

Installation Guide

SDK for SAP ASE and SAP Open Server[™] 16.0

Microsoft Windows

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SDK for SAP ASE and SAP Open Server Components

Components included in SDK for SAP® ASE and SAP® Open ServerTM are used to develop client applications and create custom servers.

SDK for SAP ASE Components

SDK for SAP ASE is a set of libraries and utilities for developing client applications.

It includes these components:

- SAP® Open Client™ a set of APIs used to develop and deploy C-language applications that access SAP® Adaptive Server® Enterprise data. Included on the installation medium are:
 - Drivers for integrating SAP® Client-Library and SAP Open Server applications with directory and security services
 - Sample programs for SAP Client-Library and SAP DB-Library TM
- SAP® Open Client Embedded SQLTM/C the precompiler that allows you to embed SAP®
 Transact-SQL® statements into C-language applications. The installation medium also
 includes sample programs for Embedded SQL/C.
- SAP® Open Client Embedded SQL/COBOL the precompiler that allows you to embed SAP Transact-SQL statements into COBOL-language applications. The installation medium also includes sample programs for SAP Embedded SQL/COBOL.
- Language modules provide system messages and datetime formats to help you localize your applications. Default installation includes these character sets:

ASCII, for use with unspecified 8-bit data (ascii_8)	BIG 5, Traditional Chinese with Hong Kong Supplementary Character Set (big5hk)
BIG 5, Traditional Chinese (big5)	Microsoft Windows Code Page 1250, 1251, 1252, 1253, 1254, 1255, 1256, 1257, 1258, 866 (cp1250, cp1251, cp1252, cp1253, cp1254, cp1255, cp1256, cp1257, cp1258, cp866)
IBM Code Page 852, 855, 857, 860, 864, 869, 874, 950 (cp437, cp850, cp852, cp855, cp857, cp860, cp864, cp869, cp874, cp950)	Variant of Code Page 850 (cp858), IBM Code Page 932 for JIS-X0201 and JIS-X0208 (cp932)
Code Page 437, 850 (cp437, cp850)	
CP936, Simplified Chinese (cp936)	PC (MS) Korean (cp949)

DEC Kanji Code for JIS-X0208 (deckanji)	Extended UNIX Code for CNS-11643 (euccns)
Extended UNIX Code for GB2312-80 (eucgb)	Extended UNIX Code for JIS-X0201 and JIS-X0208 (eucjis)
Extended UNIX Code for KSC-5601 (eucksc)	P.R.C standard GB 18030-2000 (gb18030)
HP Greek (greek8)	ISO_8859-15 Latin9, Western Europe (iso15)
ISO_8859-2 Latin2, Eastern Europe (iso88592)	ISO_8859-5 Cyrillic (iso88595)
ISO_8859-6 Arabic, ASMO-708 (iso88596)	ISO_8859-7 Greek, ELOT_928 (iso88597)
ISO_8859-8 Hebrew (iso88598)	ISO_8859-9 Latin5, Turkish (iso88599)
ISO 8859-1 (iso_1)	KOI-8 Cyrillic 8-bit (koi8)
Kazakhstan, Cyrillic (kz1048)	Macintosh Western European locales (mac)
Macintosh Cyrillic (mac_cyr)	Macintosh, Eastern European (mac_ee)
Macintosh with EURO support for Western European locales (mac_euro)	Macintosh, Greek (macgrk2)
Macintosh, Turkish (macturk)	Hewlett-Packard Roman 8 and Roman 9 (roman8, roman9)
IBM/Microsoft Code for JIS-X0201 and JIS-X0208 (sjis)	Thailand Industrial Standard (tis620)
HP Turkish, 8-bit (turkish8)	Unicode UTF-8 encoding (utf8)

Additional language modules:

- Chinese
- French
- German
- Japanese
- Korean
- Polish
- Portuguese
- Spanish
- Thai

Note: SDK for SAP ASE and SAP Open Server support the same character sets as SAP Adaptive Server.

SAP® Adaptive Server® Enterprise ODBC Driver, version 16.0.

- SAP® Adaptive Server® Enterprise ADO.NET Data Provider versions 16.0 allows you to access data in SAP Adaptive Server using any language supported by .NET, such as C#, Visual Basic.NET, C++ with managed extensions, and J#.
- SAP® jConnect™ for JDBC the JAVA implementation of the Java JDBC standard, which provides Java developers with native database access in multitier and heterogeneous environments. For SAP jConnect hardware and software requirements as well as installation instructions, see the *SAP jConnect for JDBC Installation Guide*.
- SAP Extended Architecture (XA) Interface Library for SAP Adaptive Server Distributed Transaction Manager. Also included are sample programs for XA.
- SAP® Adaptive Server® Enterprise extension module for Python scripting language allows Python developers to execute T-SQL queries against SAP Adaptive Server. See the SAP Adaptive Server Enterprise Extension Module for Python Programmers Guide for more details. The installation media includes samples.
- SAP® Adaptive Server® Enterprise extension module for PHP scripting language allows PHP developers to execute SAP T-SQL queries against Adaptive Server. See the SAP Adaptive Server Enterprise Extension Module for PHP Programmers Guide for more details. The installation media includes samples.
- SAP® Adaptive Server® Enterprise database driver for Perl allows Perl developers to
 execute T-SQL queries against SAP Adaptive Server. See the SAP Adaptive Server
 Enterprise Database Driver for PERL Programmers Guide for more details. The
 installation media includes samples.

SDK for SAP ASE Libraries and Utilities

Libraries and utilities that are included with the SDK for SAP ASE.

