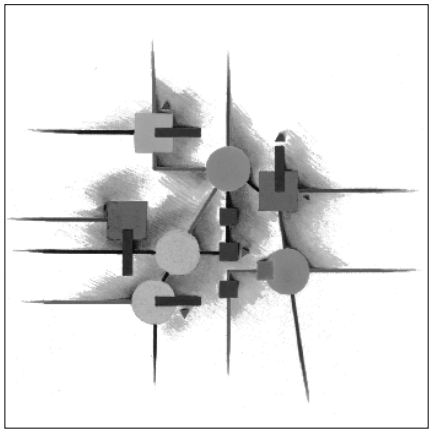
SAP Business Connector Installation and Upgrade Guide



SAP SYSTEM

Release 4.7

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Icons

Icon	Meaning
	Important
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Contents

Welcome

Welcome to the SAP Business Connector. With the SAP Business Connector, XML-based business documents, the de-facto standard for doing business over the Internet, can be flexibly integrated with all SAP solutions. SAP customers can now leverage the power and flexibility of XML to seamlessly integrate their key business processes with those of their customers, partners, and suppliers for enhanced efficiency and improved cost-effectiveness. SAP customers can now have everything they need to exploit the Internet, free of charge, from just sending existing business documents wrapped as an XML message over the Internet to flexibly mapping and converting business documents according to your business partners' requirements. SAP Business Connector can be used for point to point communication as well as communication via the SAP marketplaces.

Related Documentation

The following documents are companions to this guide. Some documents are in PDF format and others are in HTML.

Refer to this book...	For...
SAP Business Connector SAP Adapter Guide	This guide describes how to install, configure, and develop applications for the SAP Business Connector. It contains information for administrators who manage the system and for application developers who create applications that use the system. It explains how to integrate SAP BC with SAP products. You will find this book at: `<sapbc>\Server\packages\SAP\doc\SAPBCSapAdapterGuide.pdf`
SAP Business Connector Administration Guide	Information about using the Server Administrator to configure, monitor, and control the SAP Business Connector Server. This book is for server administrators. You will find this book at: `<sapbc>\Server\doc\SAPBCAdministrationGuide.pdf`
SAP Business Connector Developer Guide	Information about creating and testing SAP BC services and client applications. This book is for application developers. You will find this book at: `<sapbc>\Developer\doc\SAPBCDeveloperGuide.pdf`
SAP Business Connector Developer Tutorial	Information that orients you to SAP BC and shows you how to create a simple application. It includes basic conceptual information about SAP BC. This book is aimed at new users of SAP Business Connector. You will find this book at: `<sapbc>\Developer\doc\SAPBCDeveloperTutorial.pdf`
SAP Business Connector Developer Online Reference	Information about the controls in the SAP BC Developer application windows and step-by-step procedures describing how to perform tasks with the SAP BC Developer. You can access the online reference by clicking *Help* in an application window or dialog box.

Refer to this book...	For...
SAP Business Connector Built-In Services	This guide describes the built-in services provided with a standard installation of SAP Business Connector and located in the WmPublic or WmDB Packages. You will find this document at: `<sapbc>\Developer\doc\SAPBCBuiltInServices.pdf`
Serialization of ABAP data in XML	In depth information about how ABAP data is serialized in XML messages. This serialization is used for RFC and BAPI parameters. You will find this document at: http://service.sap.com/sbc-download and here under Documentation, `SAP_XML.zip` the document `ABAPSerialization.html`
RFC-XML Specification	In depth information about the RFC-XML specifications You will find this document at: http://service.sap.com/sbc-download and here under Documentation, `SAP_XML.zip` the document `RFC_XML.html`
XML Format Specifications	In depth information about how RFCs, BAPIs and IDocs are formatted in XML. You will find this guide at: http://service.sap.com/sbc-download and here under Documentation, `IFR-XMLFormatSpec.pdf`
SAP Business Connector IDoc Class Documentation	In depth information about the IDoc Java classes. You will find this guide at: `<sapbc>\Server\packages\SAP\pub\doc\api\index.html`
SAP Business Connector API Reference	Descriptions of the Java classes and built-in services you use to create SAP BC services. This reference is for application developers who build SAP BC services. You will find this book at: `<sapbc>\Server\doc\api\Java\index.html`
Microsoft BizTalk Framework 1.0a *Independent Document Specification*	This add-on package introduces XML messages that are based on the Microsoft BizTalk Framework. Further information on this framework and the XML envelope it defines can be found on the web site `http://www.biztalk.org`

System Requirements: Overview

The following describes the software requirements for the SAP Business Connector Server.

Hardware Requirements

Basic recommendation

	minimum	recommended
Processor	Pentium II 233 MHz or equivalent	
Memory (RAM)	128 MB	256 MB
free disk space	100 MB	depending on the amount of transactions stored in the file system; depending on number of additional packages and services

Software Requirements

To use the SAP Business Connector Server, you must have an SAP R/3 V3.1H or higher or you must be under a mySAP.com license.

Additionally, you will need one of the following browsers installed either on the machine where the SAP Business Connector Server is installed or on any machine that can access the SAP Business Connector Server through HTTP:

- Netscape Navigator or Netscape Communicator 4.7 or later (supported 6.x)
- Microsoft Internet Explorer 4.0 or later (supported 5.x)

If you want to create additional Java services you need to install a JDK. Please see the chapter *Installation of a JDK on the SAP BC server*.

Supported Platforms

For information on supported platforms please see also OSS Note No. 309834.

SAP System requirements for BAPI Support

For the BAPI functionality, the SAP Business Connector requires a special SAP support package. The support package contains some API extensions to retrieve metadata from the SAP business objects and the ALE services from the SAP Systems. So the API enhances performance of metadata retrieval and allows asynchronous calls to the SAP Systems via BAPI interfaces.
If support of asynchronous BAPI calls is not required, the SAP Business Connector will provide synchronous access to BAPIs without requiring modifications to the SAP System with Release 4.0A and later.

For SAP Systems before 4.0A, asynchronous BAPI calls via ALE are not supported at all. But by applying the SAP support package, the SAP Business Connector is able to handle synchronous BAPI calls via XML also for SAP Systems of releases 3.1H and 3.1I.
Detailed information on how to get access and to implement the SAP support package please refer to SAP OSS note 214780, available via http://service.sap.com/notes .

Creating Java Services on the SAP BC Server

If you want to create your own Java services in SAP Business Connector and compile them, you need to install a JDK on the machine the Business Connector Server is running on.
You can compile the Java services by using the JDK 1.2. and later. However, the JDK 1.3.x is not recommended for use with the Business Connector due to the new namespace restrictions introduced in this JDK 1.3.

The new behavior is due to JDK 1.3.x's compliance with the Java language rule governing "Name Conflicts Between Types and Subpackages." The namespace persistence scheme currently used for Java services in the Business Connector may violate this rule.
As a result, when JDK 1.3.x is used as compiler, Java services can only be created at a single level within a folder hierarchy.

For example, the following is valid:

```
FolderA
 -> Java Service1
 -> Java Service2
 -> FolderB
--> Flow Service1
--> Flow Service2
```

However, all Java services in the FolderA hierarchy must be directly under FolderA; no Java services may be defined within FolderB (or all Java services must be moved to FolderB).

Note that you can successfully add a Java service to FolderB; however, thereafter, changes to services in FolderA will not compile.

Again, these restrictions apply only if your server is using JDK 1.3.x to compile Java services. You can further use the JDK 1.3.x as a runtime environment.

1. To install the JDK on the SAP Business Connector Server, please proceed according to the instructions provided with the product.
2. If not yet present, **add the following** to the machines system path (environment vari able PATH): a "." and the path to the javac compiler of the JDK.

Example of how to do this on **WinNT:**

- **Shut down all programs**.
- From the Windows menu open "***Start -> Settings -> Control Panel***"
- Here double click on "**System**" and choose "**Environment**"
- Under "**System Variables**" there should be an entry "**Path**" or "PATH". Select this and then **add the following** to the end of the Value: ;C:\jdk1.2\bin;. and press "**Set**"
- Click on "**Apply**" and "**OK**" and reboot your computer.

3. The following is not absolutely necessary, but it is very helpful for writing Java Services: you can then use classes from the Server, the SAP Package and the Developer in your own programs. Check whether the environment variable called CLASSPATH contains the following entries:

.;
C:\sapbc\Server\lib\client.jar
C:\sapbc\Server\lib\server.jar

(where *C:\jdk1.2 and C:\sapbc* have to be replaced according to your installation paths).

Sizing: Detailed Criteria

CPU

For detailed information on CPU sizing see the pdf document *SAP BC Performance Test* http://service.sap.com/sbc-download (system requirements).

In particular this document helps you to adjust Business Connector parameters (in `<installDir>/config/server.cnf`) and hardware/operating system parameters for best performance.

For just "Internet-enabling" an SAP system, an average PC will be sufficient, while for heavy-load scenarios we recommend to use hardware comparable to that of an ordinary ITS.
The information provided in the current document generally refers to Business Connector releases 3.5.2 and higher. The JVM support however differs: as of 4.0.1 only JVM s 1.2 or higher are supported.

For information on the JVM implementation procedure please see also SAP Note 629647.

