

Version Number (1.2)
14 September 2006

Release to public – all customer references removed

Upgrading SQL2000 to SQL2005

For SAP systems

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1 Version Management

Version	Date	Author	Comment
1.0	22 August 2006	N.P.C	Document modified from customer upgrade procedure. Customer specific references removed. Release to public notes added
1.1	7 September 2006	N.P.C	Document updated after feedback from SAP
1.2	14September 2006	N.P.C	Feedback from Clas Hortien – thank you Clas

2 Notes to Public

This document was compiled from a “real life” upgrade of a large Netweaver 2004s (WAS 7.0) customer using ECC 6.0, PI, EP, Solution Manager 4.0 and BI (including BI JAVA). The customer uses Itanium systems and you will notice references to IA64 throughout the document. The document is still valid for x64 and IA32 systems. The author does strongly recommend customers migrate off IA32 as soon as possible. Keen observers will also note that the server in these screen shots has only a C: and D: drive. This is because of the use of Windows Mount Points rather than drive letters.

Customers using Basis releases earlier or equal to 6.20 should be careful to ensure their support packs and kernels are up to date.

SQL 2005 offers many functional, security and performance advantages, particularly for more modern SAP components. I have documents available on request detailing some of this, however it is generally available public information.

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4. If you notice any customer specific references kindly advise me
5. Always test in a sandbox system first
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Finally, Good luck and if you have any questions in the SAP Netweaver area focusing on Windows, MSCS, security, SQL, SAN & Backup infrastructure, upgrades, Landscape consolidation, Itanium systems and x64 systems please post a message on SDN and I will respond when I am not busy with customers.

NPC
23 August 2006

cgrd@usa.net

3 Preparation

3.1 Read note latest version of SAP note 799058

3.2 Download and read document “Upgrade to and installation of SQL 2005 in an SAP environment”

Version 1.20 May 04, 2006 of this document is available at <http://service.sap.com/msplatforms> Select “SQL Server”. The JDBC drivers¹ and SAP Tools are also required.

3.3 Minimum SAP Support Pack Requirements

Not all SAP systems can be upgraded to SQL 2005. You must check your support pack and kernel patch in note 799058. If you are using WAS 6.20, 6.40 or 7.0 based systems and you are on a recent support pack you will generally be supported. 4.6C is supported with Basis patch 53.

Read this information very carefully. The key to a successful upgrade on older components is to ensure you system is on the correct support pack.

General Comment: **It is recommended to upgrade to either Itanium (IA64) or x64 based hardware as SAP are terminating 32 bit platforms shortly.** Please review

965145 - Installation of 46C systems on MSSQL 2005

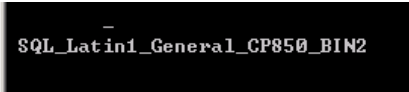
960769 - Windows: Migration from 32-Bit to 64-Bit (x86_64)

3.4 Arrange downtime for systems on server

Post system message in SM02 several days prior to the outage.

3.5 Check the collation

```
OSQL -S <hostname>\SBB -E > then type
select serverproperty('collation')
go
```

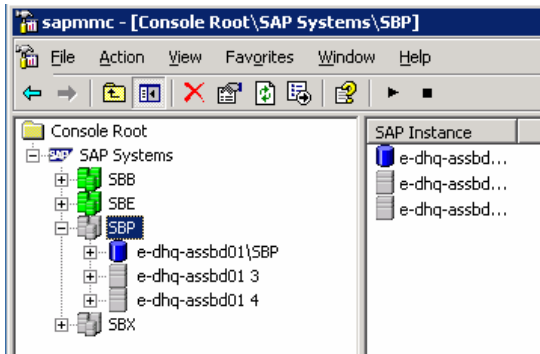


```
SQL_Latin1_General_CP850_BIN2
```

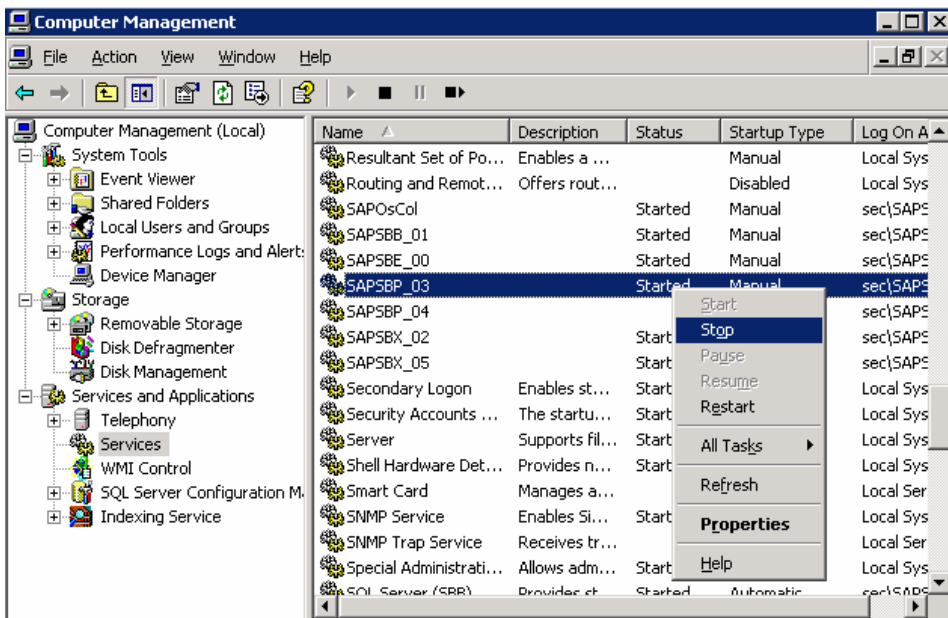
Please review note 600027 if you do not get the output above. All SQL installations should be running this collation already!

¹ Refer to note 639702 and section 4.3 of this document

3.6 Stop SAP system



3.7 Stop SAP services



3.8 Backup Database

Use your standard backup software to backup the SQL databases <SID>, Master and MSDB. In addition to this it is recommended to copy the <SID> datafiles as an extra precaution. This should be quite fast if you SAN is a modern model.

Do not proceed unless you are sure you can recover your SQL 2000 system.

If you shutdown SQL to do a file copy you will then need to start SQL again to proceed.

3.9 Drop Stored Procedures

If you are using SAP WAS 6.40 or lower based systems refer to note 799058. If you are running on WAS 7.0 based systems you do not need to do this step as SAP are not using stored procedures anymore.

3.10 Map Network drive to SAPCD

It is recommended to copy the contents of the SAP authored SQL 2005 SP1 CD to a network share. It is general best practice to control the software loaded onto you system via a structured and controlled network share. I always call this share "SAPCD". In this document SAPCD is "Y:" drive.