SDK for SAP ASE	SAP Open Client	SAP Embed- ded SQL/C	SAP Embed- ded SQL/CO- BOL	Python
Libraries	-			
SAP Client-Library	x	Х	x	x
SAP CS-Library	x	Х	x	х
SAP DB-Library	X	n/a	n/a	n/a
SAP Bulk-Library	X	n/a	n/a	n/a
SAP XA-Library	X	n/a	n/a	n/a
SAP Net-Library	X	X	x	X
SAP Common-Library	X	X	X	Х
LDAP	X	X	X	X

SDK for SAP ASE	SAP Open Client	SAP Embed- ded SQL/C	SAP Embed- ded SQL/CO- BOL	Python
SSL	x	X	X	X
Kerberos	x	X	x	X
DBAPI	n/a	n/a	n/a	X
SAP intllib	x	X	x	X
Utilities				
bcp, defncopy, dsedit, ocscfg, isql, certauth, certpk12, certreq, extrjava, instjava, pwdcrypt	X	n/a	n/a	n/a
cpre	n/a	X	n/a	n/a
cobpre	n/a	n/a	X	n/a
LEGEND: $x = \text{available}$; $n/a = \text{not available}$ on this component.				

SAP Open Server Components

SAP Open Server is a set of APIs and supporting tools that you can use to create custom servers that respond to client requests submitted through SAP Open Client or SAP jConnect routines.

SAP Open Server includes these components:

- SAP Open Server a set of APIs and supporting tools. Included on the installation medium are:
 - Drivers for integrating SAP Client-Library and SAP Open Server applications with directory and security services
 - Sample programs for SAP Server-Library and SAP Client-Library
- SAP Open Client a set of APIs used to develop and deploy C-language applications that access SAP Adaptive Server data. Included on the installation medium are:
 - Drivers for integrating SAP Client-Library and SAP Open Server applications with directory and security services
 - Sample programs for SAP Client-Library and SAP DB-Library
- Language modules provide system messages and datetime formats to help you localize your applications. Default installation includes these character sets:

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IBM Code Page 852, 855, 857, 860, 864, 869, 874, 950 (cp437, cp850, cp852, cp855, cp857, cp860, cp864, cp869, cp874, cp950)	Variant of Code Page 850 (cp858), IBM Code Page 932 for JIS-X0201 and JIS-X0208 (cp932)
Code Page 437, 850 (cp437, cp850)	
CP936, Simplified Chinese (cp936)	PC (MS) Korean (cp949)
DEC Kanji Code for JIS-X0208 (deckanji)	Extended UNIX Code for CNS-11643 (euccns)
Extended UNIX Code for GB2312-80 (eucgb)	Extended UNIX Code for JIS-X0201 and JIS-X0208 (eucjis)
Extended UNIX Code for KSC-5601 (eucksc)	P.R.C standard GB 18030-2000 (gb18030)
HP Greek (greek8)	ISO_8859-15 Latin9, Western Europe (iso15)
ISO_8859-2 Latin2, Eastern Europe (iso88592)	ISO_8859-5 Cyrillic (iso88595)
ISO_8859-6 Arabic, ASMO-708 (iso88596)	ISO_8859-7 Greek, ELOT_928 (iso88597)
ISO_8859-8 Hebrew (iso88598)	ISO_8859-9 Latin5, Turkish (iso88599)
ISO 8859-1 (iso_1)	KOI-8 Cyrillic 8-bit (koi8)
Kazakhstan, Cyrillic (kz1048)	Macintosh Western European locales (mac)
Macintosh Cyrillic (mac_cyr)	Macintosh, Eastern European (mac_ee)
Macintosh with EURO support for Western European locales (mac_euro)	Macintosh, Greek (macgrk2)
Macintosh, Turkish (macturk)	Hewlett-Packard Roman 8 and Roman 9 (roman8, roman9)
IBM/Microsoft Code for JIS-X0201 and JIS-X0208 (sjis)	Thailand Industrial Standard (tis620)
HP Turkish, 8-bit (turkish8)	Unicode UTF-8 encoding (utf8)

Additional language modules:

SDK for SAP ASE and SAP Open Server Components

- Chinese
- French
- German
- Japanese
- Korean
- Polish
- Portuguese
- Spanish
- Thai

SAP Open Server Libraries and Utilities for Windows Platforms

List of the libraries and utilities that are installed with SAP Open Server.

Libraries	SAP Server-Library
	SAP Client-Library
	SAP CS-Library
	SAP Bulk-Library
	SAP Net-Library
	SAP Common-Library
	• LDAP
	• SSL
	Kerberos
Litilities	
Utilities	• bcp
Utilities	bcp defncopy
Utilities	
Utilities	defncopy
Utilities	defncopy dsedit
Utilities	defncopy dsedit ocscfg
Utilities	defncopydseditocscfgisql
Utilities	 defncopy dsedit ocscfg isql certauth
Utilities	 defncopy dsedit ocscfg isql certauth certpk12

System Requirements for SDK for SAP ASE and SAP Open Server

Hardware, software, compilers, and disk space requirements for SDK for SAP ASE and SAP Open Server.

Hardware and Software Requirements

Platforms, compilers, and third-party products SAP Open Server and SAP ASE SDK products are built and tested on.

Table 1. Open Server and Open Client Platform Compatibility Matrix

Plat- form	Operating System Level	C and C++ Com- pilers	CO- BOL Com- piler	Ker- beros Ver- sion	Light- weight Direc- tory Access (LDAP)	Se- cure Sock- ets Layer (SSL)	Perl Ver- sion	PHP Ver- sion	Py- thon Ver- sion
Microsoft Windows x86 32-bit	Windows 2008 R2 Service Pack 1	Microsoft Visual Studio 2005 Service Pack 1 (C/C++)	MF SE 5.1	Cybersafe Trustbroker 4.0, MIT 2.6.4	Open- LDAP 2.4.16 with OpenSS L 0.9.81	OpenS SL 1.0.1e and OpenS SL- FIPS 2.0.5	n/a	n/a	n/a
Microsoft Windows x86-64 64-bit	Windows 2008 R2 Service Pack 1	Microsoft Visual Studio 2005 Service Pack 1 (C/C++)	MF SE 5.1	*Cy- bersafe Trust- broker 2.1	Open- LDAP 2.4.16 with OpenSS L 0.9.81	OpenS SL 1.0.1e and OpenS SL- FIPS 2.0.5	Active Perl 5.14.1 (DBI 1.616)	5.3.6	2.6, 2.7, and 3.1 (DBA PI 2.0)

LEGEND: n/a = script is not available or does not work with SAP ASE SDK on that platform.

