories from the CD to a LAN drive.
4. Replace the customized files on the LAN drive.
5. Make a backup copy of the customized files.
6. The customized product can now be installed directly from the LAN drive.

A description of the workstation files is as follows:

ELARUNC.CMD
Starts CICS for OS/2, making VisualAge Generator Server run-time services available.

ELAENV.CMD
Sets up an OS/2 environment so that VisualAge Generator Server utilities and run time can be used.

Chapter 8. Installing VisualAge Generator Common Services for OS/2

This section describes how to install VisualAge Generator Common Services on OS/2. It includes:

- What to do before you install the product
- Installation instructions

Sample applications are also installed with the product. See "Appendix D. Installing samples for VisualAge Generator Developer on Smalltalk" on page 117 for more information.

Before you install VisualAge Generator Common Services

Before you begin installing VisualAge Generator Common Services for OS/2, read the sections below for important information about uninstalling previous products, installing related products, and getting a list of hardware and software requirements.

Uninstalling previous products

If you have a previous version of VisualGen Common Services or VisualAge Generator Common Services installed on a workstation, delete it before installing VisualAge Generator Common Services for OS/2 4.5. Coexistence of Version 4.5 is not supported with any previous version of the above-mentioned products on the same workstation. For more information about deleting these products from your workstation, see "Chapter 11. Uninstalling VisualAge Generator on OS/2" on page 43.

Installing related products

VisualAge Generator Common Services is required to run VisualAge Generator Developer and VisualAge Generator Server. It is also required to run GUI clients. You must install VisualAge Generator Common Services before you can run VisualAge Generator Developer or VisualAge Generator Server.

Hardware and software requirements for VisualAge Generator Common Services

You must have an HPFS file system on which to install VisualAge Generator Common Services for OS/2. For a list of other hardware and software requirements, go to the IBM software Web site (http://www.ibm.software.com/vagen) and click on the "Hardware and software requirements" link.

Installing VisualAge Generator Common Services

This section describes how to locally install VisualAge Generator Common Services for OS/2. To install VisualAge Generator Common Services locally, complete the following steps:

1. Switch to or start an OS/2 window or and OS/2 full-screen session.
2. Insert the VisualAge Generator Common Services CD into your CD-ROM drive.
3. At the OS/2 prompt, type the following command:

   ```
   d:\xxx\install\install.exe
   ```

   where *d* is the CD-ROM drive containing the CD and *xxx* is the three-character NLS code. For more information on NLS codes see "VisualAge Generator Developer national language support" on page 107.
4. Follow the instructions on the install screens to complete the installation.
5. The installation of your selected components is now complete. Select **Exit** to close the installation program.

You must customize certain aspects of VisualAge Generator Common Services before you begin using the product. See "Chapter 7. Customizing VisualAge Generator Server for OS/2" on page 23 for information about customizing VisualAge Generator Common Services.

Chapter 9. Defining VisualAge Generator Server to CICS for OS/2

The CICS for OS/2 resources associated with VisualAge Generator Server need to be defined to CICS for OS/2 so that they can be used as part of your CICS for OS/2 system. In addition, some CICS for OS/2 system values must be set to certain minimum values for generated programs to function properly.

The CICS for OS/2 resource table entries for VisualAge Generator Server are available in the program group VGSERV in the CICS for OS/2 export file ELAEX300.BTR. You can use the CICS OS/2 import transaction, CAIM, to import these resource table definitions into your workstation's CICS for OS/2 resource tables. For more information, refer to your CICS for OS/2 documentation.

The maximum Transaction Work Area (TWA) size for the CICS for OS/2 system needs to be large enough to accommodate all programs running on the system. For VisualAge Generator generated programs, this size must be 1024 plus the largest TWAOFF value being used. For more information, see "Adjusting the CICS for OS/2 TWA size" on page 37.

If you have elected not to accept all the installation defaults, you should substitute your customized values where appropriate in this section.

Starting CICS for OS/2

You can start CICS for OS/2 so that the VisualAge Generator Server environment is defined for running VisualAge Generator programs by doing either of the following:

- Double-click on the program entry **Start CICS OS/2 with VisualAge Generator Support** in the VisualAge Generator Server (English) Desktop Manager program group to run the ELARUNC command.
- Enter the ELARUNC command at an OS/2 command prompt.

Note: The ELARUNC.CMD is primarily a sample file. Before you use it, validate the file and make any necessary changes.

To run a program under CICS for OS/2, enter the name of the transaction associated with the program. Refer to your CICS for OS/2 documentation for other methods for starting transactions.

Preparing to import VisualAge Generator Server table entries

CICS for OS/2 reads and writes import and export files from the file resource FAAAEFIE, which is an entry in the file control table (FCT).

To import the CICS for OS/2 resource table entries for VisualAge Generator Server, do the following:

1. Back up the contents of the current import file by doing the following:
   a. Switch to or start an OS/2 window or an OS/2 full screen session.
   b. Change directories to your CICS data directory.
   c. Copy the file by entering the following command at the OS/2 command prompt:

      ```
      COPY FAAAEFIE.BTR FAAAEFIE.BAK
      ```

      Where FAAAEFIE.BAK can be any name you choose.
2. Replace the contents of the current import file with the file containing the VisualAge Generator Server resource table entries by typing the following command at the OS/2 command prompt:

   ```
   COPY C:\VGSVR45\ELAEX300.BTR FAAAEFIE.BTR
   ```

   Where **c** is the drive where you installed VisualAge Generator Server.

Importing the VisualAge Generator Server CICS resources

Import the FAAAEFIE.BTR file into CICS for OS/2 by doing the following:

1. Start CICS for OS/2 using the ELARUNC command file.
2. Sign on to the CICS for OS/2 user ID, SYSAD.
3. Start the CICS for OS/2 transaction CAIM to display the import panel.
4. Type the following values into the indicated fields:

Field	Value
Group name	VGSERV
Include conversion templates	N
Include SNT	N
Include data files	Y
Import from backup file	N
Backup existing data	Y

5. Press Enter to start the import operation.
6. Repeat steps 4 and 5 with the group name EZERSMP if you plan to run the VisualAge Generator sample programs under CICS for OS/2 on this workstation.

   These changes will be in effect once CICS for OS/2 is stopped and restarted.

Adjusting the CICS for OS/2 TWA size

The maximum size of the transaction work area (TWA) must be 1024 bytes for programs using VisualAge Generator Server run-time services. If you generate using the TWAOFF option, then the minimum size is 1024 plus TWAOFF. Refer to the *VisualAge Generator Generation Guide* document for more information about TWAOFF.

The maximum size of the transaction work area (TWA) is set in the CICS for OS/2 System Initialization Table (SIT). Only one SIT is used when a CICS for OS/2 system is started. Typically, the SIT associated with the FAASYS group is used. The CEDA transaction can be used to modify this or another SIT so that the appropriate maximum TWA size is being used.

You must stop and start CICS for OS/2 again before the new value takes affect.

Customizing your workstation to run COBOL programs on OS/2

For information on how to customize your workstation to run COBOL programs on OS/2, see the VisualAge Generator Server Guide for Workstation Platforms.

Chapter 10. Verifying the installation of VisualAge Generator Server on CICS for OS/2

After you have completed the installation, you can verify that VisualAge Generator Server for the CICS for OS/2 environment is installed and customized correctly.

Verifying the run-time services environment

Do the following to verify that the VisualAge Generator Server run-time services environment is correctly installed:

1. Start CICS for OS/2.

   Start CICS for OS/2 by double-clicking on the **Start CICS for OS/2 with VisualAge Generator Support** icon or by entering `ELARUNC` at an OS/2 command prompt.

   If this icon does not start CICS successfully, see "How to customize your workstation environment for CICS for OS/2" on page 23 for information on ELARUNC.CMD.
2. If you would like to sign on to a user ID, but have not established any user IDs on the system, sign on to the user ID, SYSAD. However, this is not necessary for verifying the installation.
3. Type ELAM to run the ELAM transaction. If the CICS Utilities window does *not* appear, review the installation steps and install the product again.
4. You have now verified the run-time services environment. You can take this opportunity to become familiar with the CICS utilities in this menu:

   New Copy
   Enables you to request that a new copy of a table be used by subsequent transactions.

   Diagnostic Message Printing Utility
   Enables you to print the diagnostic messages to a printer or OS/2 file.

   Diagnostic Control Options
   Enables you to specify alternate error message queues and change the actions resulting from failing programs.

Verifying the preparation environment

VisualAge Generator Server provides external source format for an installation verification program (IVP) so that you can test your preparation environment.

This external source format file is called ELAIVP6.ESF and it can be found in the C:\VGSVR45\SAMPLES directory.

Note: You would only verify the preparation environment if you were planning to do preparation on the same machine. In addition, this type of verification requires all of the products used by the generation and preparation process.

Preparation using VisualAge Generator Developer for OS/2

Do the following steps to prepare using VisualAge Generator Developer:

1. Import the IVP external source format into an ENVY application using VisualAge Generator Developer.
2. Generate and prepare the IVP for the CICS for OS/2 environment using VisualAge Generator Developer. Refer to the *VisualAge Generator Generation Guide* document for more information.

Using the generated IVP

Do the following steps to use the installation verification program:

1. Place the files created by the preparation process into a directory in your CICSWRK path or create a directory for these files, such as C:\VGSVR45\IVP. Copy the files to this directory. If you created a new directory, add the directory to your CICSWRK path.
2. Start CICS for OS/2.

   Start CICS for OS/2 by double-clicking on the **Start CICS for OS/2 with VisualAge Generator Support** icon or by entering `ELARUNC` at an OS/2 command prompt.

   If this icon does not start CICS successfully, see "How to customize your workstation environment for CICS for OS/2" on page 23 for information on ELARUNC.CMD.
3. Sign on to the user ID SYSAD.
4. Run transaction CEDA to create a PCT entry for the IVP program. Use the following information:

Transaction code	VP6P
Group name	ELAIVP
Program name	ELAIVP6
Description	VisualAge Generator Server IVP TRANSACTION

5. To stop CICS for OS/2, type CQIT.

   CQIT will shut down the entire CICS for OS/2 system.

   For additional information about the CICS for OS/2 environment, refer to your CICS for OS/2 documentation.
6. If the environment variable CICSRGRP is being used, add the group name ELAIVP to CICSRGRP.

The environment variable CICSRGRP determines which program groups should be loaded from the CICS for OS/2 resource tables when CICS for OS/2 starts.

If CICSRGRP is already in use on your workstation, add the group name ELAIVP to it. If CICSRGRP is *not* already in use on your workstation, then the default action taken by CICS for OS/2 is to load all the groups when it starts. Do *not* change CICSRGRP in this situation.

7. Start CICS for OS/2 again.
8. Run transaction VP6P.
9. If the VisualAge Generator Server run-time services window appears, the verification process is complete. Press **Enter** or any function key to exit the IVP. If the VisualAge Generator Server run-time services window does *not* appear, review the installation steps and install the product again.

Chapter 11. Uninstalling VisualAge Generator on OS/2

This chapter describes how to uninstall VisualAge Generator Developer, VisualAge Generator Server, and VisualAge Generator Common Services on an OS/2 system.

To delete a product do the following:

1. Ensure the product is not running on your workstation.
2. From the VisualAge Generator 4.5 product folder, run the product installation utility.
3. From the **Installation and Maintenance** list, select the product.
4. From the **Action** pull-down menu, select **Delete**.

   The Delete window is displayed.
5. Review the information on the Delete window, and select the components to be deleted.
6. On the Delete window, click Delete to begin the deletion. When you click Delete, the following actions take place:
   a. The Status changes to **Delete – progress**.
   b. All product package files are deleted from the workstation. Any backed-up service level files are also deleted.
   c. A completion message appears.
7. Close the installation utility.

Part 3. Installing and uninstalling VisualAge Generator on Windows

This part describes how to install and uninstall the following products on the Microsoft Windows platform:

- VisualAge Generator Developer
- VisualAge Generator Server
- VisualAge Generator Common Services

VisualAge Generator Developer must be installed on top of VisualAge Smalltalk or VisualAge for Java.

Note: If you are running a version of Windows NT before 4.0 Service Pack 4 and your PATH variable is 512 characters or longer, you may not be able to install VisualAge Generator Common Services, VisualAge Smalltalk, or VisualAge for Java.

Unless a specific version of Windows NT is referenced, statements regarding Windows NT also apply to Windows 2000.

Chapter 12. Installing and customizing VisualAge Generator Developer for Windows NT

This chapter describes how to install and customize VisualAge Generator Developer for Windows NT. Unless a specific version of Windows NT is referenced, statements regarding Windows NT also apply to Windows 2000. The chapter contains the following information:

- What to do before you install the product
- How to install VisualAge Generator Developer
- How to prepare VisualAge Generator Developer to use DRDA to access a database
- How to customize VisualAge Generator Developer

Sample applications are also installed with the product. See "Appendix D. Installing samples for VisualAge Generator Developer on Smalltalk" on page 117 for more information.

Before you install VisualAge Generator Developer

Before you begin installing VisualAge Generator Developer for Windows NT, read the sections below for important information about uninstalling previous products and on hardware and software requirements.

Uninstalling previous products

If you are migrating from a previous version of VisualGen Developer or VisualAge Generator Developer, delete that version before installing Version 4.5 of VisualAge Generator Developer for Windows NT; then reboot. Coexistence of Version 4.5 is not supported with any previous version of VisualGen Developer or VisualAge Generator Developer on the same workstation. For more information about deleting these products from your workstation, see "Uninstalling VisualAge Generator Developer for Windows NT" on page 61.

Hardware and software requirements for VisualAge Generator Developer

Before you begin the installation process, review the hardware and software requirements at the IBM VisualAge Generator Web site. Go to http://www.ibm.com/software/ad/visgen and click on the "Hardware and software requirements" link. The information listed includes requirements for installing VisualAge Generator Developer for Windows NT.

How to install VisualAge Generator Developer

To install VisualAge Generator Developer on Windows NT, do the following:

1. Insert the VisualAge Generator Developer CD into the CD-ROM drive.
2. Wait several seconds for the installation program to start. If it does not start automatically, in a Windows NT command prompt window run the following command:

   ```
   d:\setup.exe
   ```

   where *d* is the letter of the CD-ROM drive containing the CD.
3. Follow the instructions on the install screens to complete the installation.
4. The installation of your selected components is now complete. Click on **Exit**.