The material number for the current SQL2005SP1 CD is 51031832.

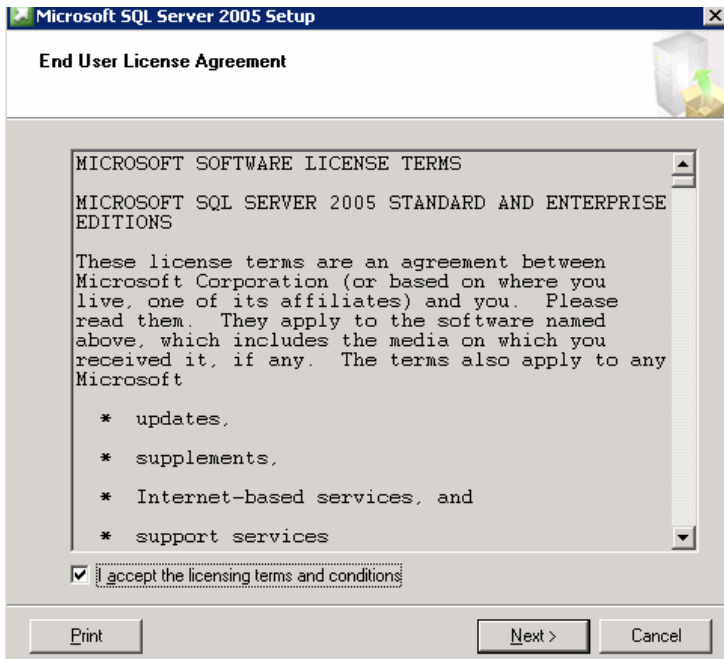
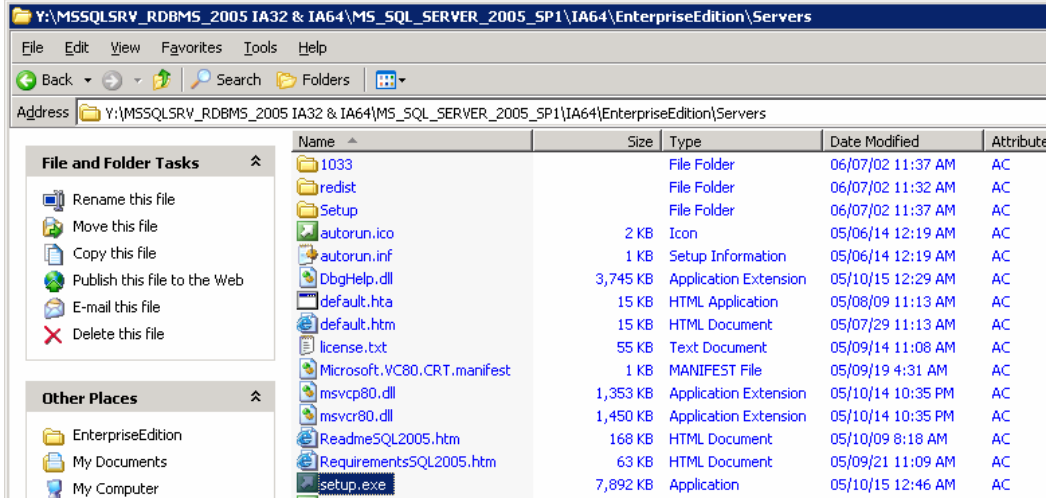
Please always check software download center (<http://service.sap.com/swdc>), look up the material number for the latest SQL 2005 compilation and order the CD from SAP.

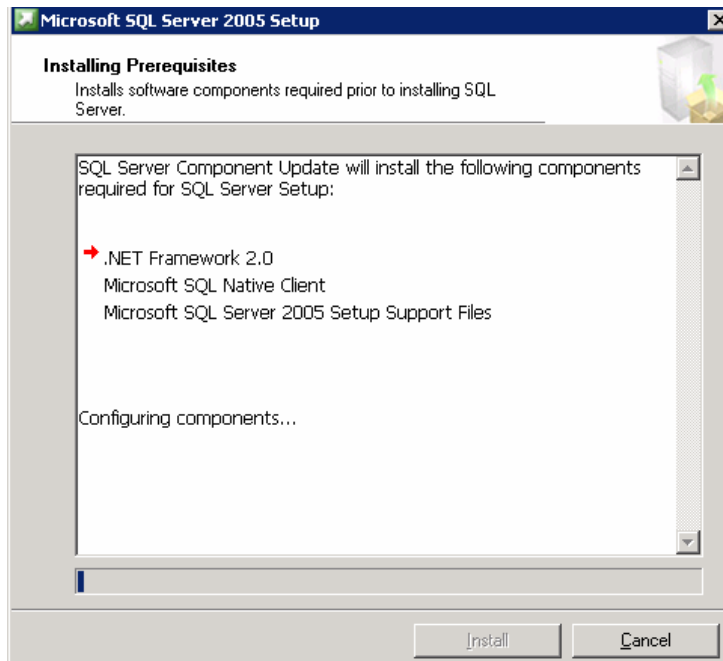
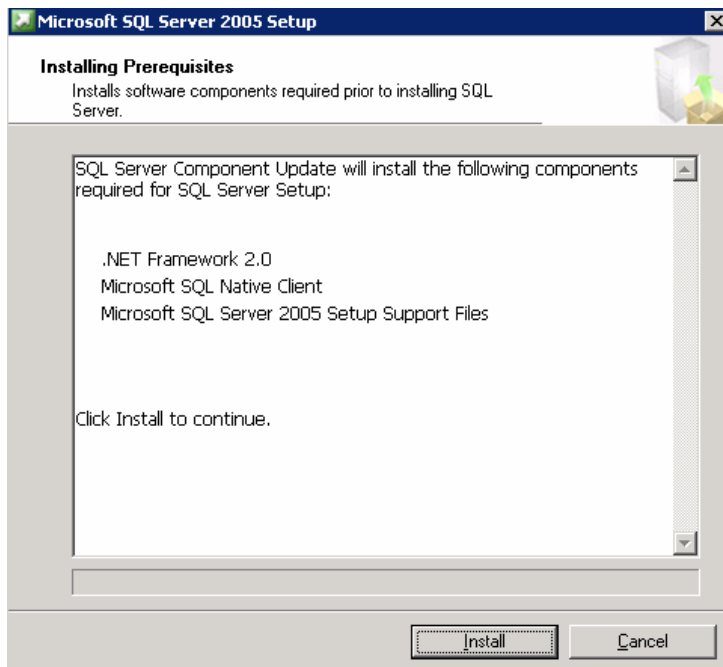
It is recommended to always use the software provided by SAP rather than the Microsoft versions.