Note: Kerberos Authentication for DB-Library component is available only on one platform which is marked with asterisk sign (*).

System Requirements for SAP Open Server and SAP Open Client Supported Protocols

Hardware, operating system, and supported protocols for SAP Open Server and SAP Open Client for Windows platform.

Table 2. System Requirements for Open Server and Open Client Supported Protocols

Hardware	Operating System	Supported Protocols
Microsoft Windows x86 32-bit	Microsoft Windows 2008 R2 Service Pack 1	All: TCP/IP IPX/SPX Microsoft Named Pipes
Microsoft Windows x86-64 64-bit	Microsoft Windows 2008 R2 Service Pack 1	All: TCP/IP IPX/SPX Microsoft Named Pipes

Note: Only SAP Open Server, SAP E/SQL, SAP Client-Library, and SAP DB-Library support Microsoft Named Pipes.

System Requirements for ODBC

(Windows) System requirements for ODBC.

Hardware	 For Microsoft Windows x86 32-bit: PC with 486 or greater Intel processor For Microsoft Windows X86-64 64-bit: PC with x64 architecture 	
Operating system	 Microsoft Windows 2008 R2 x86, Service Pack 1 or later Microsoft Windows 2008 R2 x86-64, Service Pack 1.0 or later Microsoft Windows 7 x86-64 	
Web browser	Internet Explorer 4.0 or later	
Other components	Microsoft Data Access Components (MDAC)*	

^{*}MDAC is part of the Microsoft Windows operating system that Microsoft frequently updates. Download the most recent version from the Microsoft Web site at http://www.microsoft.com.

For the most current information about certified platforms, see *Sybase certifications on the Web site* at *http://certification.sybase.com/*.

System Requirements for SAP Adaptive Server ADO.NET Data Provider

(Windows) Requirements for the SAP Adaptive Server ADO.NET Data Provider.

Hardware	For Microsoft Windows x86 32-bit: PC with 90MHz Intel Pentium processor For Microsoft Windows x86-64 64-bit: PC with x64 architecture
Operating System	 Microsoft Windows 2008 R2 x86, Service Pack 1 or later Microsoft Windows 2008 R2 x86-64, Service Pack 1.0 or later Microsoft Windows 7 x86-64
Other Components	Microsoft .NET 3.5 is required for the ADO.NET 3.5 version of the Provider Microsoft .NET Framework v4.0 is required for the ADO.NET 4.0 version of the Provider Install this before installing the SAP Adaptive Server ADO.NET Data Provider included with the SDK.
Development	 Microsoft .NET Framework SDK 3.5 are supported for the ADO.NET 3.5 version of the Provider Microsoft .NET Framework SDK 4.0 is supported for the ADO.NET 4.0 version of the Provider Microsoft Visual Studio .NET 2005, 2008, and 2010 are supported for ADO.NET 2.157 Microsoft Visual Studio .NET 2010 is supported for ADO.NET 4.157

Installing Data Access Components from Microsoft

Perform the steps to install data access components from Microsoft.

Before you can install the SAP Adaptive Server ODBC Driver, you must meet the system requirements for Windows as mentioned in *System requirements for ODBC*.

Install Microsoft components and SAP products in this order:

- 1. MDAC
- 2. SAP Adaptive Server ODBC Driver

Note: Versions of Microsoft platforms that include Internet Explorer version 5.0 or certain service packs automatically install MDAC.

See also

• System Requirements for ODBC on page 8

Disk Space Requirements

The required installation disk space for each platform varies from 55MB to 665MB.

• Product being installed – SAP ASE SDK and SAP Open Server

Table 3. Disk Space Requirements for Microsoft Windows

Component and Version	Disk Space Required
Additional Connectivity Language Modules	6MB
SAP Open Client 16.0	140MB
SAP Open Server 16.0	144MB
SAP Embedded SQL/C 16.0	3МВ
SAP Embedded SQL/COBOL 16.0	4MB
SAP jConnect for JDBC version 16.0	15MB
SAP Adaptive Server extension module for Python	1MB
SAP Adaptive Server ODBC Driver	21MB
	To run ODBC, Microsoft Windows requires MDAC, which needs an additional 5MB.
	If you install mdac_typ.exe, an additional 12MB is required for client systems, and 32MB is recommended for server systems.
SAP Adaptive Server ADO.NET Data Pro-	17MB
vider	The Microsoft .NET Framework requires an additional 150MB.

For a full installation, the total space required is approximately:

- For SDK for SAP ASE 247MB
- For SAP Open Server 149MB

Disk Space Required for the Installation

To ensure that there is sufficient disk space for the installation, a Pre-Installation Summary window displays every component that is to be installed and the total disk space required for all the selected components.

If you continue without sufficient disk space, a warning appears, displaying the space-required, and the space-available information in the target directory. The warning also displays the minimum space that you need to free up to proceed with the installation, otherwise, you can cancel the installation.

Note: When you run the installer without sufficient disk space, you may encounter an error message, instructing you to select an alternate location for the installation.

Compiler Requirements

Compiler requirements for SAP Adaptive Server.

SDK for SAP ASE and SAP Open Server

SAP has tested and certified these compilers and linkers for use with SDK for SAP ASE and SAP Open Server products:

- Microsoft Visual Studio 2005 64-bit C/C++ Compiler, version 14.00.50727.762
- Microsoft Visual Studio 2005 32-bit C/C++ Compiler, version 14.00.50727.762
- Microsoft Visual Studio 2005 64-bit Executable Linker, version 8.00.50727.762
- Microsoft Visual Studio 2005 32-bit Executable Linker, version 8.00.50727.762
- Micro Focus Net Express COBOL Compiler version 5.1

SAP Adaptive Server ADO.NET

The SAP Adaptive Server ADO.NET Provider version 3.5 is certified with the .NET language compilers included in the Microsoft .NET Framework version 3.5 or later, which are:

- Microsoft Visual C/C++ .NET Compiler version 13.10.3077
- Microsoft Visual C# .NET Compiler version 7.10.6001.4
- Microsoft Visual Basic .NET Compiler version 7.10.6001.4
- Microsoft Visual J# .NET Compiler version 7.10.3077.0
- Microsoft Script .NET Compiler version 7.10.3052

The ADO.NET Provider 4 is certified with the .NET language compilers included in the .NET Framework version 4.0.030319.