After you install VisualAge Generator Developer, you must load VisualAge Generator Developer into your image. How you do this depends on whether VisualAge Generator Developer is loaded on VisualAge for Java or VisualAge Smalltalk.

Configuring a LAN generation server

To configure a LAN generation server, check the checkbox for "Configure LAN Generation Server" in the "Setup Type" dialog box during installation. The automated configuration will later prompt you for a LAN generation server directory and network type. If your network type is Novell NetWare, you will also be prompted for a Novell NetWare logon ID and the **send** command location. When choosing LAN generation server directory, make sure that you have full access (read/write) to the directory.

After installation is finished, go to the specified LAN generation directory and open the efkgensv.ini file. Make sure the directory values are correct. For detailed information, see the *VisualAge Generator Generation Guide*.

Loading VAGen into your Java workspace

To install the VisualAge Generator Developer feature:

1. From the Start menu, start VisualAge for Java by selecting **Programs→IBM VisualAge Generator 4.5 →VisualAge Generator Developer on Java**.
2. On the Workbench, select **File→Quick Start**.
3. On the Quick Start dialog, select **Features** on the left and **Add Feature** on the right; then select **OK**.
4. Select **IBM VisualAge Generator 4.5**, and click **OK**. (Loading the feature will take a few minutes.)
5. Close the Workbench and the Log, if open. You will be prompted to save the workspace. Click **OK** to save the workspace.

Loading VAGen into your Smalltalk image

1. Before starting the image, you should consider saving a copy of the VisualAge Smalltalk image named abt.icx.
2. From the Start menu, select **Programs→IBM VisualAge Smalltalk Enterprise Client→Development Image** to start VisualAge Smalltalk.
3. From the Organizer **Options** pull-down, select **Load/Unload features**.
4. On the Selection Required window take the following actions:
   a. Make sure the **Show other features** checkbox is checked.
   b. In the **Available features** pane, select Other: VAGen45 Developer.
   c. Select the >> button to move **Other: VAGen45 Developer** to the **Loaded features** pane.
   d. If you want to use ITF partitioning, select **Other: VAGen45 Partitioning Support**.
   e. If you want to use GUI settings, select **Other: VAGen45 GUI settings**.
   f. Click **OK**. VisualAge Generator Developer and, if selected, VisualAge Generator Developer Partitioning Support and VisualAge Generator Developer GUI Settings will be imported and loaded into your workspace. This could take up to two hours to finish.
   g. Once VisualAge Generator Developer is loaded, you will be prompted to save your image. Click the **Yes** button so you will not have to load VisualAge Generator Developer the next time you start VisualAge Smalltalk. The image is saved as file abt.icx by default. After the image is saved, you might consider making a copy of the image file.

Loading Templates Quickstart into your Java workspace

To install the IBM VisualAge Generator Templates Quickstart feature:

1. From the Start menu, start VisualAge for Java by selecting **Programs→IBM VisualAge Generator 4.5 →VisualAge Generator Developer on Java**.
2. On the Workbench, select **File→Quick Start**.
3. On the Quick Start dialog, select **Features** on the left and **Add Feature** on the right; then select **OK**.
4. Select **IBM VisualAge Generator Templates 4.5**, and select **OK**. (Loading the feature will take a few minutes.)
5. Close the Workbench, and then close the Log. You will be prompted to save the workspace. Click **OK** to save the workspace.

Loading Templates Quickstart into your Smalltalk image

1. Before starting the workspace, you should consider saving a copy of the VisualAge Smalltalk image named abt.icx.
2. From the Start menu, select **Programs→IBM VisualAge Smalltalk Enterprise Client→Development Image** to start VisualAge Smalltalk.
3. From the Organizer **Options** pull-down, select **Load/Unload features**.

4. On the Selection Required window:
   a. Make sure the **Show other features** checkbox is checked.
   b. In the **Available features** pane, select Other: VAGTemplates Quick Start 4.5.
   c. Select the >> button to move **Other: Templates Quickstart** to the **Loaded features** pane.
   d. Click **OK**. VisualAge Generator Templates Quickstart will be imported and loaded into your workspace.
   e. Once VisualAge Generator Templates Quickstart is loaded, you will be prompted to save your image. Click the **Yes** button so you will not have to load Templates Quickstart the next time you start VisualAge Smalltalk. The image is saved as file abt.icx by default. After the image is saved, you might consider making a copy of the image file.

For more information about installing VisualAge Generator Developer, refer to the *VisualAge Generator System Development Guide*.

Preparing VisualAge Generator Developer to use DRDA to access a database

VisualAge Generator Developer uses access plan DEVELOP.xxx when accessing data from a relational database. The access plan, also known as a package, is used when developing, testing, and validating VisualAge Generator programs. When multiple developers are accessing the same database from VisualAge Generator, they all share the same access plan. Because of the potential for deadlock situations to occur, it is recommended that a database administrator performs the following tasks.

1. Creating the VisualAge Generator Collection

   The VisualAge Generator access plan, when bound to the database, is created in a collection called DEVELOP. On most IBM relational database management systems, this collection is created automatically at bind time.

   For DB2/400, the collection, DEVELOP, must first be created by issuing the following command from the SQL Interactive Session (STRSQL):

   ```
   CREATE COLLECTION DEVELOP
   ```

   For the following databases, the collection is created automatically when the access plan is bound, if you have database administrator authority:
   - DB2/MVS
   - DB2/VM
   - DB2/VSE
   - DB2/NT
   - DB2/AIX

2. Preparing the access plan

   The VisualAge Generator access plan contains some SQL statements that are not supported by all databases. To account for these differences, you

need to create the access plan outside of VisualAge Generator. To create the VisualAge Generator package on the target database system, the database administrator needs to perform the following steps on the DB2 Connect or DDCS/2 gateway machine:

a. Make sure that the VisualAge Generator bind file HPTDB245.BND is accessible to the DB2 Connect or DDCS/2 gateway machine.
b. Type the following commands in your DB2 command-line processor window:

```
db2 connect to DBNAME user USERID using PASSWORD
db2 bind path\HPTDB245.BND blocking all sqlerror continue messages
vgbind.msg datatime XXX grant public
db2 connect reset
```

where DBNAME, USERID, and PASSWORD apply to the DRDA server and xxx is the desired date and time stamp format.

Customizing VisualAge Generator Developer for Windows NT

This section describes how to customize VisualAge Generator Developer for Windows NT. Before you begin customizing, complete all the appropriate steps in "How to install VisualAge Generator Developer" on page 48.

By default, the installation utility updates the Windows NT registry with the VisualAge Generator Developer information. You can further customize your VisualAge Generator Developer by using the VAGen Options notebook or Preferences notebook.

Installing MVS support for transferring files

The tasks in this section are needed only if you have variable-length VSAM files and you need to install the ELACOVTF utility.

Files that contain a file conversion utility, supporting JCL code, and a CLIST, are included with VisualAge Generator Developer in the product directory. These files have the following names:

EZERCLS2.DSN
EZERLMD2.DSN
EZERHOST.DSN

To install these files on your MVS host, complete the following steps:

1. Start Personal Communications.
2. Log on to an MVS host session and ensure that you are at a READY prompt.
3. Transfer the files to the MVS host system by using the following commands:

```
SEND EZERCLS2.DSN A:'EZED30.SEZECLS2.OUTDSN'
SEND EZERLMD2.NLS A:'EZED30.SEZELMD2.OUTDSN'
SEND EZERHOST.NLS A:'EZED30.SEZEHOST.OUTDSN'
```

where A: is the host session identifier.

Notes:

a. This step assumes you have authority to create MVS data sets with the EZED30 prefix. If not, specify your user ID instead of EZED30 and make the appropriate changes to the JCL and CLIST described below.

b. You only need to transfer files if you have variable length VSAM files. See the *VisualAge Generator Server Guide* for download procedures. See the online help for information on how to use the SEND command.

If you are transferring from a DBCS operating system (OS/2J, OS/2H, OS/2T), you must append a left square bracket ([) at the end of the command. There should be at least one space between the command and the left bracket ([).

4. Before the data sets can be used on MVS, you must do a TSO RECEIVE for each data set, using the INDSN parameter. Type the following commands:

```
RECEIVE INDSN('EZED30.SEZECLS2.OUTDSN')
RECEIVE INDSN('EZED30.SEZELMD2.OUTDSN')
RECEIVE INDSN('EZED30.SEZEHOST.OUTDSN')
```

If you are transferring from a DBCS operating system (OS/2J, OS/2H, OS/2T), you must append a left square bracket ([) at the end of the command. There should be at least one space between the command and the left bracket ([).

For each of these commands you will be prompted for restore parameters. Specify one of the following commands:

```
DA('EZED30.SEZECLS2')
DA('EZED30.SEZELMD2')
DA('EZED30.SEZEHOST')
```

5. After the data sets have been successfully installed on MVS, complete the following steps:

   a. Run the job EZED30.SEZEHOST(EZECJVCL) to create a variable-blocked CLIST data set.

   b. If you use variable-blocked CLISTs, use JCL procedure EZED30.SEZEHOST(EZECOPRF) to run the EZECOVTF utility.

      Note: You can also copy EZED30.SEZEHOST(EZECOPRF) to a PROCLIB on your system.

Chapter 13. Installing and customizing VisualAge Generator Server for Windows NT

This chapter describes how to install and customize VisualAge Generator Server for Windows NT. It includes the following information:

- What to do before you install the product
- How to install VisualAge Generator Server
- How to customize VisualAge Generator Server

Sample applications are also installed with the product. See "Appendix D. Installing samples for VisualAge Generator Developer on Smalltalk" on page 117 for more information.

Before you install VisualAge Generator Server

Before you begin installing VisualAge Generator Server for Windows NT, read the sections below for important information about uninstalling previous products and on hardware and software requirements.

Uninstalling previous products

If you have a previous version of VisualGen Workgroup Services, VisualAge Generator Workgroup Services, or VisualAge Generator Server installed on a workstation, delete it before installing Version 4.5 of VisualAge Generator Server for Windows NT. Coexistence of Version 4.5 is not supported with any previous version of Workgroup Services or VisualAge Generator Server on the same workstation. For more information about deleting these products from your workstation, see "Uninstalling VisualAge Generator Server for Windows NT" on page 61.

Hardware and software requirements for VisualAge Generator Server

Before you begin the installation process, review the hardware and software requirements at the IBM VisualAge Generator Web site. Go to http://www.ibm.com/software/ad/visgen and click on the "Hardware and software requirements" link. The information listed includes requirements for installing VisualAge Generator Server for Windows NT and for running generated programs.

How to install VisualAge Generator Server

To install VisualAge Generator Server for Windows NT, do the following:

1. Insert the VisualAge Generator Server CD into the CD-ROM drive.
2. On your Windows NT system run the following command:

   ```
   d:\setup.exe
   ```

   where *d:* is the CD-ROM drive containing the CD.
3. Follow the instructions on the install screens to complete the installation.
4. The installation of your selected components is now complete. Click on **Exit** to close the installation program.

Customizing VisualAge Generator Server for Windows NT

The environment variables listed below are used by VisualAge Generator Server for Windows NT. You can add them or modify them by changing the System settings in the Control Panel in the Windows NT environment or by editing the environment file for the CICS for Windows NT environment.

Table 4 provides a summary of the environment variables used by Windows NT. For a complete description of the environment variables, see "Appendix A. Environment variable values" on page 89.

Table 4. Environment variables

Environment variable	Required	Optional
CSODIR	X	
CSOTROPT		X
CSOTROUT		X
DB2INSTANCE[1]	X	
EZERJULS_xxx		X
EZERJULL_xxx		X
EZERGRGS_xxx		X
EZERGRGL_xxx		X
EZERNLS	X	
EZERSQLDB		X
FCWDBNAME_*progname*		X
FCWDBNOOP		X
FCWDBPASSWORD		X
FCWDBUSER		X
FCWDBVERSION		X[2]

Table 4. Environment variables (continued)

Environment variable	Required	Optional
FCWDPATH	X	
FCWMAKE	X	
FCWRSC		X
FCWTROPT		X
FCWTROUT		X

Note: [1]This environment variable is required only if you are using DB2, ODBC, or Oracle.
Note: [2]This environment variable is required only if you are using Oracle.

Additional customization for CICS for Windows NT

To enable CICS for Windows NT VisualAge Generator Server support, additional customization tasks are required.

VisualAge Generator Server for Windows NT programs, transactions, and other definitions must be added to the CICS for Windows NT permanent and run-time databases. A batch file `fcwcicsinstall.bat` is provided to add these default definitions to the permanent database. You can use this shell script as a template for creating customized definitions. Run the following commands for each CICS for Windows NT regions, which will support VisualAge Generator Server for Windows NT:

```
fcwcicsinstall
```

You must also add the environmental variables LIBPATH, FCWDPATH, and EZERNLS to each CICS for Windows NT region's environment file as shown in the following example:

```
EZERNLS=ENU
PATH=c:\genout
FCWDPATH=c:\genout
```

LIBPATH and FCWDPATH identifies the directories where program maps and tables can be located by a CICS for Windows NT program. The user associated with the CICS for Windows NT program processes must have authority to access these directories.

Customizing VisualAge Generator Server run-time messages for Windows NT and CICS for Windows NT

Run-time messages report that a condition that is not handled by a program has occurred. These messages can be modified to provide more information to the user.

Error messages that are used by the generated C++ programs provided with VisualAge Generator Server are stored in the FCW*xxx*.TAB file. This file contains default messages that should be acceptable for most situations.

If you elect to customize these messages, do the following:

1. Import the external source format source information containing the VisualAge Generator Server error messages into a target ENVY application.

   This external source format information is available as FCW*xxx*.ESF on the workstation in the C:\IBMVAGen\vgwgs45 directory.

   Note: The *xxx* refers to the language version. See "VisualAge Generator Server national language support" on page 110 for a listing of the language codes.

2. Use the VisualAge Generator Developer Table Editor to change the message text, which is in the second column in the table.