Disc Space

Questions on sizing

Appropriate sizing for the SAP BC installation strongly depends on the business scenario you want to establish. For specifying your individual requirements you should answer the following questions first:

a) Is there a need for own development, and if so, how big do you expect your scenario to be? Small Package: <1MB, average Package: <5MB, big Package: 10MB

b) In what kind of scenario will you be using the Business Connector? Standalone: no further Packages needed except the self-developed ones, BBP Scenario: allow disc space for the BBP Packages (~1.7MB), MarketSet Connect Scenario: allow space for the MarketSet Packages (~20MB)

c) What kind of data flow do you expect? That is: what kind of messages (transactions) and their size, how many per day, for how long do you want to keep them in the Business Connector Message Store after they are completed (confirmed)?

d) Do you need to keep statistical information like the one written to audit.log and session.log? (See the SAP BC Administration Guide for explanation)

Installation Size

A new installation of Business Connector 4.7 requires:

	SAP BC Server 4.7	Developer 4.7

Size	89MB	62MB

Usually the Server is installed on a big machine which is maintained by the IT department, while the Developer(s) will be installed on the desktop PC(s) of software engineers who develop services and customer scenarios remotely on the Server.
These services are also stored on the Server, so depending on the size of the developed application packages, if any, the customer should add a few MB for these Services: 1MB -- 10MB (see *question a*).
Here is a list of packages and their installation size which are available from SAP (see *question b*):

- BBP Packages: 1.7MB
- MarketSet Packages: 20MB
- SonicMQ Package: 26MB (NT) or 31MB (Solaris)
- EDI Packages: 22MB (+ 25MB for UN/EDIFACT) (+ 4MB for UCS/VICS) (+ 43 MB for ANSI X12) (+ 1MB for EANCOM)

Transaction Store

The storage space for the temporarily stored transactions has to be determined next (see *question c*).

Use the following formula:

(Size of transaction) **x** (Number of transactions per day) **x** (Number of days you want to keep "confirmed" transaction for reference)

The size of one transaction can be calculated as follows:

1. Determine the current size of the directory `<installDir>/packages/WmPartners/pub/mailbox` including its subdirectories.
2. Send 100 "typical" transactions, which you will be using in production, through the Business Connector.
3. Measure the size of .../mailbox again as above and divide the difference by 100. Example: a "typical" ORDERS IDoc is between 13kB and 35kB.
4. The number, you get here, should be added as disc space for the "Message Store" (the directory `<installDir>/packages/WmPartners/pub/mailbox`). You might want to schedule the service `wm.PartnerMgr.xtn.Sweeper:sweepTRX` to administer the growth of the transaction store.

Log files

The log files need additional disc space. If the SAP BC is to run on a high debug level during the implementation and test phase, it may easily write 1GB per day. Typical data volumes with a standard debug level (4 or lower) may cause between 10kB and 40MB per day (depending on traffic). The biggest part is consumed by audit log and session log, which are used for statistical evaluations. You can turn off these logs to save disk space. Then the SAP BC needs only a few kB each day for the error log and server log. However, it is not

recommended to turn off these logs. This will only save a few kB, and eliminates all possibilities for determining the cause of errors (*see Question d*).

Example of minimum disc space for an average Business Connector:

Component	Required disc space (MB)
Basic Installation	80
Customer Packages (each)	~5
Additional Packages (BBP and MarketSet)	22
Message Store (1000 ORDERS per day, kept for two weeks)	280
Log files (kept for two weeks)	280
Total	667

How to turn off the logs...

1 **Audit Log**: Shutdown the Server and add the following parameter to the file `<installDir>/config/server.cnf` (or change it, if it is already there):

watt.server.auditLog=off

As of SAP BC Release 4.6, you can change the values of the `server.cnf` parameters also via the **Server Administrator UI**. Choose *Settings -> Extended* and select the parameters you want to edit (see *SAP BC Administration Guide 4.7*, p.94ff. for details).

2 **Session Log**: Start an Integrator(Developer) and from the menu choose "*Edit → Event Manager*".

1. From the dropdown box select "*Session End Event*", mark the line, which then appears in the table below and click the "Edit Row" button (the last button).
2. Set the field "*Enabled*" to false.
3. Do the same for the other two: "*Session Expire Event*" and "*Session Start Event*".

3 **Stats Log**: Proceed along the description on "*Session Log*", but disable the "*Stat Event*".

Memory

Questions on Sizing

a) How many tasks will the Server have to handle simultaneously? I.e. how many RFCs, http requests, ftp connections, started Listeners and RFC Listeners will the Server have to handle **simultaneously** at the peak time of the day? This determines the number of sessions **n**.
b) For how many SAP systems will the BC register an RFC Listener? How many threads do these Listeners have?
c) How many messages (XML documents, IDocs, RFC calls) go through the Server **simultaneously** at the peak time of the day? Is there any expensive mapping to be done?

Initial consumption

The 4.0.1 BC (or higher) Server needs ~ 80MB RAM to start up and just run without any heavy load on it. Depending on the load and expected traffic on the Server you need to add the following:

Consumption per session

Each task, the Server is to handle (incoming http request, email, ftp connection, incoming/outgoing RFC call) requires one "session" on the Server. If **n** is the number of sessions (see *question a*), add the following amount of RAM:

½ n MB

If **n** proves to be much bigger than 75, you should change the parameter
`watt.server.threadPool=75`
in the config file (`<installDir>/config/server.cnf`), so the Server can handle more than 75 tasks in parallel. (Of course, if the size of your hardware doesn't support this, do not change this parameter...)

However, in this case you can also increase the value of the parameter
`watt.server.threadPoolMin=10`
to enhance performance.

As of SAP BC Release 4.6, you can change the values of the `server.cnf` parameters also via the **Server Administrator UI**. Choose *Settings -> Extended* and select the parameters you want to edit (see *SAP BC Administration Guide 4.7,*

p.94ff. for details).

You will find more information on these parameters in the: *SAP BC Administration Guide 4.7*, "Appendix B: Server Configuration Parameters".
The Server then provides a "pool" of unused sessions, and the next request can be processed immediately without waiting for a new session to be created.

Note: this procedure should be used with care to avoid unnecessary memory overload. E.g. if you keep a pool of 1000 Sessions and the Server never really needs more than
100, you will waste a lot of memory and resources.

Consumption for RFC Listeners

In the next step you will need extra memory for every RFC Listener thread (see *question b*): for each Listener thread add 10MB. As this consumes a lot of memory, the number of threads for a Listener must be chosen with care.

Note: if the number of threads is too small, the SAP system cannot send RFCs in parallel, this means, the RFCs have to be queued until a Business Connector thread is free to process them. The SAP system's work processes, trying to send RFCs, are then blocked and the SAP system's performance slows down considerably.
On the other hand, if the number of threads is too high, the Business Connector consumes a lot of memory. This may slow down Business Connector performance. To optimize the number of threads, determine the average number of work processes the SAP system will use for sending RFCs.

Payload

Next you will have to calculate memory for documents that are to be processed simultaneously (see *question b*). Add the following to your memory:

Payload consumption = (document size **x** memFactor **+** RFCSize) **x** number of parallel documents
where
RFCSize = 0, if no RFC is involved in transporting the document.
RFCSize = **(** 1063bytes **x** number of segments **+** 524bytes **) x** number of IDocs in package,
if the IDocs are either sent or received via RFC.
memFactor = 3 **+** number of INVOKE statements in the Mapping Service (if there are mappings done
between document formats and different XML dialects) **+** SSL

SSL = 0 or 1, according to whether documents are encrypted with SSL or not

If in doubt, you should run a few tests and watch by how much the memory actually increases during processing of one document.

Important: By default the 4.0.1 BC (or higher) starts with 96MB RAM. After you have calculated the memory, that your Business Connector should use, you have to modify the setting :
`set JAVA_MAX_MEM=96M`
in `<installDir>/bin/server.bat` (or `server.sh` on Unix), before starting the Server.
For BC 3.5.2 you have to search the `server.bat/server.sh` for the string `"-mx64M"` (you will find three occurrences) and in the second occurrence change the "64" to the required value.

Example (Server handling 1000 ORDERS per day):

- The Server has one standard RFC-Listener with 3 threads.
- You expect a peak load of 3 documents in parallel which result in 3 parallel sessions. Allow another session for an Administrator or Developer to log on occasionally. Together with the session created by the RFC-listeners this gives a total of 8 parallel sessions and 4MB.
- The Server is to handle a peak of 3 documents in parallel, and the MarketSet Package is doing a bit of mapping when converting the IDoc to xCBL. For a relatively small document of 20kB in a 50 segment IDoc this results in a memory consumption of
(20kB **x** 6 + 52.4kB) **x** 3= 517.2kB (we can round this up to 1MB)

Task	Required RAM (MB)
Server core functionality	80
Sessions	4
RFC Listeners	30

Document processing	1
Total	115

In this example you should be ok with roughly 128MB of memory for SAP BC alone. Adding a bit for operating system and other tasks, a 256MB machine will be more than sufficient.

Miscellaneous

Encryption

When using SSL to encrypt XML documents, the time needed to process a document will increase by a factor of 3. In this case, you therefore need to take a CPU from the next higher class.
You also have to change the formula for calculating the RAM needed for processing documents:
increase memFactor by one.

IDoc Packets

The performance can be vastly improved by using IDoc Packets of a well chosen size. If the packet size is to small, you don't take full advantage of the performance improvement, if it is to big, the Server may run out of memory or start swapping. It needs some testing to find the optimum size. It depends on the IDoc type as well as on the size of your machine.

Connection Pool

Count the number of outbound (BC → SAP system) RFC connections you may need for one SAP system simultaneously. By default the RFC connection pool is limited to 10 concurrent connections. If this should not be sufficient, increase the parameter given below in the file `<installDir>/config/server.cnf`

`watt.sap.maxPooledConnections=10` (3.5.2)
`watt.sap.connection.poolSize=10` (4.0.1 and higher)

You will find more information in the *SAP BC Integration Guide*, (3.5.2) or in the *SAP BC Sap Adapter Guide* (4.0.1 and higher), "*Appendix B: Server Configuration*".

Note: The Server **must be shut down**, whenever you make any changes to the `server.cnf`.

As of SAP BC Release 4.6, you can change the values of the `server.cnf` parameters also via the **Server Administrator UI**. Choose *Settings -> Extended* and select the parameters you want to edit (see *SAP BC Administration Guide 4.7*, p.94ff. for details).

Security

See the *Security Best Practices Guide* on http://service.sap.com/sbc-download

Logging: If the productive scenario involves thousands of Service Invocations in a short time period, a big performance improvement can be achieved by turning off "Audit Logging": To do this shut down the BC, edit the `server.cnf` and change the parameter
`watt.server.auditLog` to
`watt.server.auditLog=off`

As of SAP BC Release 4.6, you can change the values of the `server.cnf` parameters also via the **Server Administrator UI**. Choose *Settings -> Extended* and select the parameters you want to edit (see *SAP BC Administration Guide 4.7*, p.94ff. for details).