SAP Adaptive Server ODBC

If you plan to use the ODBC Driver, then the C++ compiler required is Microsoft 32-bit C/C++ Optimizing Compiler version 13.10.3077.

Installing Compiler Runtime Libraries

SDK for SAP ASE and SAP Open Server require components of Microsoft Visual C++ libraries.

To use SDK for SAP ASE and SAP Open Server on Microsoft Windows, download and install the Microsoft Visual C++ 2005 Service Pack 1 Redistributable Package:

- Download the package for Microsoft Windows x86 32-bit http://www.microsoft.com/downloads/en/details.aspx?FamilyID=200B2FD9- AE1A-4A14-984D-389C36F85647
- Download the package for Microsoft Windows x86-64 64-bit http://www.microsoft.com/ downloads/en/details.aspx?FamilyID=EB4EBE2D- 33C0-4A47-9DD4-B9A6D7BD44DA.

Preinstallation Tasks for SDK for SAP ASE and SAP Open Server

Prepare for installing the SDK for SAP ASE and SAP Open Server products.

These instructions do not apply to the SDK for SAP ASE product that is provided with the SAP Adaptive Server Suite CD.

Installing SDK for SAP ASE 16.0 or SAP Open Server 16.0 on the same machine that contains an SAP Adaptive Server version earlier than 15.7 prevents the earlier version of the server from starting, and SAP recommends that you do not do so. However, if you require these products on the same machine, see the instructions in Installing SDK for SAP ASE and SAP Open Server 16.0 on the same machine as a pre-15.7 Adaptive Server.

Note: Each purchase of the SAP Adaptive Server Suite includes the SDK for SAP ASE product, the installation instructions for which can be found in the *SAP Adaptive Server Enterprise Installation Guide*.

Preparing for Installation

Prepare to install of SDK for SAP ASE and SAP Open Server.

- 1. Read the SDK for SAP ASE Release Bulletin for Microsoft Windows or the SDK for SAP ASE Open Server Release Bulletin for Microsoft Windows for the latest information on the products you are installing.
 - The latest release bulletins are available on the Sybase Product Documentation Web site http://www.sybase.com/support/techdocs.
- **2.** Create a "sybase" account on your system to perform all installation tasks. The system administrator usually sets up this account, as doing so requires "administrator" privileges.

3. Log in to the machine as the "sybase" user.

Maintain consistent ownership and privileges for all files and directories. A single user—the SAP system administrator with **read**, **write**, and **execute** permissions—must perform all unload, installation, upgrade, and setup tasks.

Warning! Ensure your permissions have been set before starting the installation. The installer does not check for permissions.

If you do not have permission, the installer continues to log exceptions in the log file.

The "sybase" user must have **read**, **write**, and **execute** privileges to update the Windows registry from the top (or root) of the disk partition or operating system directory down to the specific physical device or operating system files.

- **4.** Identify or create a directory location for the SAP Open Server installation directory, where you unload the SAP ASE SDK and SAP Open Server products.
- **5.** Verify that the location for the SAP Open Server installation has sufficient space to unload the software. See *Disk Space Requirements*.

When you have reviewed and verified the installation requirements and have completed the preinstallation tasks, you are ready to install SAP ASE SDK and SAP Open Server.

Note: During installation, if a window does not present a complete view, you can correct the problem by minimizing, then maximizing the window.

See also

• Disk Space Requirements on page 10



SDK for SAP ASE and SAP Open Server Installation

Install, uninstall, and downgrade using the SDK for SAP ASE and SAP Open Server installer and the command line commands.

Using SDK for SAP ASE or SAP Open Server Installer

Install SDK for SAP ASE and SAP Open Server components using the installer.

Prerequisites

- The target computer meets the requirements outlined in System Requirements for SDK for SAP ASE and SAP Open Server.
- You have completed the list of tasks for SDK for SAP ASE and SAP Open Server in *Preinstallation Tasks for SDK for SAP ASE and SAP Open Server.*

The installation program creates the target directory (if necessary) and unloads all the selected components into that directory. The options for installing SAP components from the distribution media using the installation program:

- Graphical user interface (GUI) mode install the components using the SAP ASE SDK and SAP Open Server installer interface.
- Console mode install components in a command line environment.
- Response file record or create a response file. Using a response file, you can install SDK for SAP ASE and SAP Open Server in silent mode. Silent installation lets you install the product without interaction required on your part. This is convenient if you are performing identical installations on multiple machines.

Note: If you encounter problems during installation, check the installation log file to see a record of the installation process. The file is located in \$SYBASE\$\log

\\product_name>.log, where %SYBASE% is the SDK for SAP ASE and SAP Open
Server installation directory.

See also

- System Requirements for SDK for SAP ASE and SAP Open Server on page 7
- Preinstallation Tasks for SDK for SAP ASE and SAP Open Server on page 12

Configuring SDK for SAP ASE or SAP Open Server

Before you can use the products you must perform additional configuration procedures. You can verify the product installation at the end of this process.

Warning! The installation program exits without warning if any SAP Open Server or SDK for SAP ASE executables or DLLs are loaded into memory and the installation program tries to overwrite any of the files that are in use. If this occurs, close any SAP products that are running and restart the installation.

The installation program automatically sets all of the environments variables it needs, such as PATH, as part of the installation. It also unloads the .bat files that contain the environment variables that you can change manually.

Note: Back up your system in case you need to revert to your current installation.