   Ensure that you do *not* modify anything other than the second column. The order of message inserts can change, but the number and format specifications for the message inserts must *not* be changed.

   A message insert appears as the following string format in the message text:

   ```
   %nn
   ```

   nn Specifies the relative position of the text string to be substituted for the insert, such as 01 for the first text string or 02 for the second

3. Using VisualAge Generator Developer, generate a new message table for the Windows NT environment. A file with the name FCW*xxx*.TAB should be created.

   Note: The *xxx* refers to the language version. See "VisualAge Generator Server national language support" on page 110 for a listing of the language codes.

4. Make a backup copy of the current message files.

   The message files are located in the C:\IBMVAGen\vgwgs45 directory. There should be two message files for each national language installed, FCW*xxx*.TAB and FCW*xxx*.ESF.

5. Delete the existing message files.
6. Copy the new message files into the appropriate location.
7. Your customized message table will be in effect the next time you start CICS for Windows NT or run a VisualAge Generator program in Windows NT.

Installing VisualAge Generator Server for Java

VisualAge Generator Server for Java comprises two JAR files (hpt.jar, vgjwgs.jar) and a properties file (vgj.properties). The JAR files contain a set of Java classes that provide run-time support for generated 4GL Java parts. The properties file defines the run-time behavior of the generated code.

You can install VisualAge Generator Server for Java from the VisualAge Generator V4.5 installation CD by selecting the **VisualAge Generator V4.5 – Server** component. The default root directory for the component installation is C:\IBMVAGen. During installation you can specify a different directory, if you wish.

During installation, the following files are copied from the installation image:

hpt.jar Contains the VG Java run-time code that is necessary to run a generated VG Java program. By default it is copied to the C:\IBMVAGen\VGCSO45 directory.

vgjwgs.jar Contains the VAGen Java run-time code that is necessary to run a generated VisualAge for Java server program. By default it is copied to the C:\IBMVAGen\VGWGS45 directory.

vgj.properties Defines the environment settings used in place of environment variables for the VG Java run-time library. By default it is copied to the C:\IBMVAGen\VGCSO45 directory.

To run a generated 4GL Java program, the JVM must know how to find the run-time library. Java applications need the CLASSPATH environment variable to include the location of these .JAR files and the properties file, or the directory where the class files are stored if they have been extracted from the JAR file. Java applets have the same requirement, but they get the information from the ARCHIVE or CODEBASE parameters of the HTML tag.

VisualAge Generator Server for Java uses vgj.properties to configure its run-time environment. For VisualAge Generator Server to access the properties file, the CLASSPATH environment variable or the CODEBASE HTML tag needs to include the root directory where the properties file is installed. The CLASSPATH is updated during installation.

Setting up the environment

These steps only need to be performed once. They must be done before you can run your programs outside VisualAge for Java.

1. Install the VisualAge Generator Server component on your system. The CLASSPATH will be set during installation.
2. Customize vgj.properties as required for your environment. Comments in the file describe what effect the properties have on programs as they run.

3. Install your JVM.

   If you want to run applets, you need a web browser or the appletviewer program that comes with the JDK and JRE.

   If you want to run applications, you need a program like java.exe that comes with the JDK or jre.exe that comes with the JRE.

   Notes: You need a JVM that runs version 1.2 of Java or higher and a Web browser that supports this version.

   Sun's JDK can be downloaded from:

   `http://java.sun.com/products/jdk/1.2`

   Sun's JRE can be downloaded from:

   `http://java.sun.com/products/jdk/1.2/jre`

   The Web browser you use must support Java version 1.2 or later. The most recent version of Netscape and Internet Explorer (IE) may support this version of Java. You can also use the HotJava browser instead of Netscape or IE. HotJava is written in Java and will run on any system with Java version 1.1.6 or later installed.

   HotJava can be downloaded from:

   `http://www.javasoft.com/products/hotjava/index.html`

   If you must use Netscape or IE, you can use the Java plug-in that is included with the JDK and JRE. Under this configuration, instead of the browser running your applet, the plug-in runs it using a newer version of the JVM.

4. If you want to run applications, you need to set your CLASSPATH environment variable.

   The CLASSPATH variable is used to tell the JVM running an application where the application's code is. CLASSPATH is a list of directories, Jar files, and Zip files.

   On Windows, each entry in CLASSPATH is separated by a semicolon.

Chapter 14. Installing VisualAge Generator Common Services on Windows

This chapter includes information needed to install VisualAge Generator Common Services on Windows 2000, Windows NT, Windows 98, and Windows 95. It includes the following information:

- What to do before you install the product
- How to install VisualAge Generator Common Services

Sample applications are also installed with the product. See "Appendix D. Installing samples for VisualAge Generator Developer on Smalltalk" on page 117 for more information.

Before you install VisualAge Generator Common Services

Before you begin installing VisualAge Generator Common Services for Windows NT, read the sections below for important information about uninstalling previous products, installing related products, and getting a list of hardware and software requirements.

Uninstalling previous products

If you have a previous version of VisualGen Common Services or VisualAge Generator Common Services installed on a workstation, delete it before installing Version 4.5 of VisualAge Generator Common Services for Windows NT. Coexistence of Version 4.5 is not supported with any previous version of Common Services on the same workstation. For more information about deleting these products from your workstation, see "Uninstalling VisualAge Generator Common Services on Windows" on page 61.

Installing related products

VisualAge Generator Common Services is required to run GUI clients. It is also required to run VisualAge Generator Developer and VisualAge Generator Server. VisualAge Generator Common Services is installed automatically when you install VisualAge Generator Developer or VisualAge Generator Server.

Hardware and software requirements for VisualAge Generator Common Services

VisualAge Generator Common Services is required to run GUI clients. It is also required to run VisualAge Generator Developer and VisualAge Generator Server. You can install VisualAge Generator Common Services before or after you install VisualAge Generator Developer or VisualAge Generator Server, but it must be installed before you use either of those two products.

Before you begin the installation process, review the hardware and software requirements at the IBM VisualAge Generator Web site. Go to http://www.ibm.com/software/ad/visgen and click on the "Hardware and software requirements" link. The information listed includes requirements for installing VisualAge Generator Common Services for Windows.

How to install VisualAge Generator Common Services

If you want to install only VisualAge Generator Common Services, take the following actions:

1. Insert into the CD-ROM drive the compact disk for VisualAge Generator Developer (on Java or Smalltalk) or for VisualAge Generator Server.
2. Exit from the automatically started installation.
3. Run the following command:

   ```
   d:\cso\setup.exe
   ```

   where *d* is the letter of the CD-ROM drive containing the CD.
4. Follow the instructions on the install screens to complete the installation.
5. The installation of your selected components is now complete. Click on **Exit** to close the installation program.

Chapter 15. Uninstalling VisualAge Generator on Windows

This chapter includes information needed to uninstall VisualAge Generator on Microsoft Windows platforms.

Uninstalling VisualAge Generator Developer for Windows NT

To uninstall VisualAge Generator Developer for Windows NT 4.0, complete the following steps:

1. From the Start menu, select **Control Panel → Add/Remove Programs**.
2. Select VisualAge Generator Developer.
3. Click on **Remove**.

Uninstalling VisualAge Generator Server for Windows NT

To uninstall VisualAge Generator Server for Windows NT 4.0, complete the following steps:

1. From the Start menu, select **Control Panel → Add/Remove Programs**.
2. Select VisualAge Generator Server.
3. Click on **Remove**.

Uninstalling VisualAge Generator Common Services on Windows

If you uninstall both VisualAge Generator Developer and VisualAge Generator Server, or if you uninstall one and the other is not installed, VisualAge Generator Common Services is automatically uninstalled.

To uninstall VisualAge Generator Common Services manually on Windows 2000, Windows NT 4.0, Windows 98, and Windows 95, complete the following steps:

1. From the Start menu, select **Control Panel → Add/Remove Programs**.
2. Select VisualAge Generator Common Services.
3. Click on **Remove**.

Part 4. Installing and uninstalling VisualAge Generator Server on UNIX

This part describes how to install and uninstall VisualAge Generator Server on the following platforms:

- AIX
- HP-UX
- SCO OpenServer
- Solaris

Chapter 16. Installing and customizing VisualAge Generator Server for AIX

This chapter describes the installation process and how to install and customize VisualAge Generator Server for AIX. It includes the following information:

- Before you install
- Installing VisualAge Generator Server for AIX
- Customizing VisualAge Generator Server for AIX

Sample applications are also installed with the product. For more information, see "Appendix D. Installing samples for VisualAge Generator Developer on Smalltalk" on page 117.

Before you install

Before you begin the installation process, review the hardware and software requirements at the IBM VisualAge Generator Web site:

`http://www.ibm.com/software/ad/visgen`

The information listed includes requirements for installing VisualAge Generator Server for AIX and for running generated programs.

Installing VisualAge Generator Server for AIX

This section describes the preparation necessary to install VisualAge Generator Server for AIX from the CD and how to install VisualAge Generator Server for AIX. VisualAge Generator Server for AIX is shipped in standard installp format on a CD. To install VisualAge Generator Server for AIX from the CD, the system administrator must perform the steps in the following sections.

Adding a CD-ROM file system

To add a CD-ROM file system, do the following:

1. Insert the VisualAge Generator Server for AIX CD into the CD-ROM drive.
2. Log in to your AIX machine as user root or run su to become root.
3. Enter `mkdir -p /usr/cdrom`
4. Enter smit storage
5. Select File Systems
6. Select Add/Change/Show/Delete File Systems

7. Select CDROM File Systems
8. Select Add a CDROM File System
9. Select a DEVICE name. CD-ROM file system device names must be unique.
10. Type `/usr/cdrom` for MOUNT POINT
11. Select Do (or press enter if using the SMIT ASCII interface)
12. Exit SMIT.

Mounting the CD-ROM file system

To mount the CD-ROM, do the following:

1. Enter smit mountfs
2. Select `/dev/cd0` (or /dev/cd1) for FILE SYSTEM name.
3. Select `/usr/cdrom` for DIRECTORY over which to mount.
4. Select `cdrfs` for TYPE of file system.
5. Select yes for Mount as a READ-ONLY system.
6. Select Do (or press enter if using the SMIT ASCII interface).
7. Exit SMIT.

Installing the image

To install VisualAge Generator Server for AIX, take the following actions:

1. Insert the VisualAge Generator Server for AIX CD into the CD-ROM drive.
2. From an AIX shell command prompt, install the base plus the English language parts, as shown in Table 5.

Table 5. Image files shipped with VisualAge Generator Server for AIX

Image file	System	Command
vgaix45.img	AIX	`installp -ad /usr/cdrom/aix/base/vgaix45.img all`
vgaix45t.img	CICS for AIX	`installp -ad /usr/cdrom/aix/base/vgaix45t.img all`

3. To install a language other than English, enter the following:

   `installp -ad /usr/cdrom/aix/`*xxx*`/vgwgs45`*y*`.img all`

   where *xxx* is the three-character NLS code and *y* is the one-character NLS code. For information on the NLS codes see "VisualAge Generator Server national language support" on page 110.
4. Due to performance enhancements provided in Version 4.5 of VisualAge Generator Server for AIX, it is now necessary to run the vglinks script (in the bin directory of the VisualAge Generator Server for AIX product installation directory) after you install VisualAge Generator Server. This

script creates symbolic links in the /usr/lib system directory to all the VisualAge Generator Server libraries. Install these symbolic links as follows:

a. Log in to your AIX machine as user root or run su to become root.
b. Change your current working directory to /usr/lpp/vgwgs45.
c. Run the vglinks script as follows:

```
./vglinks
```

or, to overwrite existing links (to force creation):

```
./vglinks -f
```

For more information on using **installp** for installing software products, refer to your AIX documentation.

Customizing VisualAge Generator Server for AIX

The following environment variables are used by VisualAge Generator Server for AIX and must be added to your **.profile** file for the native AIX environment or the environment file for the CICS for AIX environment. The CICS for AIX environment file is located in the /var/cics_regions/*$CICSREGION* directory.

Table 6 provides a summary of the environment variables used by AIX. For a complete description of the environment variables, see "Appendix A. Environment variable values" on page 89.

Table 6. Environment variables

Environment variable	Required	Optional
CSODIR		X
CSOTROPT		X
CSOTROUT		X
DB2INSTANCE[1]	X	
EZERJULS_xxx		X
EZERJULL_xxx		X
EZERGRGS_xxx		X
EZERGRGL_xxx		X
EZERNLS	X	
EZERSQLDB		X
FCWDB2DIR	X[1]	
FCWDBNAME_*progname*		X
FCWDBNOOP		X

Table 6. Environment variables (continued)

Environment variable	Required	Optional
FCWDBPASSWORD		X
FCWDBUSER		X
FCWDPATH	X	
FCWFIODB		X
FCWLIBPATH	X	
FCWRSC		X
FCWTROPT		X
FCWTROUT		X

Note: [1]This environment variable is required only if you are using DB2 for AIX.

Additional customization for CICS for AIX

To enable CICS for AIX VisualAge Generator Server support, additional customization tasks are required.

VisualAge Generator Server for AIX programs, transactions, and other definitions must be added to the CICS for AIX permanent and run-time databases. Shell script `fcwcicsinstall` is provided to add these default definitions to the permanent database. You can use this shell script as a template for creating customized definitions. Run the following commands for each CICS for AIX regions, which will support VisualAge Generator Server for AIX:

```
export CICSREGION=aixcics
fcwcicsinstall
cicsinstall -r aixcics -g VGWGS
```

You must also add the environmental variables FCWLIBPATH, FCWDPATH, and EZERNLS to each CICS for AIX region's environment file as shown in the following example:

```
EZERNLS=ENU
FCWLIBPATH=/u/mitch/genout:/u/mary/genout
FCWDPATH=/u/mitch/genout:/u/mary/genout
LIBPATH=/usr/lib:/lib:/usr/lpp/vgwgs45/lib
```

FCWLIBPATH and FCWDPATH identify the directories where program maps and tables can be located by a CICS for AIX program. The user associated with the CICS for AIX program processes must have authority to access these directories.

Customizing VisualAge Generator Server run-time messages for AIX and CICS for AIX

Run-time messages report that a condition that is not handled by a program has occurred. These messages can be modified to provide more information to the user.