Installation Options for the SAP Business Connector

For the installation of the SAP Business Connector on your local server you have basically two different options to proceed: either you download the server components from the SAPNet download page http://www.service.sap.com/sbc-download , or you use the corresponding Server Components CD.

Important: During Installation procedure SAP BC proposes a standard installation directory. SAP BC then automatically adds the subdirectories ‘Server’ and ‘Developer’ to the installation path. If you change the system proposal manually, the subdirectories ‘Server’ and ‘Developer’ will not be added automatically any more. To keep the installation path identical to the naming convention you have to add the subdirectories ‘Server’ or ‘Developer’ manually when installing these SAP BC components.

Note: If you use the Server Components CD for installation, you can find the installation files in the following directories:

Server Component	Platform	Directory
SAP BC Developer	Windows NT	bc\nt\i386\BCDev47.exe
SAP BC Developer	Unix	bc\unix\common\BCDev47.jar
SAP BC Server	Windows NT	bc\nt\i386\BCServ47.exe

SAP BC Server	Unix	bc\unix\common\BCServ47.jar
SAP BC Server	Linux	bc\unix\linux_32\sbc47lib.tgz
SAP BC Server	Solaris	bc\unix\sunos_32\sbc47lib.tgz

The procedure you choose for installation depends on the platform you use. The corresponding steps are described below using the SAPNet download page. For the CD installation you can follow these steps as well, using the files listed above.

The shared libraries for HP-UX and AIX are not included on the CD, but only on the SAPNet download page.

SAP Business Connector on Windows NT/2000

General remarks

Important: You must have **administrator privileges** on your Windows NT/2000 system to execute the setup program. Otherwise the shortcuts to SAP Business Connector and the documentation files will not be created and the installation will end with a message 'Installation failed'. SAP Business Connector will however be functional.

Important: The **Windows version** of SAP BC 4.7 is not shipped with a JVM anymore. With Version 4.7 you need to install a **JDK 1.2 or higher** (recommended: JDK 1.3) to run SAP BC. SAP note 629647 describes the necessary steps in order start SAP BC 4.7 on Windows platforms.

Installing SAP Business Connector Server

1. Go to the download page and choose the download link for the SAP BC Server.
2. Check the table below to see the name of the correct file to use.

file name (SAPNet)	operating system	encryption
BCServer47.exe	Windows NT 4.0/2000	128 bit
BCServerXpt47.exe	Windows NT 4.0/2000	40 bit

   For Windows NT/2000 start the setup program by double clicking on your local file.
3. Follow the instructions of the SAP Business Connector Server setup program.

You have to choose, whether you want to install SAP Business Connector Server as a Windows NT/2000 service. If you are using SAP Business Connector Server in a productive system, do so. In the development period it is not recommended. (See below for more information on how to run the SAP BC Server as a Windows NT/2000 Service.)

4. If you get errors while the Server is loading the SAP package, check if the versions of `MSVCRT.dll` and `MSVCP60.dll` in `C:\WINNT\system32` are older than of the

ones in `<sapbc>\Server\packages\sap\code\libs`. If yes, copy the newer ones into `C:\WINNT\system32` (using a DOS prompt) and reboot the system. Also check, whether there are still old versions of these dll's somewhere on the hard drive: `Librfc32.dll`.

Do not override an existing installation directory, if you haven't run the deinstallation of the previous version. See chapter Upgrading

Starting SAP Business Connector Server

After finishing the setup program you can start up SAP Business Connector Server via *Windows Start menu → Programs → SAP BC → SAP Business Connector Server 4.7*.

The startup may take a moment. You can then connect to the server with a standard web browser. The server listens on the port 5555 so the complete HTTP address would be http://localhost:5555

It may take a moment to load SAP Business Connector Server. If you get an error message trying to open the URL http://localhost:5555 in your standard web browser, please wait an instant and then try again. If you are not on the PC you installed the SAP Business Connector on, you need to replace <localhost> with the name of the machine on which your SAP Business Connector is running on. e.g. http://<otherPC>:5555

You can also start SAP Business Connector from a DOS prompt. To do so, create a DOS window and go to directory `C:\sapbc47\server`. Start SAP Business Connector by typing **`bin\server.bat -log none`**. Thus you will see additional log information and error messages, which is helpful during development and when problems occur.

Should you get the error message

'000028 B2BSRV0004C Initialization failed; no listening ports available',
the default port (5555), which SAP Business Connector uses, is already occupied. You should start the Server again with the option `server.bat -port xxxx` with a port xxxx different from 5555.

(Also check, if perhaps the Business Connector is already running! This would lead to the same error message, when you try to start it a second time...).

Logon to SAP Business Connector as "Administrator" with the predefined password "manage".

Change this password immediately after installing the SAP Business Connector. Otherwise, your system will be vulnerable to anyone who knows the default password. You should also change the passwords for the users Developer and Replicator, which come with default passwords. For further details, please refer to the SAP Business Connector Administration Guide.

Running SAP Business Connector Server as an NT/2000 service

You can change the settings without reinstalling SAP BC Server:

Run `installsvc.bat` (in <sapbc>\Server\support\win32).

Choose via the Windows start menu *Settings* → *Control Panel* → *Services*.

Select the service *SAP Business Connector 4.7* and choose Startup...

Mark Startup Type Automatic and choose OK.

To stop the NT/2000 service you have to shut down SAP Business Connector from the Administrator Interface (web browser). If you stop it via the Services menu in the Control Panel, you will get an error message next time you start SAP BC, even though the status in the Services menu is set to stopped.

Installing SAP Business Connector Developer

1. Go to the download page and choose the download link for the SAP BC Developer.
2. Check the table below to see the name of the correct file to use.

file name (SAPNet)	operating system	encryption
BCDeveloper47.exe	Windows NT 4.0/2000	128 bit
BCDeveloperXpt47.exe	Windows NT 4.0/2000	40 bit

   For Windows NT/2000 start the setup program by double clicking on your local file.
3. Follow the instructions of the SAP Business Connector Developer setup program.

Starting SAP Business Connector Developer

After finishing the setup program you can start up SAP Business Connector Developer via *Windows Start menu* → *Programs* → *SAP BC* → *SAP Business Connector Developer 4.7*.

Logon to SAP Business Connector with a valid user ID and password.

SAP Business Connector on AIX, HP-UX, Linux and Solaris

Installing SAP Business Connector Server

For information on supported platforms please see also OSS Note No. 309834.

To run SAP Business Connector Server on Linux your environment must fulfill the following criteria:

JDK 1.2 or higher is required for installation on UNIX platforms; JDK 1.3.x is recommended. If you use JRE 1.3 to install, you will need to edit `<sapbc>/Server/bin/server.sh` after the installation is complete and set the JAVA_ROOT variable (line 27) to the location of JDK 1.3.x on your system. For more details see the `<sapbc>/Server/readme.txt`.

Here are the necessary components for installing SAP Business Connector (available on the SAPNet download page http://service.sap.com/sbc-download :

Platform	Command
All platforms	`BCServer47.jar/BCDeveloper47.jar (128bit ssl)`
AIX	`sbc47libsaix.tgz`
HP-UX	`sbc47libshpux.tgz`
Linux	`sbc47libslinux.tgz`
Solaris	`sbc47libssolaris.tgz`

To install and run SAP Business Connector Server on Linux/Unix, perform the following steps:

Important: If you are installing on an **AIX** system, log on as the **root user.**

1. Define the path where JDK resides by setting the environment variables for the Java Development Kit installation directory and the library path to the native thread java libraries. The commands below give an example for csh.:
   - **`setenv JDKDIR <your JDK dir>`**
2. Define the path to the native thread libraries for Java:

Platform	Command

AIX	**setenv LIBPATH ${JDKDIR}/jre/bin/classic (this varies) *)**
HP-UX	**setenv SHLIB_PATH ${JDKDIR}/lib/PA_RISC/native_threads**
Linux	**setenv LD_LIBRARY_PATH ${JDKDIR}/lib/linux/native_threads**
Solaris	**setenv LD_LIBRARY_PATH ${JDKDIR}/lib/sparc/native_threads**

***)** Remark for AIX:
The path to the native thread libraries may vary with your JDK release. The example above refers to J2RE 1.3.0 IBM build ca130-20010330. For some JDKs the LIBPATH may not be necessary at all.

3. Before running the installer, confirm that you have enough temporary disk space available. The installer requires approximately 50MB of free disk space in your system temp folder.

In case of problems with the path to the .tmp directory or with disc quotas you can force the installer to use a different directory for the temporary file by using the parameters `-DbcSwapDir` and `–Dtemp.dir` which is described on the InstallShield Homepage (http://www.installshield.com). This parameter is tested to work with Linux and HP-UX.

In the following, whenever you are prompted for the installation directory, always specify the directory with the full (absolute) path name. Relative paths will not work!!

You may choose one of three modes for performing the installation.

1) Standard mode
To use the standard mode, which displays a graphical user interface, type the following at the command line:

```
java -jar BCServer47.jar
```

2) Console mode
If you are installing on a remote UNIX machine and want to suppress the graphical user interface, type the following at the command line:

```
java -jar BCServer47.jar -console
```

You will still be prompted to select installation options.

3) Silent mode (not available on HP-UX)
If you want the installation to run without any user interaction, type the following at the command line:

```
java -jar BCServer47.jar -silent –P b2bprod.installLocation=<targetDirectory>
```

Warning: This will perform a "Typical" installation. Use Console mode if you need to customize your installation.

4) Installation using a different directory for temporary files (example):

```
java -Dtemp.dir=/tmp -DbcSwapDir=/tmp -jar BCServerXpt47.jar
```

Note: if you run the installer more than once (you may do this to install additional components), the installer may list inaccurate information about file sizes.