See also

• Configuring the Components on page 26

Installing Along with a Pre-16.0 SAP Adaptive Server

Run the SAP Adaptive Server as a server or service to install SDK for SAP ASE and SAP Open Server 16.0 in a different directory but on the same machine as a pre-16.0 Adaptive Server installation, and to prevent the previous version from being affected.

You can start the SAP Adaptive Server and associated servers manually or automatically after each restart.

Starting SAP Adaptive Server and Associated Servers

Start SAP Adaptive Servers and associated servers automatically as services.

- Disable automatic start-up of SAP Adaptive Server and associated servers. To do this, select Services from the Control Panel, and change the Startup property of the servers to Disabled.
- 2. Save the current values of SYBASE, SYBASE_OCS, INCLUDE, and PATH in a text file.
- **3.** Complete the SDK for SAP ASE and SAP Open Server installation as documented the installation sections.
- **4.** In the Control Panel, select **System**. Open the **Advanced** tab and click **Environment Variables**. Change the values of the environment variables *SYBASE*, *SYBASE_OCS*, *INCLUDE*, and *PATH* to the values saved in the text file (see Step 2).

Starting the servers Automatically	Start the servers automatically as Services . Click Services in the Control Panel and change the Startup property of the servers to Automatic .	
Starting the servers Manually	 Open a command prompt and change to the pre-15.7 ASE SYBASE directory. Execute the SYBASE.BAT file. Start each server by using: startserver -f RUNfile where RUNfile is the batch file associated with each server. 	

Installing in GUI Mode

Install SDK for SAP ASE or SAP Open Server in GUI mode.

1. Insert the SDK for SAP ASE or SAP Open Server CD in the CD drive. To install both products, repeat this procedure using the appropriate CD, after you install the first product.

The installer should start automatically. If it does not, select **Start > Run**, and enter the following, where x: is your CD drive:

x:\setup.exe

If the installer does not have sufficient temporary space to run, set the environment variable TMP to *directory_name* before running it again, where *directory_name* is the name of the temporary directory to which the installation program writes the temporary installation files.

Note: When specifying the *directory_name*, include its full path.

- 2. In the Introduction window, click **Next** to proceed with the installation.
- 3. Read the License and Copyright Agreement. Select the geographic location from where you are installing to display the agreement appropriate to your region. Select "I agree to the terms of the End User License Agreement for the install location specified." and click Next.

You must agree to the license and copyright agreement before you can continue.

- **4.** In the Choose Install Folder window, click **Next** to accept the default directory for the installation, or click **Choose** to browse through the directory and select a location for the installation. One of these occurs:
 - If the installation directory you chose does not exist, the installer prompts:

The directory <directory_name> does not exist. Do you want to create it?

Click Yes.

• If the installation directory exists, the installer prompts:

Warning: You have chosen to install into an existing directory. If you proceed with this installation, any older versions of the products you choose to install that are detected in this directory will be replaced.

If you continue and the older products were not installed with SDK for SAP ASE or SAP Open Server installer (for example, if you installed a version of SAP Adaptive Server earlier than 16.0), the installer overwrites the common files.

If you are prompted to overwrite any files, click **Yes** only if the version of the new file is later than the one the installer is attempting to overwrite.

5. Select the type of installation:

- Typical (default) installs the SDK for SAP ASE or SAP Open Server components
 considered to be useful for most customers. In this type of installation, only the U.S.
 English language module and its supported character sets are installed.
 - The components to be installed and the total disk space required appear before the installation executes. See *SDK for SAP ASE or SAP Open Server Components*.
- Full installs every SDK for SAP ASE or SAP Open Server component, including all the supported language modules from the CD.
 - The components to be installed and the total disk space required appear before the installation executes. For a list of language modules you can install, see *SDK for SAP ASE or SAP Open Server Components*.
- Custom allows you to select the components or product features for SDK for SAP ASE or SAP Open Server to install. The next window that appears allows you to select the components to install.

Note: Some components are automatically installed if they are required to run other selected components.

After you have selected the installation type, click **Next**.

The Pre-Installation Summary window displays the product features or components to be installed and the total disk space required for all the selected features.

6. Verify that you have selected the correct installation type, and that you have enough disk space to complete the process. Click **Install**.

If you do not have sufficient available hard disk space for the components you are installing, you see an error that stops the installation.

The installation program unloads all the components from the CD and displays a progress indicator.

Note: Starting with version 15.7 ESD#3, you can choose to skip installation of sample files, documentation files, and debug files. By default, these files are installed when you install SDK for SAP ASE and SAP Open Server. To skip installation of these files, use the –

DPRODUCTION_INSTALL=TRUE installer command-line argument when installing in GUI mode.

See also

• SDK for SAP ASE and SAP Open Server Components on page 1

Installing in Console Mode

Install SDK for SAP ASE or SAP Open Server in console mode.

Prerequisites

Run the installer without the GUI, launch the installer in console mode. If the installer launches automatically, click **Cancel** to cancel the GUI installation, then launch the **setup** program from a terminal or console.

Task

1. At the command line, enter:

```
setupConsole.exe -i console
```

2. The flow of the installation is identical to a GUI installation, except that the display is written to a terminal window and responses are entered using the keyboard. Follow the remaining prompts to install either SDK for SAP ASE or SAP Open Server software.

For a complete list of command line options, see *Command Line Options*.

Note: Starting with version 15.7 ESD#3, you can choose to skip installation of sample files, documentation files, and debug files. By default, these files are installed when you install SAP ASE SDK and SAP Open Server. To skip installation of these files, use the – DPRODUCTION_INSTALL=TRUE installer command-line argument when installing in console mode.

See also

• Command Line Options on page 23

Installing Using a Response File

To perform a silent, or "unattended" installation, run the installer and provide a response file that contains your preferred installation configuration.

Creating a Response File

Create a response file when installing in GUI or console mode.

1. Specify the -r command line argument.

The -r argument records your responses to the installation wizard's prompts and creates a response file when the installation wizard exits. The response file is a text file that you can edit to change any responses prior to using it in any subsequent installations.