4 Upgrade

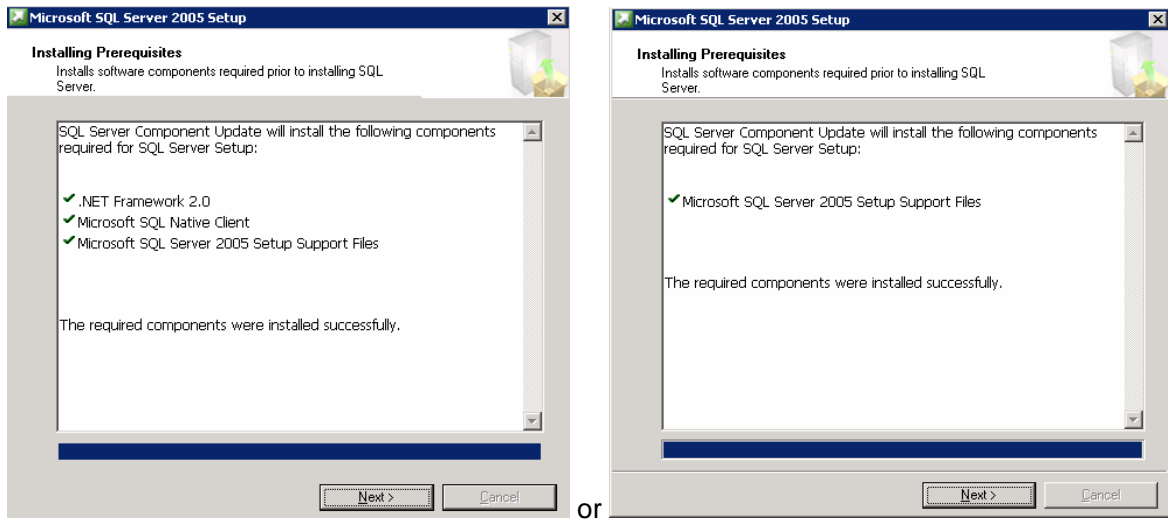
4.1 Running setup & updating .net framework

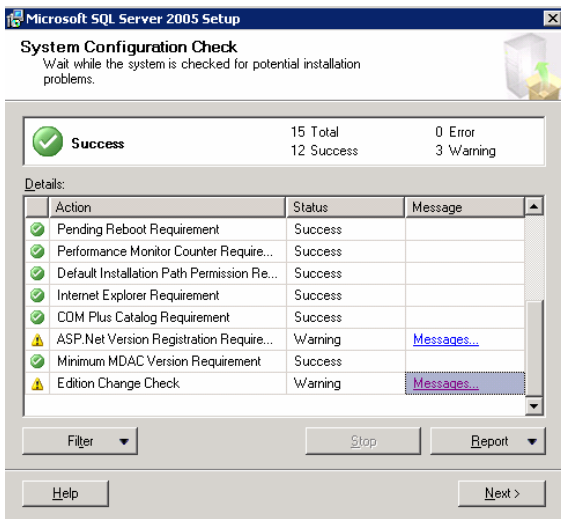
setup.exe-->Y:\MSSQLSRV_RDBMS_2005IA32&
IA64\MS_SQL_SERVER_2005_SP1\IA64\EnterpriseEdition\Servers



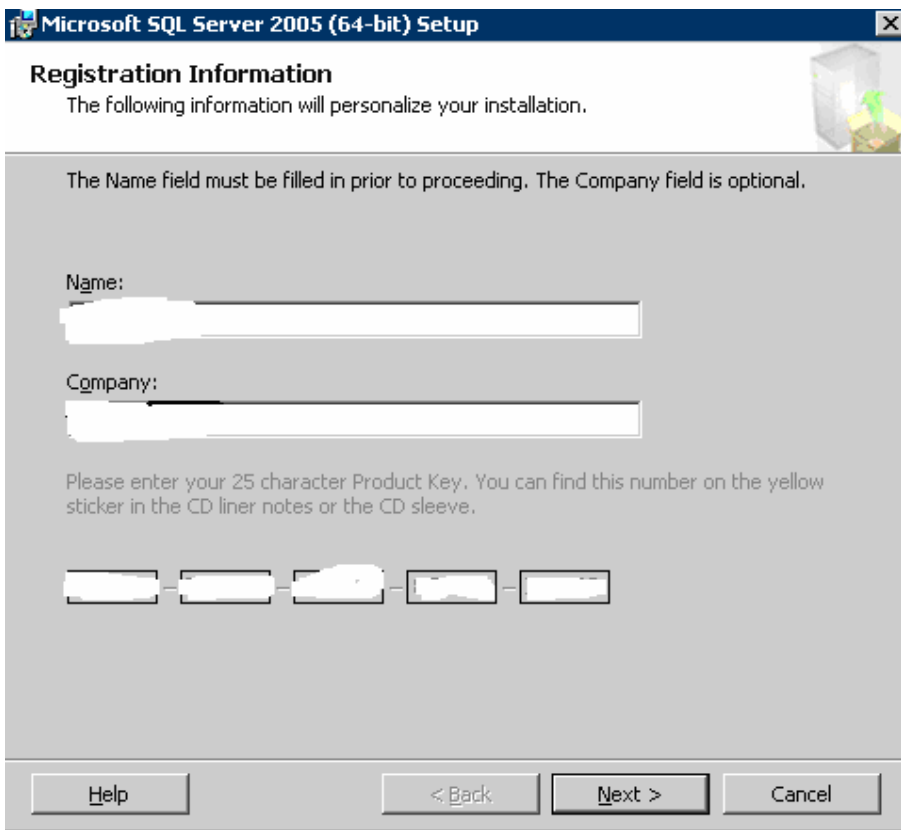
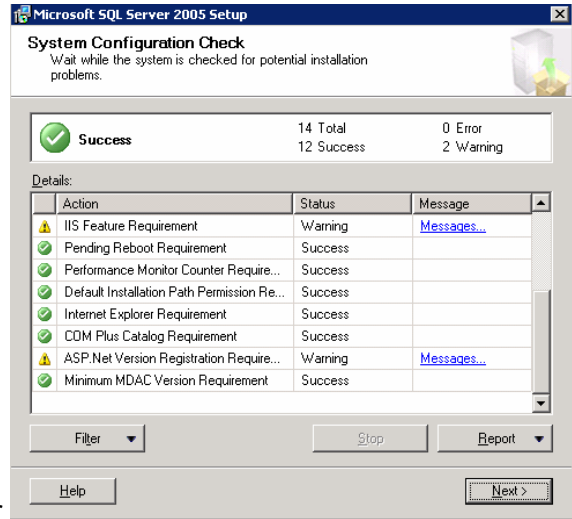