Note: The installation procedure may take **several minutes !**

4. Copy the shared, multithreaded C-libraries to your SAP BC installation directory:

Platform	Command
AIX	- `cp librfccm.o <sapbc>/Server/packages/SAP/code/libs` - `cp libsapjcorfc.o <sapbc>/Server/packages/SAP/code/libs`
HP-UX	- `cp librfccm.sl <sapbc>/Server/packages/SAP/code/libs` - `cp libsapjcorfc.sl <sapbc>/Server/packages/SAP/code/libs`
Linux	- `cp librfccm.so <sapbc>/Server/packages/SAP/code/libs` - `cp libsapjcorfc.so <sapbc>/Server/packages/SAP/code/libs`
Solaris	- `cp librfccm.so <sapbc>/Server/packages/SAP/code/libs` - `cp libsapjcorfc.so <sapbc>/Server/packages/SAP/code/libs`

You can now start SAP Business Connector Server:

In your installation directory, enter **Server/bin/server.sh**.

Using a web browser, logon to SAP Business Connector (http://hostName:5555)

as "Administrator" with the predefined password "manage". Change this password immediately after installing the SAP Business Connector. Otherwise, your system will be vulnerable to anyone who knows the default password.

Note: If you haven't done so already during installation, you have to provide a license key, otherwise SAP Business Connector Server will shut down after 30 minutes:

From the navigation bar choose *Settings*. The *Server Settings* screen appears.

Select Edit these settings.

Enter your license key in the field *License Key* and press *Submit*.You can now run SAP Business Connector Server without time restriction.

Tip: on Unix the installation may fail with the error message “insufficient space in the temp directory”, even if there are still Gigabytes available...

You can avoid this by using the parameter `-Dtemp.dir=/foo/bar` which is described on the InstallShield Homepage (http://www.installshield.com). This parameter is tested to work with Linux and HP-UX.

Installing SAP Business Connector Developer

To run SAP Business Connector Developer on Linux/Unix the same restrictions apply as for the server.

To install SAP BC Developer perform the same steps as for a server installation. Then:

1. You may choose one of three modes for performing the installation.

   1) Standard mode
   To use the standard mode, which displays a graphical User interface, type the following at the command line:

   ```
   java -jar BCDeveloper47.jar
   ```

   2) Console mode
   If you are installing on a remote UNIX machine and want To suppress the graphical user interface, type the following at the command line:

   ```
   java -jar BCDeveloper47.jar -console
   ```

   You will still be prompted to select installation options.

   3) Silent mode (not available on HP-UX)
   If you want the installation to run without any user interaction, type the following at the command line:

   ```
   java -jar BCDeveloper47.jar -silent -P
   b2bprod.installLocation=<targetDirectory>
   ```

   WARNING: This will perform a "Typical" installation. Use Console mode if you need to customize your installation.

   Note that if you run the installer more than once (you may do this to install additional components), the installer may list inaccurate information about file sizes.

4. In the start script for the Developer (`<sapbc>/Developer/bin/integrator.sh`), insert the JDK directory. If you have defined a variable like in step 1, insert ${JDKDIR}. Additionally follow the instructions of note 635543.

You can now start SAP Business Connector Developer:

In the directory (<sapbc>/Developer, enter bin/integrator.sh.

Using a web browser logon to SAP Business Connector as "Administrator" and change the predefined password "isdev" of the user "Developer". Change this password immediately after installing the SAP Business Connector. Otherwise, your system will be vulnerable to anyone who knows the default password.

Using Encryption with SAP BC

The standard installation of the SAP Business Connector includes strong encryption with a 128 bit key. It is available directly from SAPNet. On the *Connectors* page follow the link *Download* and answer the questions conscientiously.

Setting Up SSL Properties

To set up SSL properties for your SAP Business Connector Server, please refer to the *SAP Business Connector Administration Guide*:

Using Private Keys and Certificates

If you want to use private keys and certificates with SAP Business Connector you can download and install the *SAP Business Connector Certification Toolkit*.

For Windows NT/2000:

Install SAP Business Connector Certification Toolkit by double clicking on the local file

`wmCertKit10.exe`
(when using the files from SAPNet)

OR

`wmCert10.exe`
(when using the files from the mySAP Component Server CD-ROM)

For Linux/Unix:

When using the files from SAPNet:

Extract and install SAP Business Connector Certification Toolkit with the command
`java -cp . wmCertKit10 -o <sapbc>/CertToolkit`
from the directory, where the wmCertKit10.class file is located. For some Java versions "-cp" needs to be replaced with "-classpath".

OR

```
jar –xvf wmCert10.jar
java wmCert10 –o <sapbc>/CertToolkit
```
(when using the files from the mySAP Component Server CD-ROM)

For further information please refer to the *Certification Toolkit Guide* on SAPNet.

Upgrading SAP Business Connector from Older Versions

Important: As a precautionary measure, be sure to back up your Server 3.x or 4.x directory before beginning the upgrade.

Upgrade from SAP BC Server Version 4.x

To install SAP BC Server 4.7 follow these steps:

1 Shut down SAP BC Server 4.x.

2 Uninstall SAP BC Server 4.x. See “Uninstalling SAP BC Server and SAP BC Developer” for instructions.

Important: Do not delete the files and directories that are left in the 4.x Server_directory directory. Those files contain important user-created and configuration data.

3 Install SAP BC Server 4.7 in the Server 4.x installation directory. See “Installing SAP BC Server” for instructions.

4 Open a command shell in the directory `<sapbc>\Server\packages\WmPartners\config` and execute the command

```
java -cp ..\..\..\lib\client.jar com.wm.util.UpgradeMessageStore -update
```

5 Determine whether you have made any changes to these files:

Platform	Files
Windows	Server.bat, repostore.bat, or repoui.bat
UNIX	Server.sh, repostore.sh, or repoui.sh

If so, reapply those changes.

6 Start SAP BC Server 4.7. All configuration settings should transfer correctly.

Note: If

- you upgrade your SAP BC from version 4.0.1 to 4.7 and
- you want to send IDocs with your SAP BC

please apply SAP note 523131.

Other Migration Considerations

This section describes enhancements and changes in SAP BC Server 4.6 (and higher) that could affect upgrading from SAP BC Server 4.0.1. We expect that users will experience a seamless upgrade with no migration issues. However, please review the changes below, as well as the "Fixes and Enhancements Since Last Release" section in the readme.txt file, for changes that might affect your particular application.

Flow Engine

Three fixes to the Flow engine may impact migration from 4.0.1.

- In version 4.0.1, disabled child steps of a BRANCH step were not ignored when evaluating the BRANCH. If a disabled child's label matched the switch variable or evaluated to true, the child would be considered "triggered" and no other children would be evaluated. In version 4.6 or higher, disabled child steps of a BRANCH step are completely ignored when evaluating the BRANCH.
- In version 4.0.1, if the out-array variable was not in the pipeline in the current iteration of the LOOP, the out-array value for the previous iteration was stored in the array. In version 4.6 or higher, a null value is stored in the out-array for the current iteration if the out-array variable does not exist in the pipeline.
- In version 4.0.1, maps from nested record lists with varying array sizes produced unpredictable output. For example, suppose you had the following mapping:

At runtime, suppose the sizes of source/inner are not the same, that is, source[0]/inner has four elements, source[1]/inner has three elements, and source[2]/inner has two elements. The resulting target record would not be the same as the source record. The nested elements would be shifted so that each target/inner array has three elements each, and the overflow from the first inner would "spill over." This bug was introduced in version 3.5 and existed until 4.0.1.

Prior to version 3.5 and in version 4.6 or higher, maps from nested record lists with varying array sizes are ignored at runtime. The following error appears in the server log:

```
[B2BCORE.0050.0004] Copy failed: (SDT-1) No source data available:
to=/target(0)/inner(0)/string(0), from=/source(0)/inner(0)/string(0)
```

Validation Engine

Two fixes to the Validation engine may impact migration from 4.0.1.

- In version 4.0.1, pub.schema:validate did not report an error when an XML element, specified as having required child elements, was completely empty. For example, if you were validating the following XML segment:

<shouldHaveChildren/>

and the schema specified that "shouldHaveChildren" has required child elements, then the missing child elements were not reported as errors. In version 4.6 or higher, the missing elements are detected correctly. The validation engine returns the following message:

```
[B2BCORE.0082.9010] Incomplete content - one or more child elements are expected
```

- In version 4.0.1, if a record declared a variable to be of type Object, and at runtime, the variable was a String or Record, the variable was considered invalid. The validation engine would return the following error:

```
[B2BCORE.0082.9032] Type mismatch, Object expected
```

Since the Object type can represent any Java class, including Strings and Records, this error was incorrect. In version 4.6 or higher, the Object type will match Strings and Records as well as arbitrary types.

pub.web:recordToDocument

Two enhancements to the pub.web:recordToDocument service may impact migration from 4.0.1.

- In version 4.0.1, the pub.web:recordToDocument did not throw an exception if the recordName parameter was invalid. The recordName would be silently ignored. This was inconsistent with the pub.web:documentToRecord service, which threw an exception if the recordName could not be found in the namespace. In version 4.6 or higher, recordToDocument throws the same exception that documentToRecord does for an invalid recordName:

  ```
  com.wm.app.b2b.server.ServiceException: [B2BSERV.0062.9006] Illegal parameter
  value. Record "invalid" not found.
  ```

- In version 4.0.1, the generateRequiredTags parameter for pub.web:recordToDocument only generated top-level required tags. Empty tags were not generated for nested required elements. In version 4.6 or higher, recordToDocument traverses the entire record specified by recordName and generates required tags at every level.

Unregistered Content Types

In version 4.0.1, if the Server received a request with a content type for which it had no associated content handler, the Server would process the body of the message as application/x-www-form-urlencoded (that is, as a CGI message). In version 4.6 or higher, if the Server receives a request with an unregistered content

type, it puts the body of the message in an input stream called “contentStream” and invokes the specified service with contentStream in the pipeline.