Error messages that are used by the generated C++ programs provided with VisualAge Generator Server are stored in the **fcw*xxx*.tab** file. This file contains default messages that should be acceptable for most situations.

If you elect to customize these messages, do the following:

1. Import the external source format source information containing the VisualAge Generator Server error messages into a target ENVY application.

   This external source format information is available as **fcw*xxx*.esf** in the **/usr/lpp/vgwgs45** directory.

   Note: The *xxx* refers to the language version. For a listing of the language codes, see "VisualAge Generator Server national language support" on page 110.

2. Use the VisualAge Generator Developer table definition facility to change the message text, which is in the second column in the table.

   Ensure that you do *not* modify anything other than the second column. The order of message inserts can change, but the number and format specifications for the message inserts must *not* be changed.

   A message insert appears as the following string format in the message text:

   %nn

   nn Specifies the relative position of the text string to be substituted for the insert, such as 01 for the first text string or 02 for the second

3. Using VisualAge Generator Developer, generate a new message table for the AIX environment. A file with the name **fcw*xxx*.tab** should be created.

   Note: The *xxx* refers to the language version. For a listing of the language codes, see "VisualAge Generator Server national language support" on page 110.

4. Make a backup copy of the current message table files.

   The message table files are located in the **/usr/lpp/vgwgs45** directory. There should be two message table files for each national language installed, **fcw*xxx*.tab** and **fcw*xxx*.esf**.

5. Delete the existing message table files.
6. Copy the new message table files into the appropriate location.

7. Your customized message table will be in effect the next time you run a VisualAge Generator program (native AIX) or start CICS for AIX.

Chapter 17. Installing and customizing VisualAge Generator Server for HP-UX

This chapter describes how to install and customize VisualAge Generator Server for HP-UX. It includes the following information:

- Before you install
- Installing VisualAge Generator Server for HP-UX
- Customizing VisualAge Generator Server for HP-UX

Sample applications are also installed with the product. For more information, see "Appendix D. Installing samples for VisualAge Generator Developer on Smalltalk" on page 117.

Before you install

Before you begin the installation process, review the hardware and software requirements at the IBM VisualAge Generator Web site:

`http://www.ibm.com/software/ad/visgen`

The information listed includes requirements for installing VisualAge Generator Server for HP-UX and for running generated programs.

Installing VisualAge Generator Server for HP-UX

This section describes how to install VisualAge Generator Server for HP-UX. VisualAge Generator Server for HP-UX is shipped in standard tar format on a CD created with the Portable File System type of ISO 9660.

To install VisualAge Generator Server for HP-UX, do the following:

1. Log in to your HP-UX machine as user root or run su to become root.
2. Enter `mkdir -p /cdrom`
3. Insert the CD into the CD-ROM drive
4. Start the pfs_mounted server program (if not already running) as follows:
   `nohup /usr/sbin/pfs_mounted &`
5. Start the pfsd server program (if not already running) as follows:
   `nohup /usr/sbin/pfsd &`
6. Use a system editor to add the following line to the `/etc/pfs_fstab` file:
   `/dev/dsk/c1t2d0 /cdrom pfs-iso9660 xlat=unix 0 0`

Note: The device file name (`/dev/dsk/c1t2d0`) might be different on your system. Specify a valid CD-ROM device file name for your system that corresponds to the CD-ROM drive where you inserted the visualAge Generator CD.

7. Mount the CD-ROM as follows:

   ```
   usr/sbin/pfs_mount /cdrom
   ```

8. Change your current working directory to the `/opt` directory.
9. Install the base product plus the English language parts as shown in Table 7.

Table 7. Tar files shipped with VisualAge Generator Server for HP-UX

Tar file	System	Command
vghp45.tar	HP-UX Version 10.20	`tar -xvf /cdrom/hp/base/vghp45.tar`

10. To install a language other than English, enter the following:

    ```
    tar -xvf /cdrom/hp/xxx/vgwgs45y.tar
    ```

    where *xxx* is the three-character NLS code and *y* is the one-character NLS code. For information on the NLS codes, see "VisualAge Generator Server national language support" on page 110.
11. Due to performance enhancements provided in Version 4.5 of VisualAge Generator Server for HP-UX, it is now necessary to run the vglinks script (in the bin directory of the VisualAge Generator Server for HP-UX product installation directory) after you install VisualAge Generator Server. This script creates symbolic links in the /usr/lib system directory to all the VisualAge Generator Server libraries. Install these symbolic links as follows:
    a. Log in to your HP-UX machine as user root or run su to become root.
    b. Change your current working directory to /opt/vgwgs45.
    c. Run the vglinks script as follows:

       ```
       ./vglinks
       ```

       or, to overwrite existing links (to force creation):

       ```
       ./vglinks -f
       ```

Refer to your HP-UX documentation for more information on using the **tar** command.

Customizing VisualAge Generator Server for HP-UX

The following environment variables are used by VisualAge Generator Server for HP-UX and must be added to your **.profile** file.

For a complete description of the environment variables, see "Appendix A. Environment variable values" on page 89.

Table 8 provides a summary of the environment variables used by HP-UX.

Table 8. Environment variables

Environment variable	Required	Optional
CSODIR		X
CSOTROPT		X
CSOTROUT		X
DB2INSTANCE[1]	X	
EZERJULS_xxx		X
EZERJULL_xxx		X
EZERGRGS_xxx		X
EZERGRGL_xxx		X
EZERNLS	X	
EZERSQLDB		X
FCWDB2DIR	X[1]	
FCWDBNAME_*progname*		X
FCWDBPASSWORD		X
FCWDBUSER		X
FCWDPATH	X	
FCWLIBPATH	X	
FCWRSC		X
FCWTROPT		X
FCWTROUT		X

Note: [1]This environment variable is required only if you are using DB2 for HP-UX.

Customizing VisualAge Generator Server run-time messages for HP-UX

Run-time messages report that a condition that is not handled by a program has occurred. These messages can be modified to provide more information to the user.

Error messages that are used by the generated C++ programs provided with VisualAge Generator Server are stored in the **fcw*xxx*.tab** file. This file contains default messages that should be acceptable for most situations.

If you elect to customize these messages, do the following:

1. Import the external source format source information containing the VisualAge Generator Server error messages into a target ENVY application.

   This external source format information is available as **fcw***xxx***.esf** in the **/opt/vgwgs45** directory.

   Note: The *xxx* refers to the language version. For a listing of the language codes, see "VisualAge Generator Server national language support" on page 110.

2. Use the VisualAge Generator Developer table definition facility to change the message text, which is in the second column in the table.

   Ensure that you do *not* modify anything other than the second column. The order of message inserts can change, but the number and format specifications for the message inserts must *not* be changed.

   A message insert appears as the following string format in the message text:

   %nn

   nn Specifies the relative position of the text string to be substituted for the insert, such as 01 for the first text string or 02 for the second

3. Using VisualAge Generator Developer, generate a new message table for the HP-UX environment. A file with the name **fcw***xxx***.tab** should be created.

   Note: The *xxx* refers to the language version. For a listing of the language codes, see "VisualAge Generator Server national language support" on page 110.

4. Make a backup copy of the current message table files.

   The message table files are located in the **/opt/vgwgs45** directory. There should be two message table files for each national language installed, **fcw***xxx***.tab** and **fcw***xxx***.esf**.

5. Delete the existing message table files.
6. Copy the new message table files into the appropriate location.
7. Your customized message table will be in effect the next time you run a VisualAge Generator program.

Chapter 18. Installing and customizing VisualAge Generator Server for SCO OpenServer

This chapter describes how to install and customize VisualAge Generator Server for SCO OpenServer. It includes the following information:

- Before you install
- Installing VisualAge Generator Server for SCO OpenServer
- Customizing VisualAge Generator Server for SCO OpenServer

Sample applications are also installed with the product. For more information, see "Appendix D. Installing samples for VisualAge Generator Developer on Smalltalk" on page 117.

Before you install

Before you begin the installation process, review the hardware and software requirements . at the IBM VisualAge Generator Web site:

`http://www.ibm.com/software/ad/visgen`

The information listed includes requirements for installing VisualAge Generator Server for SCO OpenServer and for running generated programs.

Installing VisualAge Generator Server for SCO OpenServer

This section describes how to install VisualAge Generator Server for SCO OpenServer. VisualAge Generator Server for SCO OpenServer is shipped in standard tar format on a CD created with the Portable File System type of ISO 9660.

To install VisualAge Generator Server for SCO OpenServer, do the following:

1. Log in to your SCO machine as user root or run su to become root.
2. Mount the CD-ROM as follows:

   ```
   mount -r -f HS -o lower /dev/cd0/cdrom
   ```

3. Change your current working directory to the `/opt` directory.
4. Install the base product plus the English language parts as shown in Table 9 on page 76.

Table 9. Tar files shipped with VisualAge Generator Server for SCO OpenServer

Tar file	System	Command
vgsco45.tar	SCO OpenServer Version 5.0.4	`tar -xvf /cdrom/sco/base/vgsco45.tar`

5. To install a language other than English, enter the following:
   ```
   tar -xvf /cdrom/sco/xxx/vgwgs45y.tar
   ```
   where *xxx* is the three-character NLS code and *y* is the one-character NLS code. For information on the NLS codes, see "VisualAge Generator Server national language support" on page 110.
6. Due to performance enhancements provided in Version 4.5 of VisualAge Generator Server for SCO OpenServer, it is now necessary to run the vglinks script (in the bin directory of the VisualAge Generator Server for SCO OpenServer product installation directory) after you install VisualAge Generator Server. This script creates symbolic links in the /usr/lib system directory to all the VisualAge Generator Server libraries. Install these symbolic links as follows:
   a. Log in to your SCO machine as user root or run su to become root.
   b. Change your current working directory to /opt/vgwgs45.
   c. Run the vglinks script as follows:
      ```
      ./vglinks
      ```
      or, to overwrite existing links (to force creation):
      ```
      ./vglinks -f
      ```

For more information on using the **tar** command, refer to your SCO OpenServer documentation.

Customizing VisualAge Generator Server for SCO OpenServer

The following environment variables are used by VisualAge Generator Server for SCO OpenServer and must be added to your **.profile** file.

Table 10 provides a summary of the environment variables used by SCO OpenServer. For a complete description of the environment variables, see "Appendix A. Environment variable values" on page 89.

Table 10. Environment variables

Environment variable	Required	Optional
CSODIR		X
CSOTROPT		X
CSOTROUT		X

Table 10. Environment variables (continued)

Environment variable	Required	Optional
EZERJULS_xxx		X
EZERJULL_xxx		X
EZERGRGS_xxx		X
EZERGRGL_xxx		X
EZERNLS	X	
FCWDPATH	X	
FCWLIBPATH	X	
FCWRSC		X
FCWTROPT		X
FCWTROUT		X

Customizing VisualAge Generator Server run-time messages for SCO OpenServer

Run-time messages report that a condition that is not handled by a program has occurred. These messages can be modified to provide more information to the user.

Error messages that are used by the generated C++ programs provided with VisualAge Generator Server are stored in the **fcw*xxx*.tab** file. This file contains default messages that should be acceptable for most situations.

If you elect to customize these messages, do the following:

1. Import the external source format source information containing the VisualAge Generator Server error messages into a target ENVY application.

   This external source format information is available as **fcw*xxx*.esf** in the **/opt/vgwgs45** directory.

   Note: The *xxx* refers to the language version. For a listing of the language codes, see "VisualAge Generator Server national language support" on page 110.

2. Use the VisualAge Generator Developer table definition facility to change the message text, which is in the second column in the table.

   Ensure that you do *not* modify anything other than the second column. The order of message inserts can change, but the number and format specifications for the message inserts must *not* be changed.

   A message insert appears as the following string format in the message text:

%nn

nn Specifies the relative position of the text string to be substituted for the insert, such as 01 for the first text string or 02 for the second

3. Using VisualAge Generator Developer, generate a new message table for the SCO environment. A file with the name **fcw***xxx***.tab** should be created.

   Note: The *xxx* refers to the language version. For a listing of the language codes, see "VisualAge Generator Server national language support" on page 110.

4. Make a backup copy of the current message table files.

   The message table files are located in the **/opt/vgwgs45** directory. There should be two message table files for each national language installed, **fcw***xxx***.tab** and **fcw***xxx***.esf**.

5. Delete the existing message table files.
6. Copy the new message table files into the appropriate location.
7. Your customized message table will be in effect the next time you run a VisualAge Generator program.

Chapter 19. Installing and customizing VisualAge Generator Server for Solaris

This chapter describes how to install and customize VisualAge Generator Server for Solaris. It includes the following information:

- Before you install
- Installing VisualAge Generator Server for Solaris
- Customizing VisualAge Generator Server for Solaris

Sample applications are also installed with the product. For more information, see "Appendix D. Installing samples for VisualAge Generator Developer on Smalltalk" on page 117.

Before you install

Before you begin the installation process, review the hardware and software requirements at the IBM VisualAge Generator Web site:

`http://www.ibm.com/software/ad/visgen`

The information listed includes requirements for installing VisualAge Generator Server for SCO OpenServer and for running generated programs.

Installing VisualAge Generator Server for Solaris

This section describes how to install VisualAge Generator Server for Solaris. VisualAge Generator Server for Solaris is shipped in standard tar format on a CD created with the Portable File System type of ISO 9660.

To install VisualAge Generator Server for Solaris, do the following:

1. Log in to your Solaris machine as user root or run su to become root.
2. Enter `mkdir /cdrom`
3. Mount the CD-ROM as follows:

   Note: The device file name (`/dev/dsk/c0t6d0s0`) might be different on your system. Specify a valid CD-ROM device file name for your system that corresponds to the CD-ROM drive where you inserted the VisualAge Generator CD.