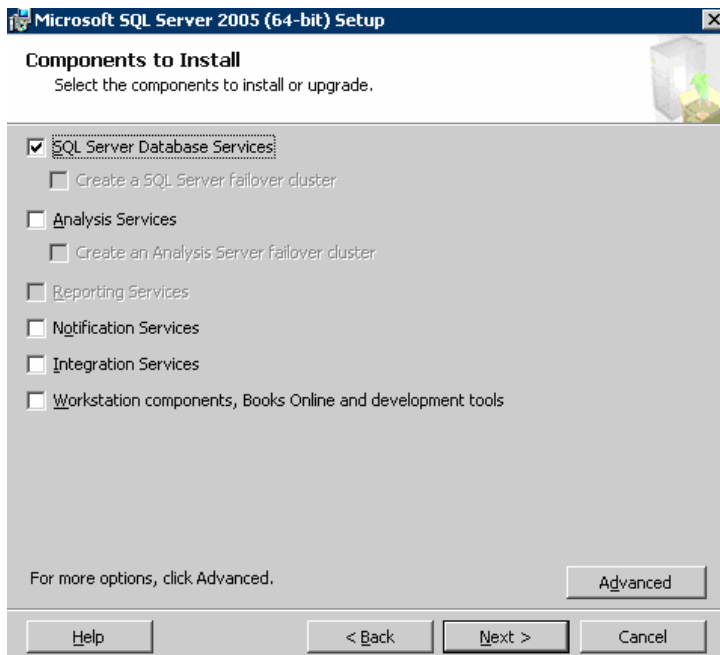
Release to public





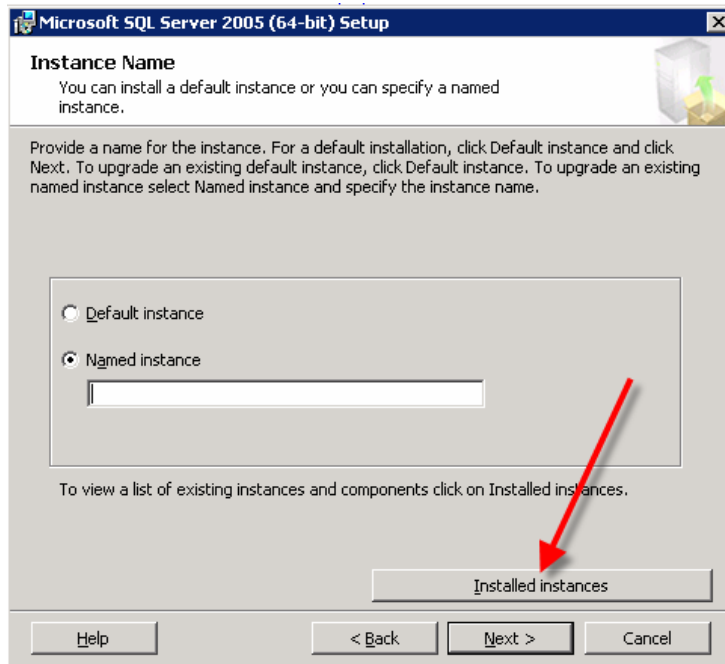
OR

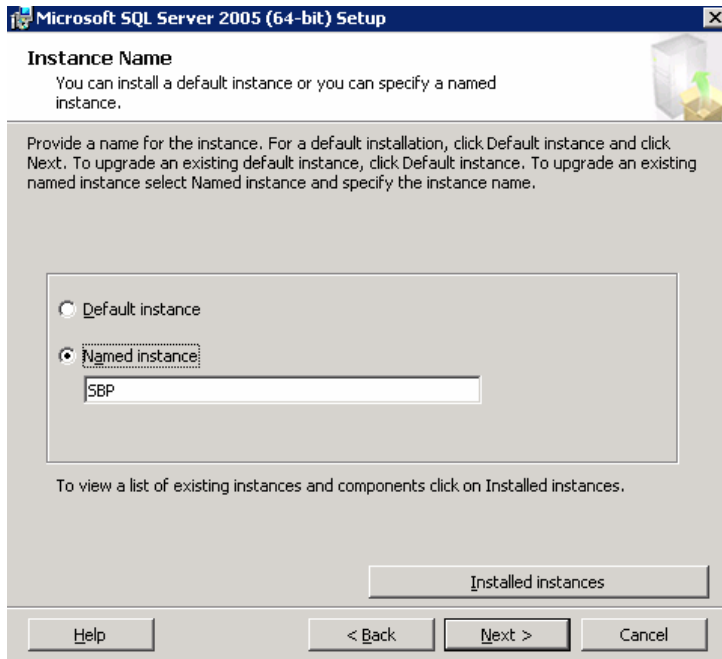
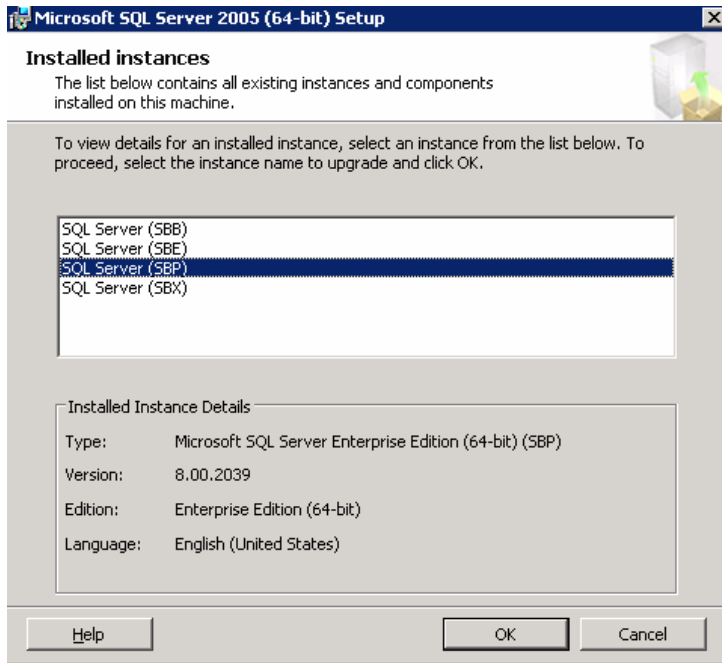