Localized Error Messages

In version 4.0.1, the lastError/error string in pub.flow:getLastError would return a localized error message. Also, the %value errorMessage% token inside of an %onerror% block in a DSP would return a localized message. Thus, if an application performed certain logic based on the exact error string, then the behavior could change depending on the Server’s locale and resource bundles. In version 4.6 or higher, the lastError/error string and %value errorMessage% return the locale-invariant error message. pub.flow:getLastError returns a new lastError/localizedError string for the localized message. Also, %value localizedMessage% is available within an %onerror% block to print the localized message.

List of Deprecated Services

In the following all services and specifications are listed that have been replaced by new ones with release 4.6. The old services are still available, but should be no longer used.

Previous	New service/specification
wm.PartnerMgr.gateway.transport.ALE:InboundProcess	pub.sap.transport.ALE:InboundProcess
wm.PartnerMgr.gateway.transport.ALE:OutboundProcess	pub.sap.transport.ALE:OutboundProcess
wm.PartnerMgr.gateway.transport.ALE:getRoutingInfo_Default	pub.sap.transport.ALE:getRoutingInfo_Default
wm.PartnerMgr.gateway.transport.RFC:InboundProcess	pub.sap.transport.RFC:InboundProcess
wm.PartnerMgr.gateway.transport.RFC:OutboundProcess	pub.sap.transport.RFC:OutboundProcess
wm.PartnerMgr.gateway.transport.BAPI:InboundProcess	pub.sap.transport.BAPI:InboundProcess
wm.PartnerMgr.gateway.transport.BAPI:OutboundProcess	pub.sap.transport.BAPI:OutboundProcess
wm.PartnerMgr.gateway.transport.XML:InboundProcess	pub.sap.transport.XML:InboundProcess
wm.PartnerMgr.gateway.transport.	pub.sap.transport.XML:OutboundProcess

XML:OutboundProcess	
Previous	New service/specification Previous
wm.PartnerMgr.gateway.transport. XML:xmlRoutingInfo	pub.sap.transport.XML:xmlRoutingInfo
sap:confirmTID	pub.sap.client:confirmTID
sap:connect	pub.sap.client:connect
sap:createTID	pub.sap.client:createTID
sap.admin:getAttributes	pub.sap.client:getAttributes
sap.admin:getFunctionInterface	pub.sap.client:getFunctionInterface
sap.admin:getStructureDefinition	pub.sap.client:getStructureDefinition
sap:invoke	pub.sap.client:invoke
sap:indirectCall	pub.sap.client:invokeTransaction
sap:lockSession	pub.sap.client:lockSession
sap:releaseSession	pub.sap.client:releaseSession
sap.bapi:encode	pub.sap.bapi:encode
sap.bapi:decode	pub.sap.bapi:decode
sap.bapi.Browser:createTemplate	pub.sap.bapi:createTemplate
sap.bapi.transaction:rollback	pub.sap.bapi:rollback
sap.bapi.transaction:commit	pub.sap.bapi:commit
sap.rfc:encode	pub.sap.rfc:encode
sap.rfc:decode	pub.sap.rfc:decode
sap.rfc:createTemplate	pub.sap.rfc:createTemplate
sap.idoc:encode	pub.sap.idoc:encode
sap.idoc:decode	pub.sap.idoc:decode
sap.idoc:encodeSDATA	pub.sap.idoc:encodeSDATA
sap.idoc:decodeSDATA	pub.sap.idoc:decodeSDATA
sap.idoc:transformFlatToHierarchy	pub.sap.idoc:transformFlatToHierarchy
sap.idoc:transformHierarchyToFlat	pub.sap.idoc:transformHierarchyToFlat

sap.idoc.routing:inbound	pub.sap.idoc.routing:inbound
sap.idoc.routing:inboundDefault	pub.sap.idoc.routing:inboundDefault
sap.idoc.routing:outbound	pub.sap.idoc.routing:outbound
sap.idoc.routing:outboundDefault	pub.sap.idoc.routing:outboundDefault
sap.idoc.routing:registerService	pub.sap.idoc.routing:registerService
sap.idoc.routing:unregisterService	pub.sap.idoc.routing:unregisterService

Previous	New service/specification
sap:OutboundRFC	pub.sap.client:invoke *or* pub.sap.client:invokeTransaction *(for tRFC)*
sap:InboundRFC	*No replacment*
sap:disconnect	*No longer necessary, because session pools are used*
sap:tablesToRecordLists	*No longer necessary, because tables can be handled in flow now natively*

Upgrade from SAP BC Server Version 3.x

SAP BC Server 4.7 is a significant upgrade from BC Server 3.x. In addition, SAP BC Server 4.7 is preconfigured for tighter out-of-the-box security, so you cannot install SAP BC Server 4.7 over an existing installation of SAP BC Server 3.x. Consequently, migrating from BC Server 3.x to SAP BC Server 4.7 requires you to apply various BC Server 3.x configuration settings to SAP BC Server 4.7.

See the SAP BC Server 4.x Security Best Practices for detailed information about proper security configuration for SAP BC Server 4.7. (Migrating security settings will be easier if you have adhered to the guidelines in SAP BC Server 3.x Security Best Practices.)

You cannot install SAP BC Server 4.7 in the same directory as BC Server 3.x. If you install SAP BC Server 4.7 on the same machine as BC Server 3.x, and SAP BC Server 4.7 will use the same ports as BC Server 3.x, you will need to shut down BC Server 3.x before configuring SAP BC Server 4.7. Ideally, you have multiple BC Servers exposed to the network. If so, you can migrate the

BC Servers one at a time to avoid interrupting your availability and service commitments.

Important: As a precautionary measure, be sure to back up your Server 3.x directory before beginning the upgrade.

Collect 3.x Server Configuration Data

1 Open SAP BC Server 3.x and log on as Administrator.

2 Go to the Access/ACLs page. Record your SAP BC Server 3.x ACLs and the groups allowed by each ACL below. Prebuilt ACLs are listed first.

ACL	Groups Allowed	Groups Denied
Administrators	_____	_____
Developers	_____	_____
Replicators	_____	_____
SAP User	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

3 Go to the Settings/Listeners page. Record your port information below.

Setting	Your entry

Port: _____

Protocol: _____

Primary (y/n): _____

Client Authentication: _____

Package Name: _____

Server's Certificate: _____

Authority's Certificate: _____

Private Key: _____

Trusted Authority Directory: _____

Setting	Your entry

Port: _____

Protocol: _____

Primary (y/n): _____

Client Authentication: _____

Package Name: _____

Server's Certificate: _____

Authority's Certificate: _____

Private Key: _____

Trusted Authority Directory: _____

Setting	Your entry
Port:	_____
Protocol:	_____
Primary (y/n):	_____
Client Authentication:	_____
Package Name:	_____
Server's Certificate:	_____
Authority's Certificate:	_____
Private Key:	_____
Trusted Authority Directory:	_____

4 Go to the Access/Listeners page. For each port configured as **Deny by Default**, record the allowed services below.

Important: If you have any ports configured as Allow by Default, see SAP BC Server 3.x Security Best Practices for instructions on configuring the port as Deny by Default instead.

Setting	Your entry
Port:	_____
Allowed Services :	_____
	_____
	_____

_____

_____

_____

_____

_____

Setting	Your entry
Port:	_____
Allowed Services :	_____

_____

_____

_____

_____

_____

_____

_____

_____

Setting	Your entry
Port:	_____
Allowed Services :	_____

_____

_____

_____

_____

_____

_____

_____

5 Prepare your application packages for migration by creating package zip files, as follows:

A Go to the Packages/Publishing page.

B Select a package and click **make zip file**. On the page that appears, click **make zip file** again. Repeat this step for each package.

6 Go to the Packages/Publishing page. Record your package publishing information below.

Setting	Your entry
Package Name:	_____
Host Name:	_____
Host Port:	_____
Transport:	_____
Remote User Name:	_____
Remote Password:	_____

_____

Setting	Your entry
Package Name:	_____
Host Name:	_____
Host Port:	_____
Transport:	_____
Remote User Name:	_____
Remote Password:	_____
	_____

Setting	Your entry
Package Name:	_____
Host Name:	_____
Host Port:	_____
Transport:	_____
Remote User Name:	_____
Remote Password:	_____
	_____

Setting	Your entry
Package Name:	_____
Host Name:	_____

Host Port: _____

Transport: _____

Remote User Name: _____

Remote Password: _____

_____

7 Go to the Packages/Subscribing page. Record your package subscribing information below.

Setting	Your entry
Package Name:	_____
Publisher Alias:	_____
Local Port:	_____
Authorize As:	_____

Setting	Your entry
Package Name:	_____
Publisher Alias:	_____
Local Port:	_____
Authorize As:	_____

Setting	Your entry
Package Name:	_____
Publisher Alias:	_____
Local Port:	_____

Authorize As: _____

Setting	Your entry

Package Name: _____

Publisher Alias: _____

Local Port: _____

Authorize As: _____

Setting	Your entry

Package Name: _____

Publisher Alias: _____

Local Port: _____

Authorize As: _____

8 Go to the Packages/Publishing page and delete all subscriptions, then go to the Packages/Subscribing page and delete all subscriptions.

9 If you are upgrading from SAP BC Server 3.5 or later, go to the Access/Client Certificates page. Record any imported client certificates and the users that are mapped to those certificates below.

Setting	Your entry

Certificate: _____

Mapped User: _____

Setting	Your entry

Certificate: _____

Mapped User: _____

Setting	Your entry
Certificate:	_____
Mapped User:	_____

Install SAP BC Server 4.7

Do not install SAP BC Server 4.7 in the same directory as SAP BC Server 3.x.

1 Shut down SAP BC Server 3.x.

2 Install SAP BC Server 4.7 in a new directory. See "Installing SAP BC Server" for instructions.

3 Start SAP BC Server 4.7.

4 Shut down SAP BC Server 4.7.

Update Server Settings

1 Copy the server.cnf file from the <*sapbc*>\Server\config directory in your 3.x installation over the same file in the corresponding directory in your 4.7 installation.