   ```
   mount -rF hsfs /dev/dsk/c0t6d0s0 /cdrom
   ```

4. Change your current working directory to the `/opt` directory.

5. Install the base product plus the English language parts as shown in Table 11.

Table 11. Tar files shipped with VisualAge Generator Server for Solaris

Tar file	System	Command
vgsol45t.tar	Solaris Version 2.6	`tar -xvf /cdrom/solaris/base/vgsol45t.tar`

6. To install a language other than English, enter the following:

   ```
   tar -xvf /cdrom/solaris/xxx/vgwgs45y.tar
   ```

   where *xxx* is the three-character NLS code and *y* is the one-character NLS code. For information on the NLS codes see "VisualAge Generator Server national language support" on page 110.
7. Due to performance enhancements provided in Version 4.5 of VisualAge Generator Server for Solaris, it is now necessary to run the vglinks script (in the bin directory of the VisualAge Generator Server for Solaris product installation directory) after you install VisualAge Generator Server. This script creates symbolic links in the /usr/lib system directory to all the VisualAge Generator Server libraries. Install these symbolic links as follows:
   a. Log in to your Solaris machine as user root or run su to become root.
   b. Change your current working directory to /opt/vgwgs45.
   c. Run the vglinks script as follows:

      ```
      ./vglinks
      ```

      or, to overwrite existing links (to force creation):

      ```
      ./vglinks -f
      ```

For more information about using the **tar** command, refer to your Solaris documentation.

Customizing VisualAge Generator Server for Solaris

The following environment variables are used by VisualAge Generator Server for Solaris and must be added to your **.profile** file.

Table 12 provides a summary of the environment variables used by Solaris. For a complete description of the environment variables, see "Appendix A. Environment variable values" on page 89.

Table 12. Environment variables

Environment variable	Required	Optional
CSODIR		X

Table 12. Environment variables (continued)

Environment variable	Required	Optional
CSOTROPT		X
CSOTROUT		X
DB2INSTANCE[1]	X	
EZERJULS_xxx		X
EZERJULL_xxx		X
EZERGRGS_xxx		X
EZERGRGL_xxx		X
EZERNLS	X	
EZERSQLDB		X
FCWDB2DIR	X[1]	
FCWDBNAME_*progname*		X
FCWDBNOOP		X
FCWDBPASSWORD		X
FCWDBUSER		X
FCWDPATH	X	
FCWLIBPATH	X	
FCWRSC		X
FCWTROPT		X
FCWTROUT		X

Note: [1]This environment variable is required only if you are using DB2 for Solaris.

Customizing VisualAge Generator Server run-time messages for Solaris

Run-time messages report that a condition that is not handled by a program has occurred. These messages can be modified to provide more information to the user.

Error messages that are used by the generated C++ programs provided with VisualAge Generator Server are stored in the **fcw*xxx*.tab** file. This file contains default messages that should be acceptable for most situations.

If you elect to customize these messages, do the following:

1. Import the external source format source information containing the VisualAge Generator Server error messages into a target ENVY application.

   This external source format information is available as **fcw*xxx*.esf** in the **/opt/vgwgs45** directory.

Note: The *xxx* refers to the language version. For a listing of the language codes, see "VisualAge Generator Server national language support" on page 110.

2. Use the VisualAge Generator Developer table definition facility to change the message text, which is in the second column in the table.

   Ensure that you do *not* modify anything other than the second column. The order of message inserts can change, but the number and format specifications for the message inserts must *not* be changed.

   A message insert appears as the following string format in the message text:

   %nn

   nn Specifies the relative position of the text string to be substituted for the insert, such as 01 for the first text string or 02 for the second

3. Using VisualAge Generator Developer, generate a new message table for the Solaris environment. A file with the name **fcw***xxx***.tab** should be created.

   Note: The *xxx* refers to the language version. For a listing of the language codes, see "VisualAge Generator Server national language support" on page 110.

4. Make a backup copy of the current message table files.

   The message table files are located in the **/opt/vgwgs45** directory. There should be two message table files for each national language installed, **fcw***xxx***.tab** and **fcw***xxx***.esf**.

5. Delete the existing message table files.
6. Copy the new message table files into the appropriate location.
7. Your customized message table will be in effect the next time you run a VisualAge Generator program.

Chapter 20. Uninstalling VisualAge Generator Server on UNIX

This chapter describes how to uninstall VisualAge Generator Server on the following platforms:

- AIX
- HP-UX
- SCO OpenServer
- Solaris

Uninstalling VisualAge Generator Server for AIX

On AIX Version 4.1, products successfully installed are always in the committed state. To remove VisualAge Generator Server from your system, type the following command:

```
installp -u vgwgs45.obj
```

To remove one of the national languages from your system, modify the command syntax to specify the language. For example, the following command removes the Japanese version of the product:

```
installp -u vgwgs45Ja_JP.obj
```

To uninstall the symbolic links created by the vglinks script during installation, do the following steps:

1. Log in to your AIX machine as user root or run su to become root.
2. Change your current working directory to /usr/lpp/vgwgs45.
3. Run the following vglinks script and follow the on-screen directions:

   ```
   ./vglinks -r
   ```

   or, to remove existing links without confirmation (to force deletion):

   ```
   ./vglinks -r -f
   ```

Uninstalling VisualAge Generator Server for HP-UX

To uninstall VisualAge Generator Server for HP-UX, do the following steps:

1. Log in to your HP-UX machine as user root or su to root
2. Uninstall the VisualAge Generator Server product (base and languages) from your system by using the following command:

   ```
   rm -rf /opt/vgwgs45
   ```

To uninstall the symbolic links created by the vglinks script during installation, do the following steps:

1. Log in to your HP-UX machine as user root or run su to become root.
2. Change your current working directory to /opt/vgwgs45.
3. Run the following vglinks script and follow the on-screen directions:

   ```
   ./vglinks -r
   ```

   or, to remove existing links without confirmation (to force deletion):

   ```
   ./vglinks -r -f
   ```

Uninstalling VisualAge Generator Server for SCO OpenServer

To uninstall VisualAge Generator Server for SCO OpenServer, do the following steps:

1. Log in to your SCO machine as user root or su to root
2. Uninstall the VisualAge Generator Server product (base and languages) from your system by using the following command:

   ```
   rm -rf /opt/vgwgs45
   ```

To uninstall the symbolic links created by the vglinks script during installation, do the following steps:

1. Log in to your SCO machine as user root or run su to become root.
2. Change your current working directory to /opt/vgwgs45.
3. Run the following vglinks script and follow the on-screen directions:

   ```
   ./vglinks -r
   ```

   or, to remove existing links without confirmation (to force deletion):

   ```
   ./vglinks -r -f
   ```

Uninstalling VisualAge Generator Server for Solaris

To uninstall VisualAge Generator Server for Solaris, do the following steps:

1. Log in to your Solaris machine as user root or su to root
2. Uninstall the VisualAge Generator Server product (base and languages) from your system by using the following command:

   ```
   rm -rf /opt/vgwgs45
   ```

To uninstall the symbolic links created by the vglinks script during installation, do the following steps:

1. Log in to your Solaris machine as user root or run su to become root.
2. Change your current working directory to /opt/vgwgs45.
3. Run the following vglinks script and follow the on-screen directions:

```
./vglinks -r
```

or, to remove existing links without confirmation (to force deletion):

```
./vglinks -r -f
```

Part 5. Appendixes

Appendix A. Environment variable values

This appendix contains a complete list of environment variables for VisualAge Generator.

You can set a value for the following environment variables. Many of the environment variables have default values.

BTRINTF

Defines the home directory of the File Manager for CICS for OS/2.

Example

```
SET BTRINTF=/H:C:\CICS300\RUNTIME
```

CICSCOBCOPY

Specifies the directories containing COBOL copybooks, such as **C:\VGSVR45\COPYBOOK** and **C:\SQLLIB**.

This environment variable is also used by the VisualAge Generator templates in the COB2 –I option. This forces IBM VisualAge for COBOL for OS/2 to use this variable to search for copy files.

If your generated programs use SQL, the SQL directory must be included on the list of directories specified by the environment variable CICSCOBCOPY.

Example:

```
SET CICSCOBCOPY=C:\VGSVR45;C:\SQLLIB
```

CICSRGRP

Specifies a list of CICS program resource groups that CICS for OS/2 uses at startup. By setting it, you may specify which CICS groups are loaded by CICS for OS/2. If it is not set, all CICS groups will be loaded.

Note: If the CICSRGRP environment variable is set, the FAASYS and VGSVR45 groups must be included.

Example:

```
SET CICSRGRP=FAASYS,VGSVR45,APPGRP1
```

CICSCOBOL

Specifies which COBOL to use for compiling transactions.

Example:

```
SET CICSCOBOL=IBM
```

CICSRD

Identifies the path and name of the CICS for OS/2 tables file (FAACTFTB.BTR).

Example:

```
SET CICSRD=C:\CICS300\RUNTIME\DATA\FAACTFTB.BTR
```

CICSWRK

Specifies the list of directories CICS for OS/2 will use when searching for run-time and program dynamic link libraries. This is a CICS for OS/2 environment variable. It has the same format as the PATH environment variable.

So that CICS for OS/2 can access VisualAge Generator generated programs, CICSWRK must contain the directories which contain any DLLs produced by VisualAge Generator preparation. This can be done by adding these directories to CICSWRK, or by copying the program DLLs to a directory already in CICSWRK.

COBPATH

Specifies the directory path to be used by the COBOL run-time environment to locate dynamically accessed programs.

Example:

```
SET COBPATH=C:\IBMCOBOL\DLL;C:\VGSVR45\DLL;
```

CSODIR

Specifies the directory where the CSO.INI file is located. By default, this location is the root directory where VisualAge Generator Common Services is installed for OS/2 or Windows environments, or the root directory where VisualAge Generator Server is installed for AIX, HP-UX, and Solaris environments.

CSOTIMEOUT

Specifies the length of time in seconds after which a time-out error occurs if the server does not respond to the client. The default value is 30.

CSOTROPT

Specifies the level of trace information collected for calls to client/server programs and database connections. Trace information is written to the file named in the CSOTROPT variable. The valid values are:

0 Only errors are traced. 0 is the default.

1 Only errors are traced.

2 All client/server calls and database connections are traced.

CSOTROUT

Specifies the output file for trace information collected for calls to

client/server programs and database connections. Level of information is controlled by the CSOTROPT variable.

The default value is CSOTRACE.OUT.

DB2INSTANCE

Specifies the default instance name.

Example

```
export DB2INSTANCE=db2a
```

where **db2a** is the login name of the instance owner. For more information on the DB2INSTANCE environment variable, refer to the installation manual for DB2 for AIX, DB2 for HP-UX, or DB2 for Solaris.

DLITROPT

DLITROPT specifies DL/I tracing options, which are used during remote DL/I access when the middleware is provided by VisualAge. This environment variable is used on Windows NT and OS/2 and can take either of two values:

0 Only information on DL/I errors is retained in a file identified in environment variable DLITROUT. 0 is the default.

1 Information on all DL/I activity is retained in that file.

Example:

```
SET DLITROPT=1
```

DLITROUT

DLITROUT specifies the file that receives DL/I trace information during remote DL/I access when the middleware is provided by VisualAge. If the value is blank or the environment variable DLITROUT is not present, VisualAge writes trace information to file VAGRMDLI.OUT. This environment variable is used on Windows NT and OS/2.

If you do a typical install of VisualAge for Java, the file is in directory C:\IBMJava\rmtDli; the equivalent directory for VisualAge Smalltalk is C:\Program Files\VAST\rmtDli (on Windows NT) and C:\VAST\rmtDli (on OS/2).

Example:

```
SET DLITROUT=C:\IBMJava\rmtDli
```

DPATH

Specifies the directories to search for CSO message tables and conversion tables on OS/2, AIX, HP-UX, and Solaris. DPATH should contain the following product directories:

OS/2	C:\VGSVR45
AIX	/usr/lpp/vgwgs45:/usr/lpp/vgwgs45/lib
HP-UX	/opt/vgwgs45:/opt/vgwgs45/lib
Solaris	/opt/vgwgs45:/opt/vgwgs45/lib

Note: On Windows NT, the PATH environment variable is searched for CSO message tables and conversion tables.

ELAPATH

Specifies the product directory, such as **C:\VGSVR45**, where VisualAge Generator Server is installed.

The default location is **C:\VGSVR45**. This is not a list of directories. Specify only one directory and do *not* end the statement with a semicolon (;).

Example:

```
SET ELAPATH=C:\VGSVR45
```

ELARTRDB_tttt

Specifies the name of the relational database to be connected to a specific generated program.

The **tttt** specifies the CICS for OS/2 transaction ID for the transaction requiring access to the relational database.

Note: For transaction names of less than 4 characters, trailing blanks should not be included. For example, if you want to specify a database name for a transaction with the transaction name ABC, set the following:

```
SET ELARTRDB_ABC=ALPHADB
```

This environment variable is optional when running the Start CICS OS/2 with VisualAge Generator Server Run-time Support program, ELARUNC.CMD.

If this environment variable does not have a value for the transaction being run, a default database will is used.

Example:

```
SET ELARTRDB_MYAP=MYDATA
```

EZERGRGL_*xxx*

This environment variable specifies the default date edit mask for the long version of the Gregorian date.

The default date edit mask is derived from the system date format.

This environment variable is used only for VisualAge Generator Server. VisualAge Generator Developer uses the Long Gregorian value on the Date Formats VAGen Options or Preferences page.

Example

In the following example, the default date edit mask is set to YYYY-MM-DD.

```
SET EZERGRGL_ENU=YYYY-MM-DD
```

The long version of the Gregorian mask must contain the following parts in any order:

YYYY 4-digit year

MM 2-digit month

DD 2-digit day of month

The mask parts must be separated by any single-byte nonnumeric character except D, M, or Y.

For example, a mask of YYYY/MM/DD is used to display the date 2000/02/05, February 5, 2000.

The *xxx* specifies the NLS language identifier. See EZERNLS for the valid languages.

EZERGRGS_*xxx*

This environment variable specifies the default date edit mask for the short version of a Gregorian date.

The default date edit mask is derived from the system date format.

This environment variable is used only for VisualAge Generator Server. VisualAge Generator Developer uses the Short Gregorian value on the Date Formats VAGen Options or Preferences page.

Example

In the following example, the default date edit mask is set to YY-MM-DD.

```
SET EZERGRGS_ENU=YY-MM-DD
```

The short version of the Gregorian mask must contain the following parts in any order:

YY 2-digit year

MM 2-digit month

DD 2-digit day of month

The mask parts must be separated by any single-byte nonnumeric character except D, M, or Y.