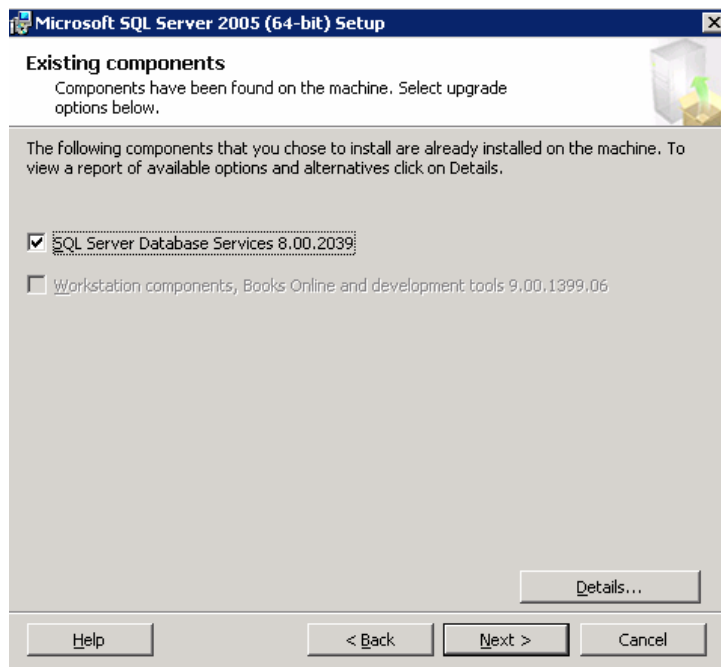


Here I differ with the SAP documentation. Workstation components are not really required on the server. It is optional to include them or not.

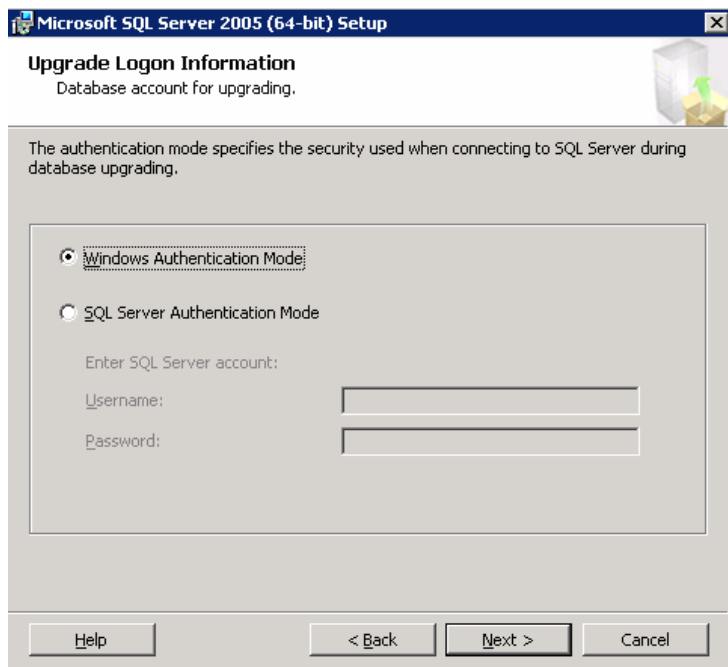
The steps below are relevant for named instances. I always recommend using named instances. If you are using the default instance you will receive a slightly different dialog.



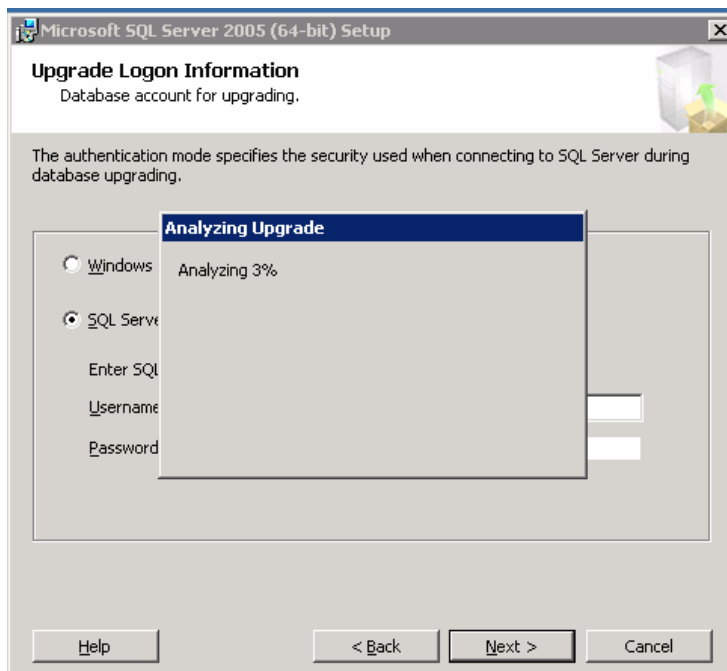
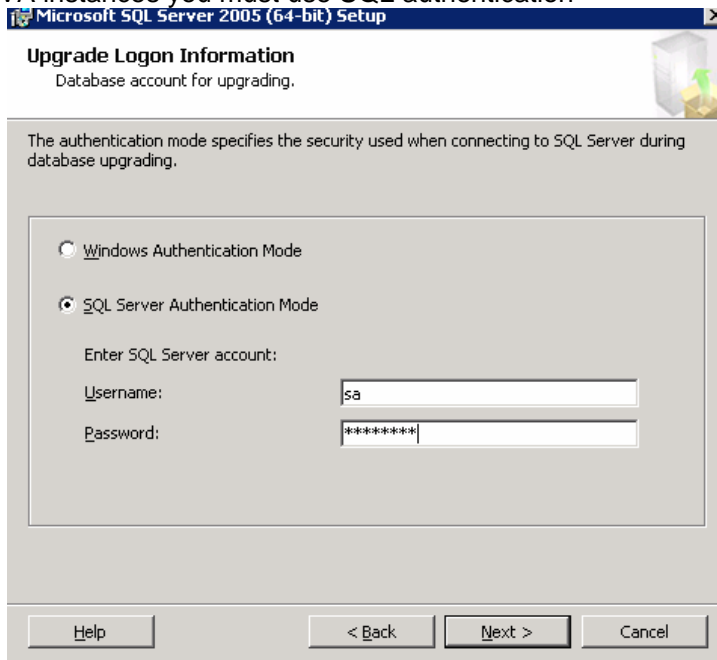