2 Open the copied server.cnf file in a text editor and modify it.

A Set the watt.server.illegalNSChars property as follows:

```
watt.server.illegalNSChars=?'- \#&@^\!%*\:$./\\`;,~+\=)(|}{][<"
```

B Locate all lines with watt.server.cluster properties and delete them.

3 The watt.net.timeout property is used differently in SAP BC Server 4.7 than in SAP BC Server 3.x. In SAP BC Server 3.x, the timeout value was applied only to WIDL services. In SAP BC Server 4.6 or higher, the timeout value applies to all outbound client connections, including WIDL, pub.client:http, and pub.web:loadDocument services, and remote invoke and GD transactions. You can reset the watt.net.timeout property to no timeout (that is, to 0) to achieve SAP BC Server 3.x behavior for outbound client connections. As in SAP BC Server 3.x, the unit of time for this setting is seconds.

As of SAP BC Release 4.6, you can change the values of the `server.cnf` parameters also via the **Server Administrator UI**. Choose *Settings -> Extended* and select the parameters you want to edit (see *SAP BC Administration Guide 4.7*, p.94ff. for details).

Configure User Access

1 Copy the users.cnf file from the <*sapbc*>\Server\config directory in your 3.x installation over the same file in the corresponding directory in your 4.7 installation.

2 SAP BC Server 4.7 has stricter user password conventions than SAP BC Server 3.x. You can update your existing user passwords to conform to the stricter conventions. See the SAP BC Administration Guide for information on the conventions.

In SAP BC Server 4.7, locally stored user passwords are one-way hashed rather than base64 encoded. The users.cnf file is automatically rewritten and your existing passwords are automatically hashed the first time you start SAP BC Server 4.7.

Configure Access Control

1 Navigate to the <*sapbc*>\Server\config directory in your 4.7 installation and back up the aclmap_sm.cnf file.

2 Copy the SAP BC Server access control settings from your 3.x installation to your 4.7 SAP BC Server installation, as follows:

a) Navigate to the <*sapbc*>\Server\config directory in your 3.x installation and open the aclmap_sm.cnf file in a text editor.

b) Group all the access control settings for your services and copy them to the clipboard.

Important: Do not group the access control settings for the wm.dev.*, wm.server.*, wm.PartnerMgr.*, and pub.* services.

c) Navigate to the <*sapbc*>\Server\config directory in your 4.7 installation and open the aclmap_sm.cnf file in a text editor.

d) Paste the access control settings from the clipboard in front of the closing tag in the file.

e) Save the file.

3 Check your ACL settings and, if necessary, reconfigure them.

Migrate Other Configuration Files and Certificates

Some of the steps in this section might involve files that do not exist in your SAP BC Server 3.x installation. If so, skip those steps.

1 Copy the files listed below from the <*sapbc*>\Server\config directory to the corresponding directory in your 4.7 installation. If the file already exists in the 4.7. installation, overwrite it with the 3.x file.

- remote.cnf
- eventcfg.bin
- jobs.cnf
- ldap.cnf

2 Copy certificates from the certificate directory (by default, <*sapbc*>\Server\config) in your 3.x installation to the corresponding directory in your 4.7 installation.

3 Copy any jar or zip files from the *SAP BCServer_directory*\lib\jars directory in your 3.x installation to the corresponding directory in your 4.7 installation.

4 Migrate any CLASSPATH customization in the server.bat or server.sh file in the *SAP BC Server_directory*\bin directory of your 3.x installation to the same file in the corresponding directory of your 4.7 installation. The SAP BC Server 4.6 or higher scripts are restructured, so you only need to edit the PREPENDCLASSES and APPENDCLASSES lines.

Migrate Packages

1 Start SAP BC Server 4.7.

2 Open SAP BC Server for SAP BC Server 4.7 and log on as Administrator. The password is the same as it was in your 3.x installation.

3 If you have packages you have obtained from SAP or another source, install the packages using the accompanying instructions.

4 If you want to migrate other packages (for example, packages you have created), use the package Install Inbound Release mechanism in SAP BC Server.

a) Copy the packages from the *SAP BCServer_directory*\replicate\outbound directory of your 3.x installation to the *SAP BC Server_directory*\replicate\inbound directory of your 4.7 installation. (The packages were placed in the outbound directory when you zipped packages earlier.)

b) Go to the Packages/Management/install inbound releases page.

c) Select a package and click Install Release. Repeat this step for each package.

5 If you installed packages that have ports associated with them, the security settings for the port were not replicated; instead the ports were installed with the access mode Deny by Default with no Allow list specified. To reconfigure the ports with their original security settings, go to the Access Mode page for each port and click Reset to Default Access Settings. The system keeps the Deny by Default access mode but populates the Allow list with a group of Anonymous services. You will reconfigure your port security settings in Define Ports, below.

Define Ports

1 In SAP BC Server, go to the Security/Ports page.

2 If you had ports defined in the WmRoot package, recreate them manually using the port information you recorded earlier. (This step is necessary because you cannot replicate your WmRoot package from SAP BC Server 3.x to SAP BC Server 4.7)

3 Add any ports that were not added when you installed your inbound packages or configured the ports associated with WmRoot. Use the port attributes you recorded earlier.

Configure Packages

1 Copy the files listed below from the stated 3.x directory over the same file in the stated 4.7 directory.

File	3.x Directory	4.7 Directory
jdbc.cnf (3.5 or later)	*SAP BC Server_directory*\ packages\WmDB\config	*SAP BC Server_directory*\ packages\WmDB\config
dbc.cnf (3.0.x or 3.1.x)	*SAP BC Server_directory*\ packages\WmRoot\ config	*SAP BC Server_directory*\ packages\ WmDB\config
gateway.cnf	*SAP BC Server_directory*\ packages\WmPartners\config	*SAP BC Server_directory*\ packages\WmPartners\ config
xtn.log and xtn_audit.log	*SAP BC Server_directory*\ packages\WmPartners\config	*SAP BC Server_directory*\ packages\WmPartners\ config

2 Open a command shell in the directory `<sapbc>\Server\packages\WmPartners\config` and execute the command

```
java -cp ..\..\..\lib\client.jar com.wm.util.UpgradeMessageStore -update
```

3 To configure other packages, see the appropriate package documentation.

Reconfigure ACLs

SAP BC Server 4.7 implicitly uses *Deny by Default* mode to resolve ACL conflicts. If you adhered to the guidelines in SAP BC Server 3.x Security Best Practices and used *Deny by Default* ACL mode for your services, you will not have a problem with your ACLs. If you designed your ACLs to work in *Allow by Default* mode, however, your services might have access problems.

1 In SAP BC Server for SAP BC Server 4.7, go to the Packages/Management/Browse Folders page.

2 Adjust your ACLs as necessary to conform to the SAP BC Server 4.7 *Deny by Default* ACL mode.

Configure Package Subscriptions

1 In SAP BC Server for SAP BC Server 4.7, go to the Packages/Publishing/AddSubscribers page. Update the subscribers using the package publishing and subscribing information you recorded earlier.

2 Go to the Packages/Subscribing/SubscribeToRemotePackage page. Update the subscriptions using the package publishing and subscribing information you recorded earlier.

Import Client Certificates

Perform this step only if you are migrating from SAP BC Server 3.5 or later.

1 In SAP BC Server for SAP BC Server 4.7, go to the Security/Certificates/Client Certificates page.

2 Import the client certificates you recorded.

3 Click Subject CN for an imported client certificate, then click Change User Mapping. Map the certificate to the user you recorded earlier. Repeat this step for each imported client certificate.

Test the Migration

Restart SAP BC Server 4.7 to make sure all your package startup services work. Then open SAP BC Server, go to the Packages/Management page, and make sure all your packages loaded without errors.

Other Migration Considerations

This section describes enhancements and changes in SAP BC Server 4.6 or higher that could affect upgrading from SAP BC Server 3.x.

Review the readme.txt file for other fixes and enhancements that might affect your particular application.

Security Enhancements in SAP BC Server 4.6 or higher

- The Default ACL requires authentication. This change affects clients or DSPs that invoke services without a user name and password. You must supply a user name and password in the client or DSP, or change the service's ACL to Anonymous.

Check external client code, client contexts within Java services, DSPs, HTTP service invokes using the pub.web:loadDocument or pub.client:http service (for example, http://localhost:5555/invoke/myifc/myservice), pub.remote or pub.remote.gd invokes, and scheduled tasks. In the case of remote service invocations, you might need to edit the user name associated with the remote alias.

- Built-in services are protected by the Internal ACL. This change affects clients or DSPs that invoke built-in services directly. You must make the client or DSP a member of the Administrators or Developers ACL, or you could create a wrapper service with the appropriate ACL and invoke the wrapper service.
- The Default ACL is applied to files in \pub directories if the file are not specified in .access. This change affects HTTP requests for files in the \pub directories of your packages. The HTTP client should provide a user name and password for the server, or you should explicitly specify **Anonymous** access in the .access file.

Check DSPs and HTTP file access that use pub.web:loadDocument or pub.client:http (for example, http://localhost:5555/mypackage/po.xml). Also, inspect the \pub directories of your packages for files that should be accessible to unauthenticated browser clients.

- ACLs are not checked on internal invokes. This change affects applications that include logic that exploits AccessExceptions on internal invokes. For example, an application configuration service might be coded to make transient (in-memory) configuration changes and invoke a second service to persist the changes. In SAP BC Server 4.7, the configuration service would be protected by an ACL that allows access to all AppAdmins, but the invoked

service would be limited to a subset of those users (for example, AppSuperAdmins). The service would be coded to trap and ignore access exceptions on the invoke to the persist service.

If you want SAP BC Server 4.7 to enforce ACL checks on an internal invoke, you must force the check by setting the **Enforce Internally** flag associated with the service ACL.