For example, a mask of YY/MM/DD is used to display the date 00/02/05, February 5, 2000.

The *xxx* specifies the NLS language identifier. See EZERNLS for the valid languages.

EZERJULL_*xxx*
This environment variable specifies the default date edit mask for the long version of a day-of-year date.

The default date edit mask is derived from the system date format.

This environment variable is used only for VisualAge Generator Server. VisualAge Generator Developer uses the Long Julian value on the Date Formats VAGen Options or Preferences page.

Example

In the following example, the default date edit mask is set to YYYY-DDD:

```
SET EZERJULL_ENU=YYYY-DDD
```

The long version of the day-of-year mask must contain the following parts in any order:

YYYY 4-digit year

DDD 3-digit day of year

The mask parts must be separated by any single-byte nonnumeric character except D or Y.

For example, a mask of DDD-YYYY can be used to display the date 036-2000, which is February 5, 2000.

The *xxx* specifies the NLS language identifier. See EZERNLS for the valid languages.

EZERJULS_*xxx*
This environment variable specifies the default date edit mask for the short version of a day-of-year date.

The default date edit mask is derived from the system date format.

This environment variable is used only for VisualAge Generator Server. VisualAge Generator Developer uses the Short Julian value on the Date Formats VAGen Options or Preferences page.

Example

In the following example, the default date edit mask is set to YY-DDD. Dates are displayed in the form YY-DDD.

```
SET EZERJULS_ENU=YY-DDD
```

The short version of the day-of-year mask must contain the following parts in any order:

YY 2-digit year

DDD 3-digit day of year

The mask parts must be separated by any single-byte nonnumeric character except D or Y.

For example, a mask of DDD-YY can be used to display the date 036-00, which is February 5, 2000.

The *xxx* specifies the NLS language identifier. See EZERNLS for the valid languages.

EZERNLS

This environment variable specifies the default national language code for VisualAge Generator Server.

This environment variable is only used for VisualAge Generator Server. VisualAge Generator Developer uses the HPTRULES.NLS file.

See "NLS customization" on page 107 for more information.

The NLS language identifiers for VisualAge Generator Server are shown below.

Code	Language
CHS	Simplified Chinese
CHT	Traditional Chinese[5]
DES	Swiss German
DEU	German
ENU	US English
ESP	Spanish
FRA	French[5]
ITA	Italian[5]
JPN	Japanese
KOR	Korean
PTB	Brazilian Portuguese

5. French, Italian, and traditional Chinese are not available in the OS/2 and CICS for OS/2 environments.

You can change the value of EZERNLS.

The NLS value is determined as follows:

1. If the /NLS option is specified, the language specified by the /NLS option is used.

   If the language specified for /NLS is not valid, a message is issued with a return code of 16.
2. If a value is not specified for /NLS, the EZERNLS environment variable is checked.

   If the value specified for EZERNLS is not valid, the following occurs:

   - A return code of 65283 is issued
   - Messages cannot be displayed
3. If a value is not specified for either the /NLS option or the EZERNLS environment variable, the first language in the default NLS file, specified by the VAST_NLS environment variable, is used.

Example

In the following example, for OS/2, the EZERNLS environment variable is set to JPN (Japanese):

```
SET EZERNLS=JPN
```

For AIX, if EZERNLS is not specified in your .profile file, the /nls parameter is required when you run the program, for example:

```
fcwrun progname /nls=enu
```

EZERSQLDATE

This environment variable specifies a 3-character value identifying the SQL date and time format for DB2.

The valid values for SQL date and time formats are as follows:

DEF Format associated with the current country code

EUR IBM standard format for Europe

ISO Format of the International Organization for Standardization

JIS Format of the Japanese Industrial Standard

LOC Format in local form associated with the current country code

USA IBM standard format for the United States

The default SQL date and time format is DEF.

This environment variable is only used for VisualAge Generator Server. VisualAge Generator Developer uses the *sqlDateTime* key in the HPT.INI file. Refer to the *IBM DB2 Command Reference* for more information on the DateTime parameter for the BIND command.

Example

In the following example, the SQL date and time format is set to the International Organization of Standards format:

```
SET EZERSQLDATE=ISO
```

EZERSQLDB

This environment variable specifies a default database name when accessing relational database tables.

This environment variable is only used for VisualAge Generator Server. VisualAge Generator Developer uses the *sqlDefaultDatabase* key in the HPT.INI file. See the *VisualAge Generator Installation Guide* for more information.

You can override the EZERSQLDB value using the /SQLDB option on the GENERATE or PREPARE subcommands.

VisualAge Generator Server for OS/2

This environment variable is optional when running programs under OS/2 environment. The environment variable FCWDBNAME_*progname* overrides EZERSQLDB for the VisualAge Generator program (progname) specified. If neither EZERSQLDB nor FCWDBNAME_*progname* is set during run time, the default value used is the DB2 environment variable DB2DBDFT. VisualAge Generator environment variables for OS/2 are normally set in the config.sys file.

VisualAge Generator Server for CICS OS/2

This environment variable is optional when running programs under CICS OS/2 environment. The environment variable ELARTRDB_*tranid* overrides EZERSQLDB for the VisualAge Generator transaction (tranid) specified. If neither EZERSQLDB nor ELARTRDB_*tranid* is set during run time, no default is provided by VisualAge Generator Server. VisualAge Generator environment variables for CICS OS/2 are normally set in the ELAENV.CMD file.

VisualAge Generator Server for AIX

This environment variable is optional when running programs in the AIX environment. The environment variable FCWDBNAME_*progname* overrides EZERSQLDB for the VisualAge Generator program (progname) specified. If neither EZERSQLDB nor

FCWDBNAME_*progname* is set during run time, the default value used is the DB2 environment variable DB2DBDFT. VisualAge Generator environment variables for AIX are normally set in a user's .profile file.

VisualAge Generator Server for CICS on AIX

This environment variable is optional when running programs in the AIX environment. The environment variable FCWTRDB_*tranid* overrides EZERSQLDB for the VisualAge Generator transaction (tranid) specified. If neither EZERSQLDB nor FCWTRDB_*tranid* is set during run time, the default value used is the DB2 environment variable DB2DBDFT. VisualAge Generator environment variables for CICS on AIX should be set in the CICS environment file.

VisualAge Generator Server for Solaris

This environment variable is optional when running programs in the Solaris environment. The environment variable FCWDBNAME_*progname* overrides EZERSQLDB for the VisualAge Generator program (progname) specified. If neither EZERSQLDB nor FCWDBNAME_*progname* is set during run time, the default value used is the DB2 environment variable DB2DBDFT. VisualAge Generator environment variables for Solaris are normally set in a user's .profile file.

VisualAge Generator Server for CICS on Solaris

This environment variable is optional when running programs in the Solaris environment. The environment variable FCWTRDB_*tranid* overrides EZERSQLDB for the VisualAge Generator transaction (tranid) specified. If neither EZERSQLDB nor FCWTRDB_*tranid* is set during run time, the default value used is the DB2 environment variable DB2DBDFT. VisualAge Generator environment variables for CICS on Solaris should be set in the CICS environment file.

VisualAge Generator Server for Windows NT

This environment variable is optional when running programs in the Windows NT environment. The environment variable FCWDBNAME_*progname* overrides EZERSQLDB for the VisualAge Generator program (progname) specified.. If neither EZERSQLDB nor FCWDBNAME_*progname* is set during run time, the default value used is the DB2 environment variable DB2DBDFT. VisualAge Generator environment variable for Windows NT are normally set in the Control Panel.

VisualAge Generator Server for CICS for Windows NT

This environment variable is optional when running programs in the CICS for Windows NT environment. The environment variable

FCWTRDB_*tranid* overrides EZERSQLDB for the VisualAge Generator transaction (transid) specified. If EZERSQLDB or FCWTRDB_*tranid* is set during run time, the default value used is the DB2 environment variable DB2DBDFT. VisualAge Generator environment variables for CICS for Windows NT should be set in the CICS environment file.

VisualAge Generator Server for HP-UX

This environment variable is optional when running programs in the HP-UX environment. The environment variable FCWDBNAME_*progname* overrides EZERSQLDB for the VisualAge Generator program (progname) specified. If neither EZERSQLDB nor FCWDBNAME_*progname* is set during run time, the default value used is the DB2 environment variable DB2DBDFT. VisualAge Generator environment variables for HP-UX are normally set in a user's .profile file.

EZERSQLM1

Specifies the options to start a database again if it was left in an uncommitted state.

The valid values are as follows:

YES Start the database again

NO Do not start the database again

The default value is YES.

This environment variable is optional when running the Start CICS OS/2 with VisualAge Generator Server Run-time Support program, ELARUNC.CMD. This environment variable is also used when generated programs run.

Example

```
SET EZERSQLM1=NO
```

EZERSQLM2

Specifies whether VisualAge Generator Server runs the BIND utility to produce an access plan for a generated COBOL program if the access plan is not available.

When a generated program that accesses SQL data begins running, VisualAge Generator Server verifies whether the SQL access plan is available. If it is not, and if the value of EZERSQLM2 is YES, the BIND utility runs to build the access plan.

The valid values are as follows:

YES Run the BIND utility if needed.

NO Do not run the BIND utility.

The default value is YES.

This environment variable is optional when running the Start CICS OS/2 with VisualAge Generator Server Run-time Support program, ELARUNC.CMD. This environment variable is used when generated programs run.

The .BND file for the program, which is created when the program is prepared, must be located in the same directory as the program.

Example

```
SET EZERSQLM2=NO
```

EZERSQLMF

Specifies where messages from the BIND utility are directed if EZERSQLM2 has the value of YES.

The messages from the BIND utility are written to the OS/2 device or file as specified by the value of environment variable EZERSQLMF. If you specify a file name, the location of the file defaults to the CICS for OS/2 product directory. This CICS for OS/2 executable directory is the directory in which CICS for OS/2 is running.

Messages do not come directly to the screen. Some valid values are as follows:

- Any file name
- LPT1
- NUL
- PRN

The default value is NUL, which causes the messages to be discarded.

This environment variable is optional when running the Start CICS OS/2 with VisualAge Generator Server Run-time Support program, ELARUNC.CMD.

Example

```
SET EZERSQLMF=LPT2
```

EZERSQLUS

Specifies the access mode for a database when the START USING DATABASE service runs for a generated COBOL program.

The valid values are as follows:

S Use the database in **SHARED** mode

X Use the database in **EXCLUSIVE** mode.

The default value is S.

This environment variable is used when generated programs run.

This environment variable is optional when running the Start CICS OS/2 with VisualAge Generator Server Run-time Support program, ELARUNC.CMD.

Example

```
SET EZERSQLUS=X
```

FCWCOMP

Specifies the C++ compiler used to compile generated programs. It is used for VisualAge Generator Server for Windows NT when you are preparing a program. It is not used at run time.

The following values are valid:

MSVC	Microsoft Visual C++ Version 5 or 6
VA36	IBM VisualAge C++ Version 3.6

FCWDB2DIR

Specifies the directory where Database 2 for AIX, Database 2 for HP-UX, or Database 2 for Solaris is installed.

Example for AIX

```
export FCWDB2DIR=/usr/lpp/db2_01_01_0000
```

Example for HP-UX or Solaris

```
export FCWDB2DIR=/opt/IBMdb2/v5.0
```

FCWDBNAME_*progname*

Specifies the name of the relational database to be used for running a specific program under OS/2, AIX, Windows NT, HP-UX, or Solaris. This environment variable allows the database name to be specified on a program basis. If FCWDBNAME_*progname* is not specified, EZERSQLDB is used. If EZERSQLDB is not specified, the DB2 environment variable, DB2DBDFT is used.

Example for OS/2 or Windows NT:

```
SET FCWDBNAME_MYAPP=MYDB
```

Example for AIX, HP-UX, or Solaris:

```
export FCWDBNAME_DBSERVE=mydb
```

FCWDBNOOP

Specifies whether you want VisualAge Generator Server or CICS to issue commits/rollbacks. If this environment variable is set, CICS will issue syncpoints to control the unit of work. This environment

variable is only valid in the CICS environments and must be specified if the CICS region is configured with XA-enabled databases.

Example for AIX:

```
export FCWDBNOOP=yes
```

Example for Windows NT:

```
set FCWDBNOOP=yes
```

FCWDBPASSWORD

Specifies the password for connecting to a relational database on OS/2, Windows NT, AIX, HP-UX, or Solaris.

Example

```
export FCWDBPASSWORD=abcdef
```

FCWDBUSER

Specifies the user ID for connecting to a relational database on OS/2, Windows NT, AIX, HP-UX, or Solaris.

Example

```
export FCWDBUSER=mary
```

FCWDBVERSION

Specifies the version of the database software installed on the Windows NT system. This environment variable is used when preparing SQL programs for execution under Windows NT. It is also used by the orasetup.exe utility when attempting to determine what version of the VisualAge Generator Server for Windows NT Oracle modules are being used.

The following values are valid when preparing Oracle SQL programs:

8 Oracle8 for Windows NT is installed on the Windows NT system.

7 Oracle7 for Windows NT is installed on the Windows NT system.

This environment variable is **not** used when preparing DB2 or ODBC programs.

Example

```
SET FCWDBVERSION=8
```

FCWDPATH

Specifies the directories to search for tables and resource association files.

Example for OS/2 or Windows NT:

```
SET FCWDPATH=C:\VGSVR45
```

Example for AIX, HP-UX, or Solaris:

```
export FCWDPATH=/u/mary/genout
```

FCWFIODB

Specifies the name of the database to be used for CICS files when the CICS region is configured to use DB2 as a file system instead of SFS. For implicit connections, the databases accessed by the program are determined by EZERSQLDB and FCWTRDB_*tttt*.

Example for AIX

```
export FCWFIODB=cicsdb
```

Example for Windows NT

```
set FCWFIODB=cicsdb
```

FCWLIBPATH

Specifies one or more directories to search for compiled programs and map groups.

Example

```
export FCWLIBPATH=/u/mary/genout
```

FCWMAKE

Specifies the location of the makefile, FCWMAKE. This environment variable is used when preparing programs for execution under OS/2 and Windows NT.

Example:

```
SET FCWMAKE=C:\VGSVR45
```

FCWRSC

Specifies the resource association file. The default resource association file name is fcw.rsc.