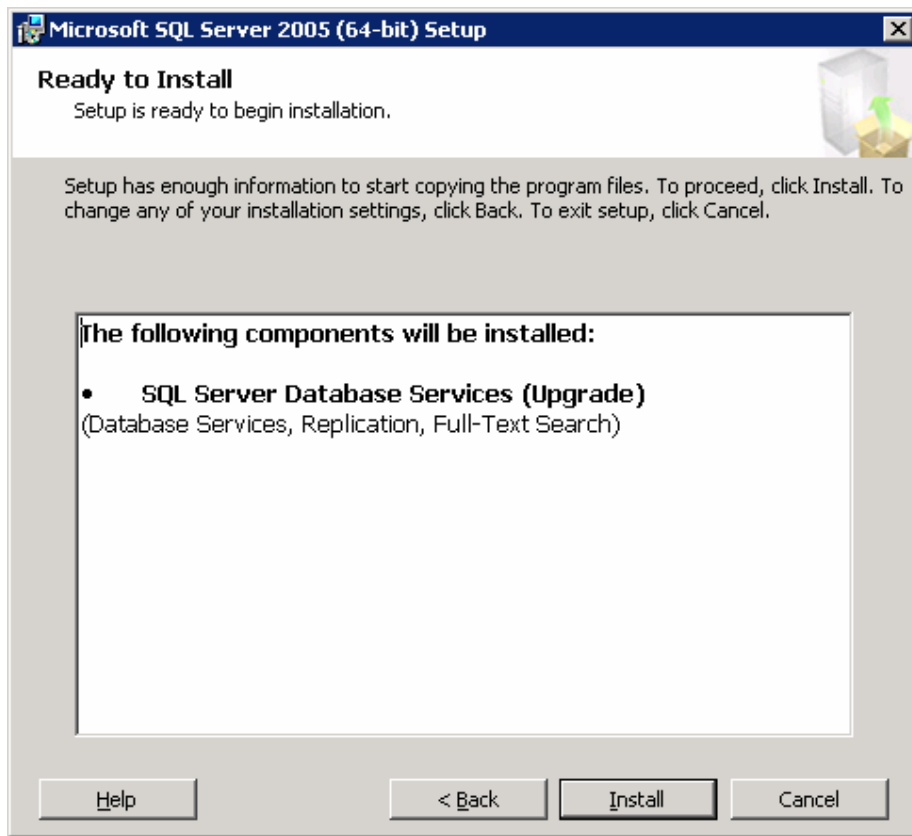
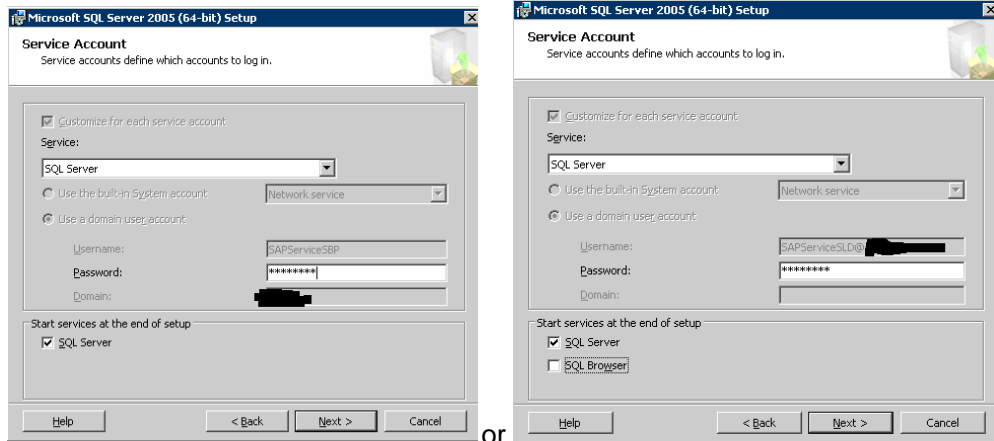
For ABAP based systems only. Java or ABAP+Java must use SQL Authentication

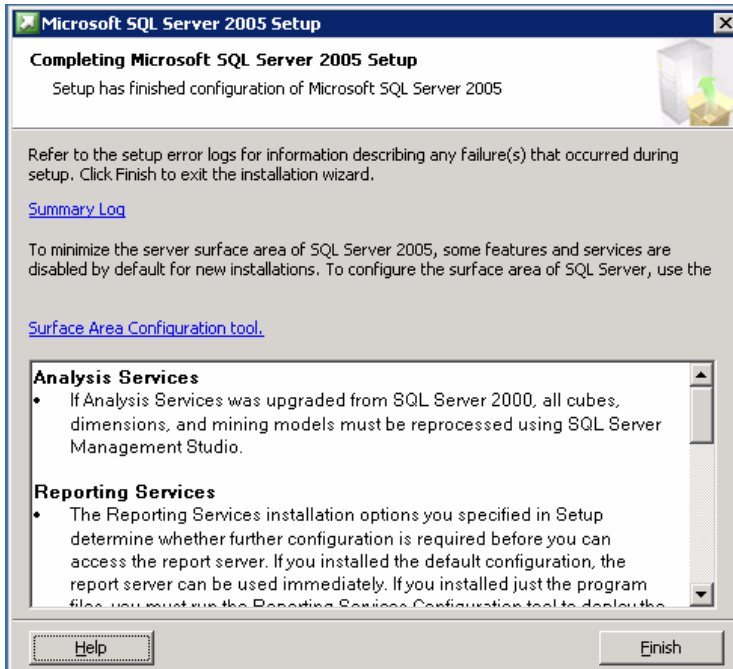
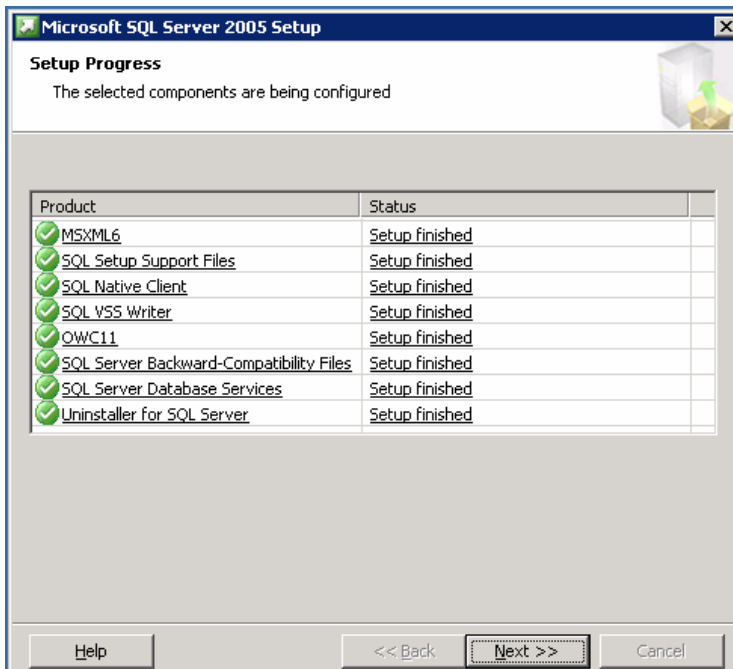