- The Administrator ACL ambiguity override has been removed. This change might affect ACL configurations that use **Deny by Default** precedence. Users in the Administrators group are now treated like any other user; that is, if they belong to both the Allow and Deny lists, or to neither, they are denied. Correct any ambiguities to conform to **Deny by Default** precedence.
- The built-in ACL mode is **Deny by Default**. This change affects ACL configurations that use **Allow by Default** precedence
- Locally stored user passwords are now one-way hashed rather than base64 encoded. Old password files are automatically converted the first time you start SAP BC Server 4.7. As a result, after you upgrade to SAP BC Server 4.7, you cannot go back to a SAP BC Server 3.x release, since the password file will be unusable.
- The Administrative Listener capability has been replaced by a wizard that lets you create listeners appropriate for Administrators, Developers, or any other group defined by an ACL.

client.zip File Changed

Classes needed to compile and run Java client code are now bundled in the client.jar file instead of the client.zip file. Also, the sslclient.zip file has been removed, since the client.jar file includes SSL classes. Replace all occurrences of "client.zip" or "sslclient.zip" in your classpath with "client.jar."

Error Messages Changed

Errors generated by SAP BC Server or by built-in services now contain an error code prefix. Also, the wording for some error messages has changed, so if you have services that search on specific message text, you should check those messages and update the services accordingly.

For example, suppose you validated a variable that was defined as a date {http://www.w3.org/1999/XMLSchema} but whose value was not a valid date. In 3.x, the error message was:

```
Value cannot be converted to calendar value
```

In 4.7, the error message is:

```
[B2BCORE.0082.9447] Value does not conform to datatype
```

COM Services

The input parameters for the win32.COM:invoke service have changed.

If you created early-binding services with versions of SAP BC Server before version 4.0, you must update those services and re-specify the input parameters for the win32:COM invoke service as described in the *Invoking a VB Service Using Early Binding* section of the *SAP BC Developer Guide* .

Flow Engine

Three fixes to the Flow engine may impact migration from 3.x.

- In version 3.x, disabled child steps of a BRANCH step were not ignored when evaluating the BRANCH. If a disabled child's label matched the switch variable or evaluated to true, the child would be considered "triggered" and no other children would be evaluated. In version 4.7, disabled child steps of a BRANCH step are completely ignored when evaluating the BRANCH.
- In version 3.x, if the out-array variable was not in the pipeline in the current iteration of the LOOP, the out-array value for the previous iteration was stored in the array. In version 4.6 or higher, a null value is stored in the out-array for the current iteration if the out-array variable does not exist in the pipeline.
- In version 3.5 or later, maps from nested record lists with varying array sizes produced unpredictable output. For example, suppose you had the following mapping:

At runtime, suppose the sizes of source/inner are not the same, that is, source[0]/inner has four elements, source[1]/inner has three elements, and source[2]/inner has two elements. The resulting target record would not be the same as the source record. The nested elements would be shifted so that each target/inner array has three elements each, and the overflow from the first inner would "spill over." This bug was introduced in version 3.5 and existed until 4.0.1.

Prior to version 3.5 and in version 4.6 or higher, maps from nested record lists with varying array sizes are ignored at runtime. The following error appears in the server log:

```
[B2BCORE.0050.0004] Copy failed: (SDT-1) No source data available:
to=/target(0)/inner(0)/string(0), from=/source(0)/inner(0)/string(0)
```

Validation Engine

Two fixes to the Validation engine may impact migration from 3.x.

- In version 3.x, pub.schema:validate did not report an error when an XML element, specified as having required child elements, was completely empty. For example, if you were validating the following XML segment:

<shouldHaveChildren/>

and the schema specified that “shouldHaveChildren” has required child elements, then the missing child elements were not reported as errors. In version 4.6 or higher, the missing elements are detected correctly. The validation engine returns the following message:

```
[B2BCORE.0082.9010] Incomplete content - one or more child elements are expected
```

- In version 3.x, if a record declared a variable to be of type Object, and at runtime, the variable was a String or Record, the variable was considered invalid. The validation engine would return the following error:

```
[B2BCORE.0082.9032] Type mismatch, Object expected
```

Since the Object type can represent any Java class, including Strings and Records, this error was incorrect. In version 4.6 or higher, the Object type will match Strings and Records as well as arbitrary types.

pub.web:recordToDocument

Two enhancements to the pub.web:recordToDocument service may impact migration from 3.x.

- In version 3.x, the pub.web:recordToDocument did not throw an exception if the recordName parameter was invalid. The recordName would be silently ignored. This was inconsistent with the pub.web:documentToRecord service, which threw an exception if the recordName could not be found in the namespace. In version 4.6 or higher, recordToDocument throws the same exception that documentToRecord does for an invalid recordName:

  ```
  com.wm.app.b2b.server.ServiceException: [B2BSERV.0062.9006] Illegal parameter value. Record “invalid” not found.
  ```

- In version 3.x, the generateRequiredTags parameter for pub.web:recordToDocument only generated top-level required tags. Empty tags were not generated for nested required elements. In version 4.6 or higher, recordToDocument traverses the entire record specified by recordName and generates required tags at every level.

Other Enhancements

- The XML Parser rejects malformed tags such as <. In 3.x, such tags were ignored. In 4.6 or higher, you get this exception:

  ```
  com.wm.app.b2b.server.ServiceException:
  com.wm.lang.xml.WMDocumentException: Malformed start tag: duplicate '<'
  ```

- When determining cache match, the Caching engine ignores pipeline variables that are not part of service's specification. In 3.x, the cached result was returned only when the entire pipeline matched. In 4.6 or higher, the cached result is returned when the service's specified inputs match. For more

information, see the *Caching Service Results* section of the *SAP BC Administration Guide* .

- In version 3.x, if the Server received a request with a content type for which it had no associated content handler, the Server would process the body of the message as application/x-www-form-urlencoded (that is, as a CGI message). In version 4.6 or higher, if the Server receives a request with an unregistered content type, it puts the body of the message in an input stream called "contentStream" and invokes the specified service with contentStream in the pipeline.

Upgrade SAP BC Developer

Upgrade from SAP BC Developer Version 4.6

You can install SAP BC Developer 4.7 over an existing installation of SAP BC Developer 4.6. See "Installing SAP BC Developer" for instructions.

1 Uninstall SAP BC Developer 4.6. See 'Uninstalling SAP BC Server and Developer' for instructions.

Important: Do not delete the files and directories that are left in the 4.6 SAP BC Developer directory. Those files contain important user-created and configuration data.

2 Install Developer 4.7 in the BC Integrator 4.6 installation directory. See 'Installing SAP BC Developer' for instructions.

3 Start SAP BC Developer 4.7. All configuration settings should transfer correctly.

Upgrade from SAP BC Integrator Version 4.0.1

You can install SAP BC Developer 4.7 over an existing installation of SAP BC Integrator 4.0.1. See "Installing SAP BC Developer" for instructions.

4 Uninstall SAP BC Integrator 4.0.1. See 'Uninstalling SAP BC Server and Developer' for instructions.

Important: Do not delete the files and directories that are left in the 4.0.1 SAP BC Integrator directory. Those files contain important user-created and configuration data.

5 Install Developer 4.7 in the BC Integrator 4.0.1 installation directory. See 'Installing SAP BC Developer' for instructions.

6 Start SAP BC Developer 4.7. All configuration settings should transfer correctly.

Upgrade from SAP BC Developer Version 3.x

You cannot install SAP BC Developer 4.7 over an existing installation of SAP BC Developer 3.x. See 'Installing SAP BC Developer' for instructions on installing Developer 4.7 in a new directory.

Starting and Stopping the SAP BC Server

The SAP BC Server must be running in order for clients to execute services. If you are using the server in a development environment, it must be running in order for your developers to build, update, and test services using the SAP BC Developer.

To start the SAP BC Server on Windows NT

1. Click Start.
2. In the Program menu point to the SAP BC folder, then point to the Server folder.
3. Click the SAP BC Server icon.

To start the SAP BC Server on UNIX

1. Locate the server.sh script file that you modified for your environment when you installed the server.
2. Execute this script.

Note: Run this script when logged in as a non-root user. Running the script as root might reduce the security of your system.

Starting the Server from the Command Line

There are times when it is useful to start the server from the command line. Starting the server this way allows you to override certain settings in the configuration file. It also lets you start the server in "debug" mode, so you can record or display server activity.

1. At a command line, type the following command to switch to the server's home directory:

   ```
   cd <sapbc>\server
   ```

2. Type the following command to start the server:

   ```
   For Windows: bin\server.bat –switch  –switch …
   For UNIX:    bin/server.sh –switch  –switch …
   ```

where *switch* is any of the following:

Switch	Description
`-port portNumber`	Specifies the port on which the server listens for HTTP requests. *`portNumber`* specifies the TCP/IP port number Example: `-port 8080` This switch overrides the value assigned to `watt.server.port.` Note: To use port 80 (the standard for HTTP) or port 443 (the standard for HTTPS), UNIX users must be running as "root." For security reasons, a better method is to use a higher number port (5555 for HTTP and 8080 for HTTPS), and if necessary have the firewall remap port 80 to the desired port.
`-home directoryName`	Specifies the server's home directory. *`directoryName`* specifies the complete path for the home directory. Example: `-home D:\wmtest\server` This switch overrides the value assigned to `watt.server.home.`
`-debug level`	Specifies the level of detail you want the server to maintain in its server log. *`level`* is a number from 1 to 10 that indicates the level of detail you want to record in the log. Specify: — To record: 1 — Critical messages only 2 — Error and critical messages 3 — Warning, error, and critical messages 4 — Debug, warning, error, and critical messages

	5-10 Informational, debug, warning, error, and critical messages The server records more levels of informational messages the higher you set the number. This switch overrides the value assigned to `watt.debug.level`.
`-log` *`destination`*	Specifies where you want the server to write its log information. Specify one of the following for *destination*:

Option	Description
`filename`	Specify the name of the file where you want the server to write log information.
none	Display log information on the computer screen. When you use this option, the server records a timestamp in the log file, but does not record any other log information in the log file.

This switch overrides the value assigned to `watt.debug.logfile`.