Example for OS/2 or Windows NT:

```
SET FCWRSC=fcw.rsc
```

Example for AIX, HP-UX, or Solaris:

```
export FCWRSC=fcw.rsc
```

FCWOPT

Specifies run time options for Server. This environment variable is used when executing programs under OS/2, AIX, Windows NT, HP-UX, or Solaris. You can specify one or more of the following options:

1 A map field with a date mask can be modified and left blank without causing a date validation error.

FCWTRDB_*tranid*

Specifies the name of the relational database to be used for running a transaction under CICS. This environment variable allows the database name to be specified on a transaction basis. If FCWTRDB_*tranid* is not specified, EZERSQLDB is used. If EZERSQLDB is not specified, the DB2 environment variable, DB2DBDFT is used.

FCWTROPT

Specifies the Server trace option. This environment variable is used when executing programs under OS/2, AIX, Windows NT, HP-UX, and Solaris. You can specify one or more of the following options:

0 To turn the off trace

1 To trace entry or exit for program, process, or statement groups

2 To trace CALL XFER DXFR statements

4 To trace SQL I/O

8 To trace File I/O

16 To trace System events

31 To turn all of the trace options on

Example

```
SET FCWTROPT=31
```

Note: If FCWTROPT is not specified, the trace is not produced.

FCWTROUT

Specifies the trace output file. This environment variable is used by OS/2, AIX, Windows NT, HP-UX, and Solaris. The default trace output file is FCWTRACE.OUT.

Example for OS/2 or Windows NT

```
SET FCWTROUT=myapp.out
```

Example for AIX, HP-UX, or Solaris

```
export FCWTROUT=myapp.out
```

INFORMIXDIR

Specifies the directory containing the VisualAge Generator software. Required for ODBC on AIX, HP-UX, and Solaris.

Example for AIX

```
export INFORMIXDIR=/usr/lpp/vgwgs45/lib
```

Example for HP-UX or Solaris

```
export INFORMIXDIR=/opt/vgwgs45/lib
```

MDLROOT

Specifies the directory where the VisualAge Generator Templates is installed. This environment variable is used by OS/2 and Windows NT.

Example for OS/2 or Windows NT

```
SET MDLROOT=c:\VAST
```

ORACLE_HOME

Specifies the directory containing the Oracle software. Required for Oracle on AIX, HP-UX, and Solaris.

Example for AIX

```
export ORACLE_HOME=/usr/app/oracle/product/7.3.4
```

Example for HP-UX or Solaris

```
export ORACLE_HOME=/u01/app/oracle/product/7.3.4
```

RMTDLI_PARTNER_LU

Specifies the name of the partner LU alias used during remote DL/I access when the middleware is provided by VisualAge. This environment variable is used on Windows NT and OS/2.

Example:

```
SET RMTDLI_PARTNER_LU=ZZLU
```

RMTDLI_PARTNER_TP

Specifies the TP name of the remote DL/I server and is used during remote DL/I access when the middleware is provided by VisualAge. This environment variable is used on Windows NT and OS/2.

Example:

```
SET RMTDLI_PARTNER_TP=ZZTP
```

RMTDLI_SERVER_ENV

Specifies the fully qualified name of the local Server Environment File, which is used during remote DL/I access when the middleware is provided by VisualAge. The Server Environment File overrides dataset names in the JCL that defines an IMS batch job; for details on that file, see the *User's Guide*. This environment variable is used on Windows NT and OS/2.

Example:

```
SET RMTDLI_SERVER_ENV=C:\VAGEN\serven.txt
```

Appendix B. National language support

This chapter describes information VisualAge Generator's support for national languages.

VisualAge Generator Developer national language support

VisualAge Generator Developer provides support for several national languages. In this document, the lowercase *xxx* is used to specify a language version identifier. Environment variables with the suffix *xxx* are language dependent. The language version identifier is also used when starting VisualAge Generator Developer with the optional /NLS parameter. Use the following codes as valid substitutions for the lowercase *xxx* to denote a language version of VisualAge Generator Developer:

Code	Language
enu	US English
jpn	Japanese
kor	Korean (available only with the Java-based version of VisualAge Generator Developer)
ptb	Brazilian Portuguese

NLS characters

Some files in VisualAge Generator are named according to the language version. The file name is altered by one letter to indicate the language version. This document uses a lowercase *y* to denote the language code for each translated version of VisualAge Generator.

To specify a language version, substitute a code letter from the following list for *y*:

Code	Language
e	US English
j	Japanese
k	Korean (available only with the Java-based version of VisualAge Generator Developer)
p	Brazilian Portuguese

NLS customization

VisualAge Generator Developer can be customized to suit your National Language requirements by modifying the file HPTRULES.NLS. This file is in the NLS subdirectory of the VisualAge installation directory. This file consists of four sections:

NLS rules
Customize Developer language suffix and special characters

DBCS rules
Further customize Developer for double byte locales

Generation rules
Customize specific generation options

Conversion rules
Customize conversion table names for the target generation environments

The key in each section is the locale, which is formed by combining the language and territory separated by a dash (-), for example `english-us`. Each language and territory must be a valid value that could be reported by the *Locale* class in VisualAge Smalltalk.

General file information

Blank lines and any lines beginning with an "*" in column 1 are ignored. Each section begins with a `:tag`, where tag is replaced by a keyword for each section. These tags must not be changed. Except where indicated as acceptable, do not embed any blanks (spaces or other unprintable characters) in the values specified. All invalid lines will be ignored. If no valid information is available for a locale, default information (generally the same as the `english-us` values) will be used.

This file should be maintained by the System Administrator and distributed to individual developers.

NLS rules

This section begins with the tag `:nlsrules` and is used to specify the three letter VisualAge Generator language suffix that represents the default target NLS system for generation. See the `TARGNLS` generation option description in the *VisualAge Generator Generation Guide* for more information. In addition, the national characters, the not sign, and the alternate not sign are specified in this section.

The national characters are valid for use in some VisualAge Generator part names and default to $, #, and @ in English. The not sign and alternate not sign specify the values that can be legally used in VisualAge Generator language statements, for example `IF A ^= B`.

Each line is this section must follow these rules. If a line does not follow these rules it will be ignored:

- Exactly three blank-delimited words, including the key in single quotes
- The second column must be five characters long

- The third column must be three characters long

As stated before, blanks cannot be embedded in the values, as this will result in the line containing more than three space-character-delimited words. Thus `english-us` is a legal key, but `english - us` will cause the line to be ignored. Likewise, you cannot leave one of the national characters blank.

DBCS rules

This section begins with the tag `:dbcsrules` and is used to specify various values that are required by VisualAge Generator. These values are all coded as the hexadecimal ASCII code point values that correspond to the characters indicated for the column. With the key in column 1, column 2 contains the value of the DBCS space and column 3 the value for the DBCS asterisk (`*`) for the locale indicated by the key.

Column 4 contains pairs of ASCII values that indicate the character ranges of the DBCS English alphabetic uppercase letters. Column 5 contains the same, but for the DBCS English alphabetic lowercase letters. These are required by VisualAge Generator Developer to correctly fold the alphabetic part of DBCS part names. The format, which contains no space characters, is as follows:

(*nnnn*,*nnnn*,*nnnn*,*nnnn*...)

There should always be an even number of values, and usually there will only be one pair, for example (81C1,81E9).

Each line in this section must contain exactly five space-delimited words, including the key in single quotes, or the line will be ignored.

Generation rules

This section begins with the tag `:genrules` and is used to specify default values for the following generation options:

```
FTP_TRANSLATION_CMD_SBCS
FTP_TRANSLATION_CMD_DBCS
SEND_TRANSLATION_CMD_DBCS
```

The key, in single quotes, is specified on a line, followed by one to three lines specifying the option values listed above. Anything else on the key line invalidates the key and causes the lines to be ignored up to the next valid key line.

Each value line must contain one of the above keywords as the first space-delimited word on the line, otherwise it is ignored. The remainder of the line contains the default value for the option and can contain anything, including embedded blanks. Leading and trailing blanks will be removed. Refer to the generation options in the *VisualAge Generator Generation Guide* for more information on these commands.

Omit any keyword lines that are not required for the locale and omit the key if no values are required for any of the commands.

Conversion rules

This section begins with the tag `:convrules` and is used to specify the default conversion table names used by VisualAge Generator when generating for various environments. Most conversion tables required are shipped with the product, but you may change the default table used for a locale/generation environment to a different supplied table or to a custom table you have created. See the *VisualAge Generator Client/Server Communications Guide* for more information on creating tables.

The table format is as follows:

Column 2
default table name used when generating for EBCDIC environments, like MVS, VSE, VM and OS/400.

Note: This table name is also used for converting DBCS part names to EBCDIC when validating the part name and is the default table name used by the Data File Conversion utility of VisualAge Generator Developer.

Column 3
default table name used when generating for Windows environments, like Windows 95, Windows 98, and Windows NT.

Column 4
default table name used when generating for OS/2 environments, like OS/2 Warp and OS/2 CICS.

Column 5
default table name used when generating for UNIX environments like AIX and HP-UX.

Each line in this section must contain exactly five space-delimited words, including the key in single quotes, or the line will be ignored.

VisualAge Generator Server national language support

VisualAge Generator Server provides language version support. In this guide, *x* and *xxx* signify a language version identifier.

Environment variables ending with *xxx* are language-dependent. The language version identifier is also used when starting the conversion utility for host data files with the /NLS. option.

Table 13 shows the three-character (xxx) and one-character (y) NLS codes and the language each represents.

Table 13. NLS codes

xxx	y	Language
chs	c	Simplified Chinese
cht	t	Traditional Chinese[6]
des	w	Swiss German
deu	g	German
enu	e	U.S. English
esp	s	Spanish
fra	f	French[6]
ita	i	Italian[6]
jpn	j	Japanese
kor	k	Korean
ptb	p	Brazilian-Portuguese

6. French, Italian, and traditional Chinese are not available in the OS/2 and CICS for OS/2 environments.

Appendix C. Getting support

This appendix describes the ways you can get support for VisualAge Generator. If you have a question or a problem, please first review information contained in the VisualAge Generator product.

If you need to contact the IBM Support Center for assistance, you should be at your workstation and have the following information available:

- VisualAge Generator version number.

  To find the version number, on the VisualAge Generator window, from the **Help** pull-down menu, select **Product Information**.
- What kind of hardware you are using
- What happened and what you were doing when the problem occurred
- The exact wording of any messages that were displayed.

Electronic support

An electronic forum is available to provide VisualAge Generator users the capability to electronically access technical information, exchange messages with other VisualAge Generator customers, and ask how-to questions.

The forum is accessible on the Internet at the following URL:

`news://news.software.ibm.com/ibm.software.vagen`

Additional technical information is available on the Internet. Please visit the Personal Software Services Home Page at the following URL:

`http://ps.software.ibm.com`

Marketing highlights and features can be found at the following URL:

`http://www.ibm.com/software/ad/visgen`

Telephone support

The following sections contain useful phone numbers to use when you need more information about VisualAge Generator.

Telephone support for North American customers

Support for VisualAge Generator is offered under the Personal Systems Support Family

The Personal Systems Support Family provides a menu of services, one of which is Support Line. If you have purchased a Support Line contract you may obtain usage/how-to and defect support via voice or electronically. Voice support is available by calling 1-800-237-5511 and selecting the option for OS/2, DOS, or IBM software running on these or other PC operating systems.

To obtain Technical Assistance (and access to other ″registered services″), you must have purchased a Support Line contract and know your assigned customer number and PIN (Personal Identification Number).

When you sign a Support Line contract, you are assigned two numbers. The first is your customer number. The second is a Personal Identification Number (PIN) for each designated contact. If you have purchased a Support Line contract and do not know your customer number and PIN, or you want to purchase a Support Line contract, contact the Personal Systems Support Family Marketing Center at 1-800-IBM-4YOU.

Table 14 shows telephone numbers for IBM North American support.

Table 14. Telephone numbers for IBM North American support

Goal	United States	Canada
Answers to problems and questions	1-800-237-5511	1-800-465-2222
Product information packages	1-800-IBM-CALL (1-800-426-2255)	1-800-IBM-CALL (1-800-426- 2255)
VisualAge Generator products	1-800-IBM-CALL (1-800-426-2255)	1-800-IBM-CALL (1-800-426- 2255)
Information on VisualAge Generator education	1-800-IBM-TEACh (1-800-426-8322)	1-800-IBM-TEACh (1-800-426-8322)

For information on **VisualAge Generator Consulting Services**, go to http://www.software.ibm.com/ad/vaws-services.

Telephone support outside North America

For information on **Telephone Support**, go to http://www.ibm.com/contact.

VisualAge Generator Consulting Services

The IBM Software Solutions Division development laboratory has established the VisualAge Generator Consulting Services organization to provide a variety of services to VisualAge Generator and Cross System Product current and prospective customers. The consultants have multiple years of experience with the VisualAge Generator and predecessor products, either as product

developers on the products themselves or in working with a broad base of customers, and is prepared to offer services worldwide.

The VisualAge Generator consulting team offers the following services:

- Set up and establish the local area network (LAN) infrastructure
- Establish the VisualAge Generator Developer and prerequisite products
- Establish the VisualAge Generator run-time environment
- Demonstrate the use of VisualAge Generator from program development to execution (Proof of Concept)
- Migrate existing Cross System Product programs to the VisualAge Generator and Cross System Product 4.1 environments.
- Provide specialized education on the VisualAge Generator products
- Provide mentoring service for developers as they increase their expertise while working on real project tasks
- Design and/or develop specific client, server, or stand-alone programs using either a graphical user interface (GUI) or text user interface (TUI)
- Develop and implement a code management strategy for the development environment
- Provide MSL to ENVY migration services
- Analyze Cross System Product and VisualAge Generator source code for potential year 2000 impacts

Customers can reduce their expenses and overall development cycle time by using these services to accelerate their transition to the VisualAge Generator products. Taking advantage of these services gives customers access to an extensive technical skill base which can be used to either help them to grow their own internal sills or to avoid the need to hire and train new personnel.

The VisualAge Generator Consulting Services team can be reached by calling our consulting headquarters at 919-543-1326.