For JAVA instances you must use SQL authentication



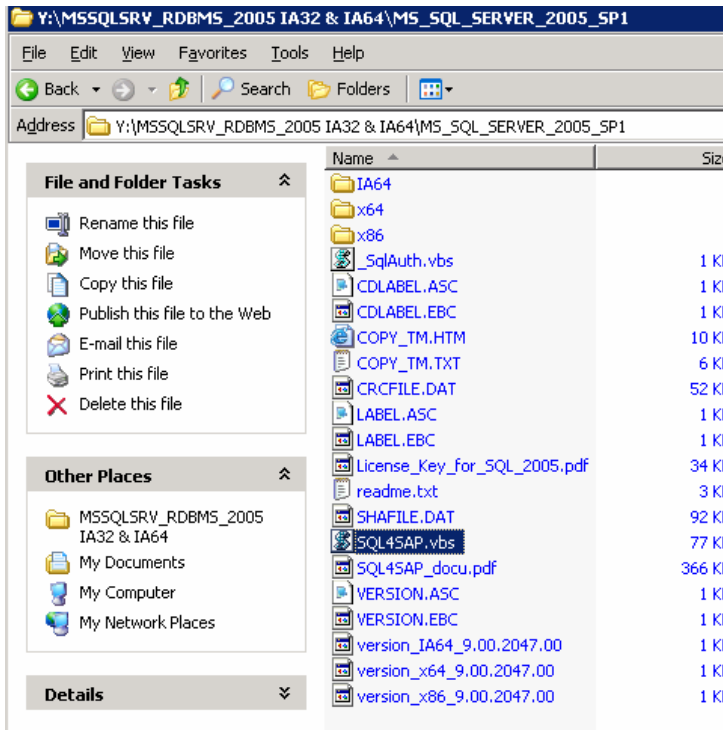
Release to public



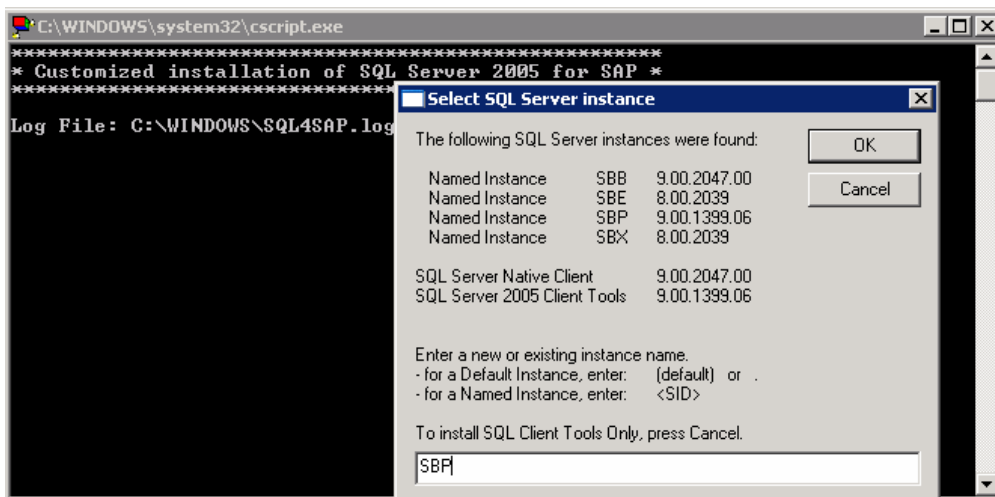


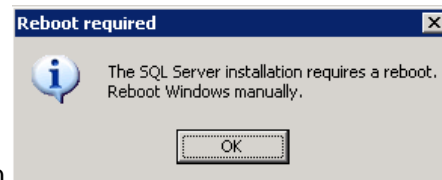
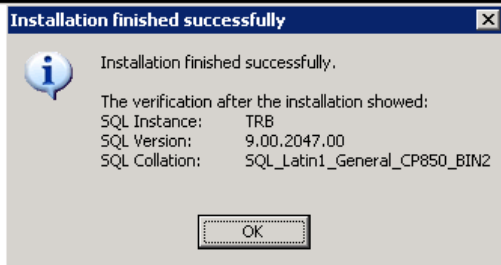
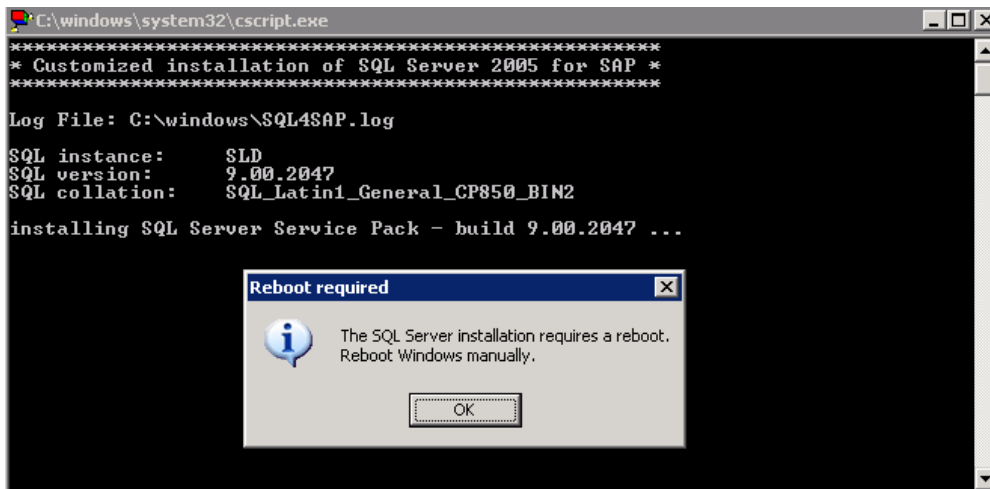
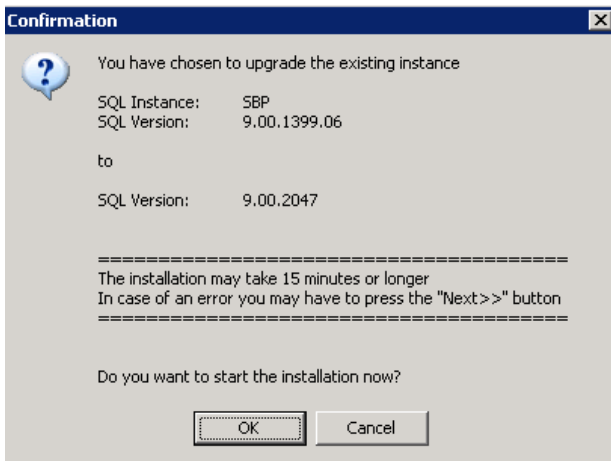
4.2 Updating service packs

I recommend using the SQL4SAP.vbs script



Below you can see a system running four SQL named instances and four SAP systems running simultaneously (this is a reasonably powerful Itanium server that allows consolidation). Note that different versions of SQL are able to run on different versions and support packs.