2. To generate the response file during GUI installation, run:

```
setupConsole.exe -r responseFileName
```

where *responseFileName* is the absolute path of the file name you choose for the response file, for example:

```
C:\SDK\ResponseFile.txt
```

Note: The directory path you specified must already exist.

Installing in Silent Mode

A silent or unattended installation does not involve user interaction; all installation configuration information is taken from the response file. This is useful when you want multiple identical installations or a fully automated installation process.

To install in silent mode, run:

```
setupConsole.exe -f responseFileName -i silent -DAGREE_TO_SYBASE_LICENSE=true
```

where *responseFileName* is the absolute path of the file name containing the installation options you chose.

You must agree to the End User License Agreement when installing in silent mode. You can either:

- Include the option -DAGREE_TO_SYBASE_LICENSE=true in the command line argument.
- Edit the response file to include the property AGREE TO SYBASE LICENSE=true

Note: Starting with version 15.7 ESD #3, you can choose to skip installation of sample files, documentation files, and debug files. By default, these files are installed when you install SAP Open Server and SDK for SAP ASE. To skip installation of these files, use the – DPRODUCTION_INSTALL=TRUE installer command-line argument or use the **PRODUCTION_INSTALL=TRUE** property in the response file when installing in silent mode.

Except for the absence of the GUI screens, all actions of the installer are the same, and the result of an installation in silent mode is exactly the same as one done in GUI mode with the same responses.

Warning! SAP recommends that you use the **setupConsole.exe** executable, which runs in the foreground when you are running a silent installation. The normal **setup.exe** executable runs in the background, giving you the impression that the installation has terminated, and results in additional installation attempts using the silent installation. Multiple installations at the same time may corrupt the Windows Registry and lead to a failure to restart the operating system.

Uninstalling SAP ASE SDK or SAP Open Server

The installer includes an uninstall feature that removes the SDK for SAP ASE or SAP Open Server components you have installed.

Before uninstalling consider:

If two or more SAP products install the shared components in the same directory, the
uninstaller does not remove the shared components until all the SAP products are
uninstalled.

Warning! Do not uninstall SAP Open Server and SDK for SAP ASE products from a directory that contains other SAP products that have been installed using an installation program other than the SAP Open Server or SDK for SAP ASE installer. By doing so, you may remove the components shared by SAP products and affect their operation.

The uninstall feature removes only those files that were loaded from the installation CD.
 Some SAP Open Server or SDK for SAP ASE files, such as log and configuration files, are left intact for administrative purposes. If all products are uninstalled from the directory and you do not need the remaining configuration files, you can manually delete the directory.

Uninstallation Procedures

Invoke the uninstall procedure using either the GUI or the console method.

Before uninstalling SAP Open Server or SDK for SAP ASE, shut down all other processes for the components you are uninstalling.

Uninstalling in GUI Mode

Uninstall SAP Open Server and SDK for SAP ASE in GUI mode for Windows.

- 1. Select Start > Control Panel > Add/Remove Programs.
- 2. Select the product you want to remove.
- **3.** Click **Change/Remove** to remove the software.

Or, to uninstall from the command line, enter this command for SDK for SAP ASE:

%SYBASE%\sybuninstall\SDKSuite\uninstall.exe

And this one for SAP Open Server:

%SYBASE%\sybuninstall\OpenServerSuite\uninstall.exe

The Uninstall wizard appears.

4. Click Next.

The **Uninstall Options** window appears.

5. Select one of these options:

- Complete Uninstall completely remove all features and components of SDK for SAP ASE or SAP Open Server. The files and folders created after the installation are not affected.
- Uninstall Specific Features uninstall specific features of SDK for SAP ASE or SAP
 Open Server.
 - If you select this option, the Choose **Product Features** window appears and you can select the features to uninstall.
- **6.** Click **Next**. The Uninstall Complete appears, listing the items that cannot be removed.

Note: If there are no other products installed in the directory and it contains files that were not installed by the installer, a window appears asking if you want to delete these files.

7. Click Done.

Uninstalling in Console Mode

Uninstall SDK for SAP ASE and SAP Open Server in console mode.

1. Go to the %SYBASE% directory, and at the prompt, enter any one of these commands:

For SDK:

%SYBASE%\sybuninstall\SDKSuite\uninstall.exe -i console

For Open Server:

%SYBASE%\sybuninstall\OpenServerSuite\uninstall.exe -i console

The uninstall program starts.

2. The flow of the uninstall program is identical to a regular GUI uninstall, except that the display is written to a terminal window and responses are entered using the keyboard. Follow the remaining prompts to uninstall either the SDK for SAP ASE or SAP Open Server software

See also

• Command Line Options on page 23

Downgrading SDK for SAP ASE or SAP Open Server

Downgrade SAP Open Server or SDK for SAP ASE 16.0 to an earlier software version.

- 1. Uninstall version 16.0. You cannot install the earlier software version into the existing version 16.0 directory.
- **2.** Install the earlier software version. The earlier software installation does not contain ESDs, so you must install them separately.

Command Line Options

The command line options you can use when running an installer or uninstaller.

Option	Purpose
-i console	Use the console interface mode, where messages during installation are displayed on the Java console and the wizard is run in console mode.
-D	Passes custom variables and properties. For example, to override the default installation directory when you run the installer, enter:
	<pre><install_launcher_dir> -DUSER_IN- STALL_DIR=E:\Sybase</install_launcher_dir></pre>
-i silent	Install or uninstall the product in silent mode, where the installation or uninstallation is performed with no user interaction and the installation is "silent."
-i swing	Install or uninstall the product in GUI mode.
-r	Generates a response files and a reference.
-f	References response files.
-1	Sets the installer's locales.
-/3	Displays the installer help.

Note: When using the command line option, specify the full path, including for the *responseFileName*.



Postinstallation Tasks

Postinstallation tasks include configuring SAP Open Client, SAP Open Server, and SAP iConnect for JDBC.