What Happens When You Start the Server?

When you start the SAP BC Server, it performs a series of initialization steps to make itself ready for client requests. The server:

1. Establishes the operating environment by using the configuration parameters located in the configuration file (*`sapbc`*`>\server\config\server.cnf`).
2. Initializes processes that perform internal management.

3. Loads information about all the enabled packages and their services that reside in the <*sapbc*>\Server\packages directory. If a package depends on other packages, the server loads the prerequisite packages first. The server does not load disabled packages.
4. Executes the startup services for each loaded package.
5. Initializes the guaranteed delivery engine. The server checks the job store for pending guaranteed delivery transactions. It retries the pending transactions as the guaranteed delivery configuration settings specify.
6. Schedules internal system tasks, such as log rotation.

How to Tell if the Server is Running Correctly

To determine whether your server is running, start your browser and point it to the SAP BC Server.

If the server is running, you will be prompted for a name and password.

If the server is not running, your browser will issue an error message similar to the following:

```
“Cannot open the Internet site http://localhost:5555.”
“A connection with the server could not be
established.”
```

Shutting Down the SAP BC Server

Shut down the server to stop the SAP BC Server and all active sessions:

1. Open the Server Administrator if it is not already open.
2. In the upper right corner of any Server Administrator screen, click *Shutdown and Restart*.
3. Select whether you want the server to wait before shutting down or to shut down immediately.

   Delay number minutes or until all client sessions are complete. Specify the number of minutes you want the SAP BC Server to wait before shutting down. It then begins monitoring user activity and automatically shuts down when all non-administrator sessions complete or when the time you specify elapses (whichever comes first).

   Perform action immediately. The server and all active sessions terminate immediately.
4. Click *Shutdown*.

Viewing Active Sessions

Before you shut down or restart the server, you can view the sessions that are currently active:

1. Open the Server Administrator if it is not already open.
2. In the *Server* menu of the navigation area, click *Statistics.*
3. Click on the current number of sessions.

Restarting the SAP BC Server

Restart the server when you need to stop and reload the SAP BC Server. You should restart the server when:

- **You make certain configuration changes.** Some configuration changes require the server to be restarted before they take effect. This document indicates when you are required to restart the server for configuration changes.
- **You want to incorporate updated services that cannot be dynamically reloaded.** This typically occurs for non-Java services.

1. Open the Server Administrator if it is not already open.
2. In the upper right corner of any Server Administrator screen, click *Shutdown and Restart.*
3. Select whether you want the server to wait before restarting or to restart immediately.

   Delay number minutes or until all client sessions are complete. Specify the number of minutes you want the SAP BC Server to wait before restarting. It then begins monitoring user activity and automatically restarts when all non-administrator sessions complete or when the time you specify elapses (whichever comes first).

   Perform action immediately. The server and all active sessions terminate immediately. Then the server restarts.
4. Click *Restart.*

Server Recovery

If a hardware or software problem causes the SAP BC Server to fail, restart the server using the normal start-up procedure. The server will automatically perform clean-up and initialization processes to reset the operating environment.

As part of the recovery process, the server automatically:

- Reloads the cache environment to its pre-failure state.
- Restores the transaction manager's guaranteed delivery queues

Site-Specific Services

Although the server itself does not require you to take any special steps after a server failure, services that your site has created might have their own unique recovery requirements. Consult with your developers for information about these requirements.

Recovery and the Log File

If the SAP BC Server fails before midnight and is not restarted until after midnight, the daily log file will not be closed as it should. Instead, the server will append the new day's information to the previous day's log file, and the file will contain two day's worth of information.

If you want to prevent this from happening, you must manually close the previous day's logs before you restart the server. To close the log file, rename or move all

the .log files using the naming conventions described in the *SAP BC Administration Guide ('Working with Log Files')*.

Using the Server Administrator

What Is the Server Administrator?

The Server Administrator is an HTML-based utility you use to administer the SAP BC server. It allows you to monitor server activity, manage user accounts, make performance adjustments, and set operating parameters.

You can run the Server Administrator from any browser-equipped workstation on your network. (The Server Administrator is a browser-based application that uses services to accomplish its work.)

Starting the Server Administrator

To use the Server Administrator, simply open your browser and point it to the port on the host machine where the SAP BC Server is running.

Important: The SAP BC Server must be running in order to use this utility. If the server is not running, your browser will issue an error similar to the following:

"Cannot open the Internet site http://localhost:5555."
"A connection with the server could not be established."

To start the Server Administrator

1. Start your browser.
2. Point your browser to the host and port where the SAP BC Server is running.

   Examples

   If the server were running on the default port on the same machine where you are running the Server Administrator, you would type:

   http://localhost:5555

   If the server were running on port 4040 on a machine called QUICKSILVER, you would type:

   http://QUICKSILVER:4040
3. Log on to the server with a user name and password that has administrator privileges.

   If you just installed the SAP BC Server, you can use the following default values:

   User Name: Administrator

   Password: manage

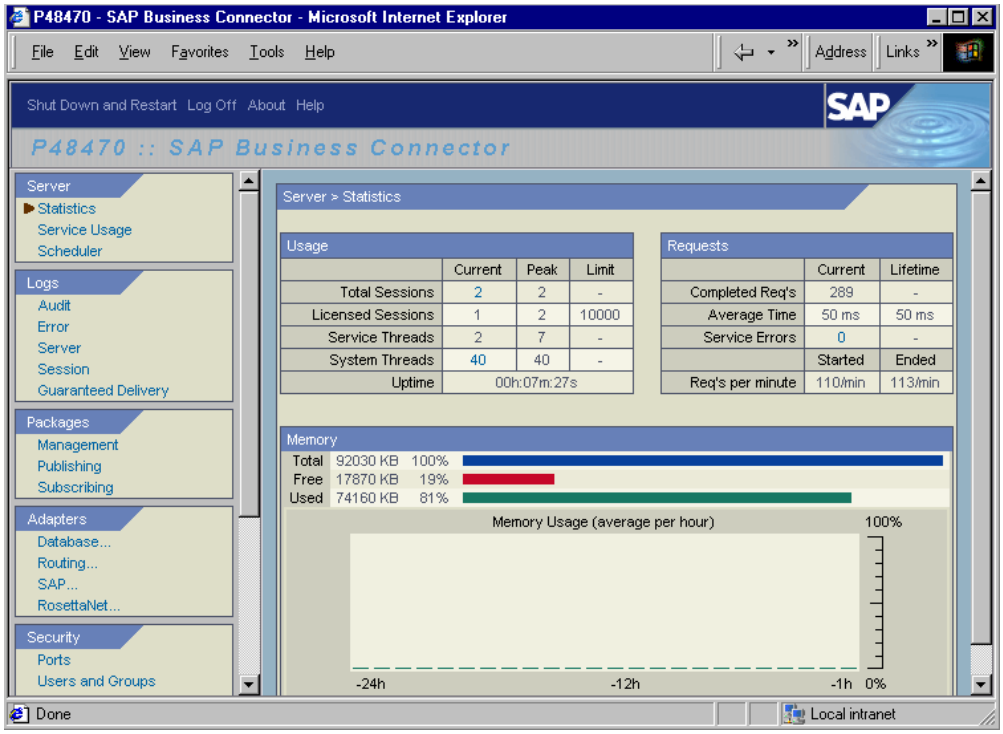
Important: Use the *exact combination* of upper and lower-case characters shown above— user names and passwords are case sensitive.

If you change the password, be sure to select one that is difficult to guess. For example, use a mixture of upper- and lower-case letters, numbers, and special characters. Do not use a name, phone number, social security number, license plate or other generally available information.

Basic Operation

When you start the Server Administrator, your browser displays the **Statistics** screen.

The Server Administrator Screen



The navigation area on the left side of the screen displays the names of menus from which you can select a task. To start a task, click a task name in the navigation area. The server displays a screen that corresponds to the task you select.

Getting Help

You can obtain information about the Server Administrator by clicking the *Help* link in the upper right corner of any Server Administrator screen. The help system displays a description of the parameters for the screen and a list of procedures you can perform from the screen. From this window, click *Show Navigation Area* to

view the help system's table of contents from which you can search for a specific procedure or screen description.

Logging Out of the Server Administrator

Log out of the Server Administrator when you no longer need to continue your current session. When you log out, the server cleans up your session.

If you are going to be away from your PC, you might also want to log out of the Server Administrator to prevent someone from accessing the Server Administrator with your user name from your PC.

To log out of the Server Administrator

1. Click *Log Off* in the upper right corner of any Server Administrator screen.

   The SAP BC Server displays a dialog box to ensure you want to log out.
2. Click *OK* to log out of the Server Administrator.

   The browser displays the following screen:

To resume use of the Server Administrator, click *here.*

The Configuration File

Configuration settings for the SAP BC Server are stored in the server configuration file (server.cnf). This file resides in the `<sapbc>\server\config` directory and contains parameters that determine how the server operates.

Typically, you will use the Server Administrator to set parameters in the server.cnf file, but there may be times when you need to edit the file directly with a text editor.

For a list of parameters in the server.cnf file and their default values, see the *SAP BC Administration Guide* ('*Server Configuration Parameters*').

Uninstalling SAP Business Connector

SAP BC Server

Windows NT/2000:

You can uninstall the BC Server simply from the *Start Menu* → *Settings* → *Control*

Panel → Add/Remove Programs. If this does not work properly, for example because the installation had been done with a user that did not have administrator privileges, you can still manually uninstall as described in the Unix section.

Unix:

1. On the command line you change to the following directory:
   `<sapbc>/Server/_uninstall`
2. Type in `java -cp uninstall.jar run`
3. When prompted if you want to completely remove SAP Business Connector Server, select *Yes*.
4. When prompted if you want to delete all changed files, select *Yes to All*.
5. After the uninstallation is completed, you need to manually delete the folder `<sapbc>/Server` and all of its subfolders, which had been created after the installation.

SAP BC Developer

Uninstalling the SAP Business Connector Developer is completely analogue to uninstalling the Server.