Maintaining VisualAge Generator

Product maintenance for VisualAge Generator is packaged as fixpaks. Instructions for the fixpak installation are provided with each fixpak. You can obtain information on the availability of fixpaks electronically through the following media:

Internet

The VisualAge Generator fixpaks can be accessed using the following URL:

`ftp://ps.software.ibm.com/ps/products/visualagegen`

CompuServe

Forum information can be found by entering GO VISUAL from any ! prompt and selecting VAGEN.

If you do not have access to any of the above mechanisms, contact your local IBM Support Center.

Appendix D. Installing samples for VisualAge Generator Developer on Smalltalk

The following sample applications are shipped as .DAT files with VisualAge Generator Developer on Smalltalk. If you do a typical install, they are installed in the samples subdirectory (for Windows, C:\Program Files\VAST\samples and for OS/2, C:\VAST\samples). To use the sample applications, you must import the .DAT file and load the applications into your image. Other files needed to run and test the sample applications are installed in the same subdirectory.

See "Importing and loading applications" on page 118 for additional installation information or refer tothe section on importing and loading samples in *VisualAge Generator Getting Started* for step-by-step instructions.

Note: If you are using VisualAge Generator Developer on Java, see "Appendix E. Installing samples for VisualAge Generator Developer on Java" on page 121.

A description of each application is provided in "Appendix F. Samples in repositories" on page 123.

Table 15. Sample applications shipped with VisualAge Generator Developer on Smalltalk

Repository Name	Configuration Map Name	Application Name
WEBS.DAT		HptSampleWebApp / HptSample3270MapApp
MQS.DAT		HptSampleMQApp
ICPKGS.DAT	VAGen Samples IC Packaging	HptICSample4GLApp / HptICSampleApp1 / HptICSampleApp2 / HptICSampleCommonPartsApp
EZEREMPS.DAT		HptSampleEzerempParts
EZERSMPS.DAT		HptSampleEzersmpParts
STAFFS.DAT		HptSampleStaffParts
EZERMSGS.DAT		HptSampleEzermsgParts
EZERPCBS.DAT		HptSamplePcbParts
EZERADFS.DAT		HptSampleEzerwadfParts

Note: If your installation gives you access to a common repository (that is, you are working from a client, not from a standalone install), you will need two pieces of information to do the following tasks:

- The host name or IP address of the system where your repository (server) is located
- A directory to which you have access that is defined to the server

You'll then need to copy repository files to that directory and specify the directory at the appropriate point in the following task.

Importing and loading applications

Most of the samples shipped with VisualAge Generator Developer on Smalltalk are stored as applications. The IC Packaging sample, however, is stored as a configuration map. See "Importing and loading configuration maps" for instructions on accessing this sample.

To import and load an application:

1. From the VisualAge Organizer window, select the **Applications** menu, then **Import/Export→Import Applications**
2. Specify the host name or IP address for the machine (for most clients this will be the local host).
3. Specify the fully qualified path to the .DAT file you want to import and click OK.
4. To load imported applications into your image, from the VisualAge Organizer window, select the **Applications** menu, then **Load→Available Applications**.
5. Select the application you want to load and the appropriate edition. Use the >> push button to copy your selections into the **Selected Editions** list box.

   Note: You can load another application by repeating the previous two steps.
6. When you have selected all of the applications you want to load, select **OK**.

Importing and loading configuration maps

To import and load a configuration map:

1. From the System Transcript window, select **Tools→Browse Configuration Maps**.
2. From the Configuration Maps Browser, select **Name→Import**

3. Specify the host name or IP address of the server where the repository is located.
4. Specify the repository you want to import from.
5. Select the configuration map and the version you want to import, move it into the list at the right by selecting the >> button. Then select **OK**.
6. To load a configuration, from the Configuration Maps Browser, select the configuration map from the Names panel and the edition from the Editions and Versions panel.
7. From the Configuration Map Browser, select **Editions→Load**.

Importing database tables

The file SAMPTBLS.CMD is stored in the C:\Program Files\VAST\samples directory for Windows (the C:\VAST\samples directory for OS/2). To import all database tables required for the sample applications and the tutorial into a database on your workstation, run the SAMPTBLS command.

Binding to a database

If you have not used this release of VisualAge Generator Developer with the DB2 database before, VisualAge Generator prompts you to run the SQLBIND command. Click **Yes** on the prompt window to run the command and bind to a database, or select **No** and set database preferences. To set database preferences:

1. From the VisualAge Organizer window, select **Options→VAGen Preferences**.
2. Select the **SQL** option and type the appropriate preferences in the fields on that page.
3. Click **OK**.

Appendix E. Installing samples for VisualAge Generator Developer on Java

The following samples are shipped as .DAT files with VisualAge Generator Developer on Java. If you do a typical install, they are installed in the samples subdirectory (c:\IBMVJava\IDE\program\samples). To use the samples, you must import the .DAT file and load the project or package into your workspace. Other files needed to run and test the samples are installed in the same subdirectory.

See "Importing and loading projects and packages" for additional installation information or refer to the section on importing and loading samples in *VisualAge Generator Getting Started* for step-by-step instructions.

Note: If you are using VisualAge Generator Developer on Smalltalk, see "Appendix D. Installing samples for VisualAge Generator Developer on Smalltalk" on page 117.

Table 16. Samples shipped with VisualAge Generator Developer on Java

Repository Name	Project Name	Package Name
WEBJ.DAT	VAGen Web Transaction Sample	com.ibm.vgj.sample.map3270 com.ibm.vgj.sample.webmap
MQJ.DAT	VAGen MQ Sample	com.ibm.vgj.sample.mq
EZEREMPJ.DAT	VAGen Employee Sample	com.ibm.vgj.sample.ezeremp
EZERSMPJ.DAT	VAGen Ezersmp Sample	com.ibm.vgj.sample.ezersmp
STAFFJ.DAT	VAGen Staff Sample	com.ibm.vgj.sample.staff
EZERMSGJ.DAT	VAGen Message Conversion Sample	com.ibm.vgj.sample.ezermsg
EZERPCBJ.DAT	VAGen PCB Sample	com.ibm.vgj.sample.ezerpcb
EZERADFJ.DAT	VAGen ADF Work Database Sample	com.ibm.vgj.sample.ezerwadf

Importing and loading projects and packages

To import and load a project or package:

1. From the Workbench, select the **File** menu, then **Import**.
2. Select **Repository**.

3. Using the **Import from another repository** SmartGuide, specify the location of the repository (.DAT file).
4. To import projects, select the **Projects** radio button, then select **Details** and select the projects you want to load.

   Note: You can also import individual packages by selecting the **Packages** radio button, the **Details** button and then the packages you want to import.
5. Select **Finish** to finish importing.
6. To load imported projects into your workspace, from the **Projects** tab Selected menu, select **Add→Project**.

   Note: You can load packages using these same instructions if you select**Add→Package**. If you want to add packages instead of projects, you must have an open edition of a project in your workspace to add packages to.
7. Select Add projects from the repository and select the project to load.
8. Select the appropriate edition.
9. When you have finished selecting all the projects you want to load, select **Finish**.

Additional files needed to generate and test the sample applications are also stored on client workstations. If you did a typical install, these files are located in the default directory C:\IBMVJava\IDE\program\samples.

Importing database tables

The file SAMPTBLS.CMD is stored in the c:\IBMVJava\IDE\program\samples directory. To import all database tables required for the samples and the tutorial into a database on your workstation, run the SAMPTBLS command.

Binding to a database

If you have not used this release of VisualAge Generator Developer with this DB2 database before, VisualAge Generator prompts you to run the SQLBIND command. Click **Yes** on the prompt window to run the command and bind to a database or, select **No** and set the database options. To set database options:

1. From the Workbench **Workspace** menu, select **Open VAGen Parts Browser**.
2. Select the **Window** menu, then **Options**
3. Select the **SQL** and type the appropriate options in the fields on that page.
4. Click **OK**.

Appendix F. Samples in repositories

Samples can be used to test your system setup. You should be able to generate and run these application systems on the workstation or on the host. The samples are listed in alphabetical order by repository name. File names in the form *J.DAT file are for Java and *S.DAT are for Smalltalk.

Where appropriate, a configuration map or project name is shown. Many of the samples are managed as applications on Smalltalk and therefore, will not have a configuration map name corresponding to a project name. Many of the samples that are available for Smalltalk show only the repository name and the application name.

Repository Name on Java/Repository Name on Smalltalk
Project/Configuration Map Name

Package/Application Name(s)
Brief explanation of what the sample does.

EZEREMPJ.DAT / EZEREMPS.DAT
VAGen Employee Sample / No configuration map

com.ibm.vgj.sample.ezeremp / HptSampleEzerempParts
This sample is a simple employee database system. You can use this example to verify that your system can properly access DB2 data. The file EZEREMP.IXF contains a DB2 table and data for use with this application.

EZERMSGJ.DAT / EZERMSGS.DAT
VAGen Message Conversion Sample / No configuration map

com.ibm.vgj.sample.ezermsg / HptSampleEzermsgParts
This sample is used on the host to convert user message files to message table parts in external source format.

Note: Because this file includes some VAGen parts that have the same names as parts in EZEREMP*.DAT, you should unload the applications/packages you imported from this file, before you load the one imported from EZERMSG*.DAT.

EZERPCBJ.DAT / EZERPCBS.DAT
VAGen PCB Sample / No configuration map

com.ibm.vgj.sample.ezerpcb / HptSamplePcbParts
This sample contains examples of record definitions corresponding to all PCB types.

EZERSMPJ.DAT / EZERSMPS.DAT

VAGen Ezersmp Sample / No configuration map

com.ibm.vgj.sample.ezersmp / HptSampleEzersmpParts

This sample contains examples showing how to develop applications for basic business requirements. Applications for accessing SQL databases, DL/I databases and data files, and versions of these applications customized for the IMS environment are included.

The following files contain DB2 tables and data for the EX00A program. To use any of the tables, you must import them using:

File	Table name
INVENTRY.IXF	INVENTORY
QUOTATNS.IXF	QUOTATIONS
SECURITY.IXF	SECURITY
SUPPLRS.IXF	SUPPLIERS

The following files contain IMS program specification blocks, database definitions, and data for the EX00AD program:

- **SUPPQDBD.DBD**—Database definition source file for the SUPPQDB database
- **SUPPINDX.DBD**—Database definition source file for the SUPPQDB database
- **INVDB.DBD**—Database definition source file for the INVDB database
- **INVINDX.DBD**—Database definition source file for the INVDB database
- **EX99PS.PSB**—Program specification block source file
- **SUPPQDB.DTA**—Data file for the SUPPQDB database
- **INVDB.DTA**—Data file for the INVDB database

The following files are data files for the EX00AV program.:

- INVNFILE.CSP
- QUOTFILE.CSP
- SUPFILEV.CSP
- EZERSMP.RAF (the resource association file)

These data files are in a format usable by the VisualAge Generator test facility. To use these files with EX00AV, you

must update the entries in the EZERSMP.RAF file with the correct physical path of the first 3 files, if it has changed from the default path.

To generate the sample applications, use the default generation options file, create a Resource Association part named EZERSMP, read the file EZERSMP.RSC into it and specify it as the resource association file.

However, if you intend to generate and run the sample DL/I program, EX00AD, on host environments other than IMS, you need to remove ELAWORK from PSB EX99PS before generation. Otherwise, message ELA00215P, PSB does not match VisualAge Generator Developer PSB definition is returned when the applications is run.

EZERADFJ.DAT / EZERADFS.DAT

VAGen ADF Work Database Sample / No configuration map

com.ibm.vgj.sample.ezerwadf / HptSampleEzerwadfParts

This sample contains examples of record definitions for the ADF Work Database.

ICPKGS.DAT (Smalltalk only)

VAGen Samples IC Packaging

HptICSample4GLApp

HptICSampleApp1

HptICSampleApp2

HptICSampleCommonPartsApp

This sample is used to demonstrate automated IC packaging. For more information on these samples, refer to the VisualAge Generator User's Guide.

MQJ.DAT / MQS.DAT

VAGen MQ Sample / No configuration map

com.ibm.vgj.sample.mq / HptSampleMQApp

This sample includes programs which demonstrate two ways of accessing MQI, manual and automatic. The programs which demonstrate how to call MQI manually are described in the *VisualAge Generator User's Guide*. The programs which demonstrate how to call MQI automatically are described in the file MQ.TXT, which is located in the same directory as this DAT file.

STAFFJ.DAT / STAFFS.DAT

VAGen Staff Sample / No configuration map

com.ibm.vgj.sample.staff / HptSampleStaffParts

This sample application is a simple employee database system with a graphical user interface that displays a list of employees. The list includes user IDs, last names, salaries, and commissions. The file STAFF.IXF contains a DB2 table and data for use with this application.

This application/package includes programs that are used by the stored procedure sample. See the VisualAge Generator Design Guide for more detailed information on this sample. The following files are included with this sample: STAFF.QMF and STFPROC.SQL.

WEBJ.DAT / WEBS.DAT

VAGen Web Transaction Sample / No configuration map

com.ibm.vgj.sample.map3270 / HptSample3270MapApp

com.ibm.vgj.sample.webmap / HptSampleWebApp

This first sample is a set of text programs created using VisualAge Generator templates. The programs list and update the EMPLOYEE and DEPARTMENT tables in the DB2 sample database.

The second sample is the same set of programs modified to use web user interface records (UI Records) instead of text maps. For additional information on this sample, see WEB.TXT.

Associated files

This list provides a brief overview of the other files associated with the VAGen samples that are located in the samples subdirectory.

CUSTOMER.IXF

This database table is associated with the VAGen tutorial in *VisualAge Generator Getting Started*. You must install this database table in the SAMPLE database using CUSTOMER as the table name to run the SAMPLE program.

VBsamp.exe, PBsamp.exe

These samples show how to build Visual Basic and Power Builder clients for VisualAge Generator server programs using VisualAge Interspace. For more information on these samples, refer to the Visual Age Generator Client/Server Communications Guide section on calling server programs via VisualAge Interspace.

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Readers' Comments — We'd Like to Hear from You

VisualAge Generator
Installation Guide
Version 4.5

Publication No. GH23-0257-01

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