Setting Environment Variables

During installation, the installer automatically unloads the <code>%SYBASE%\SYBASE.bat</code> file that contains the environment variables. Modify the component's RUN environment using the variables in the <code>SYBASE.bat</code> file.

Running Sample Script for Python

After installation, run the sample script for the SAP Adaptive Server extension module for Python.

- **1.** Locate Python samples in <code>%SYBASE%\%SYBASE_OCS%\samples\python</code> directory.
- 2. Verify that SAP Adaptive Server is up and running.
- **3.** Ensure that the PYTHONPATH environment variable or the Python variable sys.path is set to one of the following directories (these are the default directories where the different versions of the Adaptive Server Python extension module are installed):

Python VersionDefault Installation Path2.6\$SYBASE\\$SYBASE_OCS\python\py-thon26_64\dl12.7\$SYBASE\\$SYBASE_OCS\python\py-thon27_64\dl13.1\$SYBASE\\$SYBASE_OCS\python\py-thon31_64\dl1

Table 4. PYTHONPATH Settings

4. Run the sample:

python test.py

See the Adaptive Server Enterprise extension module for Python Programmers Guide.

Configuring the Components

Connect and configure the SAP Open Client and SAP Open Server components.

- Configure each SAP Open Client or SAP Open Server component following the instructions in the Open Client and Open Server Configuration Guide for Microsoft Windows.
- To configure and use the Adaptive Server ADO.NET Data Provider, see the *Adaptive Server Enterprise ADO.NET Data Provider Users Guide*.
- To connect, configure, and use the Adaptive Server ODBC driver on Windows and Linux platforms, see the *Adaptive Server Enterprise ODBC Driver by Sybase Users Guide* for your platform.
- To configure and use the Adaptive Server extension module for Python, see the *Adaptive Server Enterprise Extension Module for Python Programmers Guide*.
- For SAP jConnect for JDBC 16.0, see SAP jConnect for JDBC Installation Guide.

SAP jConnect for JDBC

Postinstallation tasks for SAP jConnect for JDBC 16.0.

Setting JDBC_HOME

JDBC_HOME represents the directory in which you install SAP jConnect.

Example:

If your installation directory is C:\Sybase, set the JDBC HOME to:

C:\Sybase\jConnect-16 0

Setting the CLASSPATH

You need to set your CLASSPATH depending on which versions of Java or JDK and SAP jConnect you are using.

CLASSPATH is the location of the SAP jConnect runtime classes and the jar files for Java 6 or later.

Using SAP iConnect 16.0 with Java 6 or Later

Use SAP jConnect 16.0 with Java version 6 or later.

Add this path to the CLASSPATH environment variable: $\label{lower} \verb|\dots| a ses \\ \dots| a ses \\ \dot$

Running Samples or TDS-Tunnelling Servlet

Run the samples or the TDS-tunnelling servlet using the CLASSPATH environment variable.

Add the CLASSPATH environment variable:%JDBC_HOME%\classes\jconn4.jar; %JDBC HOME%\classes

Note: SAP requires that you run Java 6 or later with SAP jConnect 16.0.

In addition, the CLASSPATH must include the location of any application classes you have defined.

Firefox CLASSPATH Restriction

If you use Firefox, some restrictions may apply to the way you set your CLASSPATH environment variable.

The Java VM security manager does not allow a version of SAP jConnect installed in your local file system to create a connection to a server, even if the server is your local system. This can create a problem if you use Firefox to run an applet that uses SAP jConnect.

When Firefox needs to load SAP jConnect to create a connection to a server, it looks for a CLASSPATH defined in its environment to find the SAP jConnect classes. If it finds a CLASSPATH that you have defined to point to your local SAP jConnect installation, it loads SAP jConnect directly from the local file system—rather than from the server—and tries to create a connection. This generates a security error and the connection fails.

Do not set the CLASSPATH to the local SAP jConnect directory if you are using Firefox to run SAP jConnect applets.

Installing Stored Procedures

For SAP jConnect to function properly, you must install stored procedures and tables on the SAP Adaptive Server Enterprise or SAP SQL Anywhere database to which your application is connecting.

SAP jConnect includes these scripts for installing the required stored procedures and tables:

- sql_server.sql installs stored procedures on SAP Adaptive Server earlier than version 12.0.
- $sql_server12.sql$ installs stored procedures on SAP Adaptive Server 12.0.x.
- sql_server12.5.sql installs stored procedures on SAP Adaptive Server 12.5.x.
- sql_server15.0.sql installs stored procedures on SAP Adaptive Server 15.0.x through 15.5.x.
- sql_server15.7.sql -installs stored procedures on SAP Adaptive Server 15.7 or later.
- sql_server15.7.0.2.sql installs stored procedures on SAP Adaptive Server 15.7 ESD #2 or later.

- sql server16.0.sql -installs stored procedures on SAP Adaptive Server 16.0.
- sql asa.sql installs stored procedures on SAP® SQL Anywhere® 9.x.
- sql asa10.sql installs stored procedures on SAP SQL Anywhere 10.x.
- sql asall.sql installs stored procedures on SAP SQL Anywhere 11.x.
- sql asa12.sql installs stored procedures on SAP SQL Anywhere 12.x.
- sql_asal6.sql installs stored procedures on the SAP SQL Anywhere database version 16.x.

Note: If you use SAP Adaptive Server 12.5.3 or later, or SAP Adaptive Server Anywhere 9.0.2 or later, the scripts come preinstalled on the server. Install these scripts only if you have a later version of the driver than the one that shipped with SAP Adaptive Server. In addition, for backward compatibility, $sql_server.sql$ and $sql_server12.sql$ are included on SAP Adaptive Server 11.9.2 and 12.0 respectively, although these versions are no longer supported.

Running Stored-Procedure Installation Scripts

Run stored procedure installation scripts.

- Verify that your JAVA_HOME, JDBC_HOME, and CLASSPATH environment variables are set.
- **2.** Use the **IsqlApp** sample application. For more information on **IsqlApp**, see *Installing Stored Procedures on Adaptive Server Database*.

<u>Installing Stored Procedures on SAP Adaptive Server Database</u>

Install stored procedures on SAP Adaptive Server database.

Go to the %JDBC HOME%\classes directory from the prompt window and enter:

• For SAP Adaptive Server Enterprise version 16.x:

```
java IsqlApp -U sa -P password -S jdbc:sybase: Tds:
[hostname]:[port] -I %JDBC_HOME%\sp\sql_server16.0.sql -c
go
```

Note: The sql script to be used is dependent on the SAP ASE version. See *Installing Stored Procedures* for a list of scripts available.

Installing Stored Procedures on SAP SQL Anywhere

Install stored procedures on a SAP SQL Anywhere or SAP Adaptive Server Anywhere database.

Go to the %JDBC HOME%\classes directory and enter:

```
java IsqlApp -U dba -P password -S jdbc:sybase:
    Tds:[hostname]:[port] -I %JDBC_HOME%\sp\sql_asa.sql -c go
```

Note: The sql script to be used is dependent on the SAP ASE version. See *Installing Stored Procedures* for a list of scripts available.

Packages

Packages for SAP ¡Connect version 16.0.

These packages are found inside jconn4.jar file for the release build, and jconn4d.jar file for the debug build:

- · com.sybase.jdbc4.jdbc
- · com.sybase.jdbc4.tds
- · com.sybase.jdbc4.timedio
- · com.sybase.jdbc4.utils
- · com.sybase.jdbcx

The SAP jConnect driver, **com.sybase.jdbc4.jdbc.SybDriver**, is located in the **com.sybase.jdbc4.jdbc** package.

You can find JDBC samples and specifications in the SAP jConnect for JDBC Programmers Reference.

Directories and Files

Contents of the jconnect16 0 directory.

Name	Туре	Description
classes	Subdirectory	Contains these SAP jConnect 7.0 components: • jconn4.jar file that contains SAP jConnect 7.0 classes • sample2 subdirectory with SAP jConnect 7.0 class files for sample applets and applications • gateway2 subdirectory for compiled TDS-tunnelling servlet
devclasses	Subdirectory	Contains the jconn4d.jar file that contains the same SAP jConnect 7.0 components as jconn4.jar, but debug mode is turned on.
docs	Subdirectory	 Contains the: en subdirectory, which contains the English javadoc documentation en/progref subdirectory, which contains the SAP jConnect for JDBC Programmers Reference in HTML and PDF format en/installdocs subdirectory, which contains the SAP jConnect for JDBC Installation Guide in HTML and PDF format

Name	Туре	Description
gateway2	Subdirectory	Contains source code for the TDS-tunnelling servlet.
sample2	Subdirectory	Contains source code for sample Java applications.
sp	Subdirectory	Contains isql scripts that install stored procedures for function escapes and DatabaseMetaData methods on a database server. See <i>Installing Stored Procedures</i> for a list of scripts available.
tools	Subdirectory	Contains a perl script (decode-tli) that Microsoft Windows users can apply to parse a sql.ini file into a readable format.
ne- timpct.gif	Graphic file	Contains a SAP jConnect graphic.
index.html	HTML file	Contains links to SAP jConnect documentation and SAP jConnect samples.

See also

• Installing Stored Procedures on page 27

JDBC Samples and Specifications

You can find the JDBC samples and specifications supported for SAP Adaptive Server Enterprise in the *jConnect for JDBC Programmers Reference*.

Testing the SAP jConnect Installation

On installing the SAP iConnect, run the **Version** program to test the installation.

Note: The **Version** program connects to a demonstration database that SAP has made available on the Internet. You must have Internet access to run the **Version** program successfully, or explicitly run it with **[-U** *username*] **[-P** *password*] **[-S** *servername*] commands to point it to your database.

- 1. From the prompt window, change to the JDBC HOME directory.
- **2.** Verify that your CLASSPATH variable is set for running the sample programs (see *Setting the CLASSPATH* for details) and enter this text:

```
java sample2.SybSample Version
```

A SybSample window appears. At the top of the window, the Running Sybase Sample text box displays the source code for **Version** as the program runs. The middle text box (Sample Output) should display version information. Example:

```
Using JDBC driver version 16.0 SAP jConnect (TM) for JDBC(TM)/16.0...
```

The output could be one of these:

- If the previous message appears in the Sample Output text box, you have successfully installed SAP iConnect.
- If you get the previous message but the source code for Version does not appear in the
 Running Sybase Sample text box, and the Status text box at the bottom of the window
 shows the following message, it means that you have successfully installed SAP
 jConnect but probably did not enter the command to run the Version program from the
 sample2 directory under JDBC HOME:

```
java.io.FileNotFoundException: Version.java
```

• If the SybSample window does not appear and you get the following error message, check your CLASSPATH to verify that it is set correctly:

```
Can't find class sample2.SybSample
```

 If the SybSample window does not come up, and you get one of the following error messages, make sure that your path includes the bin subdirectory of your JDK home directory:

```
"Name specified is not recognized as an internal or external command"
```

```
"Bad command or file name"
```

3. When you have verified that your installation was successful, click **Close** to exit the SybSample window.

See also

• Setting the CLASSPATH on page 26

Verifying the SAP jConnect Version

Verify the SAP iConnect version installed on the server.

Go to the %JDBC HOME%\classes directory at the prompt enter:

```
java -jar jconn4.jar
```

This command prints a version string:

```
jConnect (TM) for JDBC(TM)/16.0 GA (Build 27008)/P/EBF22326/JDK
1.6.0/jdbcmain/OPT/Sun Jan 12 09:41:12 PST 2014
```

Here, the version number is 16.0. The 5-digit number following the letters "EBF" indicates the exact version of SAP jConnect. This number increases as subsequent EBFs are released.

SAP recommends that you check the Sybase download Web site periodically for updated versions of SAP jConnect and download the latest version.

For upgrading SAP jConnect see Migrating jConnect Applications in the *SAP jConnect for JDBC Programmers Reference* for instructions.

Postinstallation Tasks

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