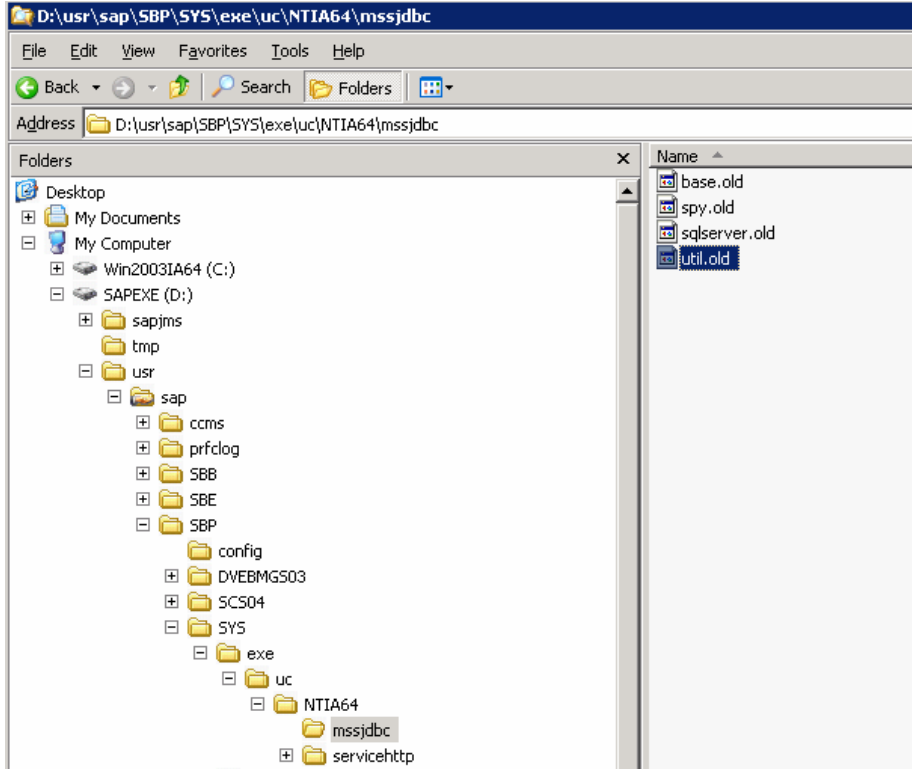




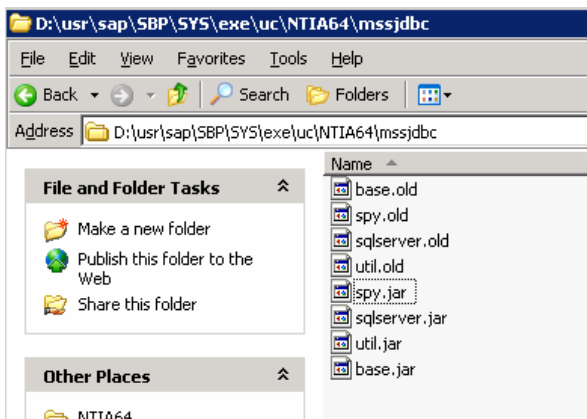
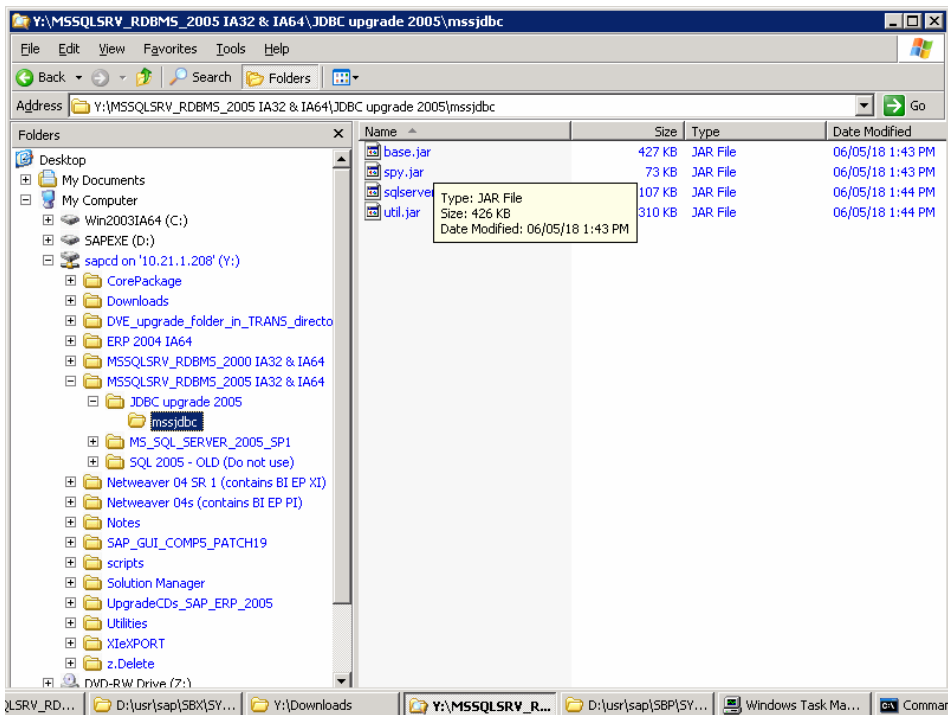
Or then

4.3 Download the latest JDBC

For JAVA systems note 639702
Backup Original files by renaming existing to .Old



Copy original from SAPCD to previous directory ...



4.4 Check the current version of Java

```
D:\usr\sap\SBP\SYS\exe\uc\NTIA64\mssjdbc>
java -cp sqlserver.jar;base.jar;util.jar com.sap.nwmss.jdbc.sqlserver.SQLServerDriver
```

```
C:\WINDOWS\system32\cmd.exe
Microsoft Windows [Version 5.2.3790]
(C) Copyright 1985-2003 Microsoft Corp.

C:\Documents and Settings\shpadm>cd D:\usr\sap\SBP\SYS\exe\uc\NTIA64\mssjdbc
C:\Documents and Settings\shpadm>d:

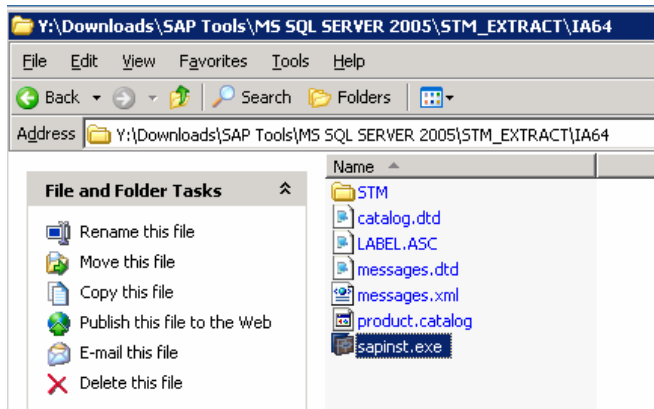
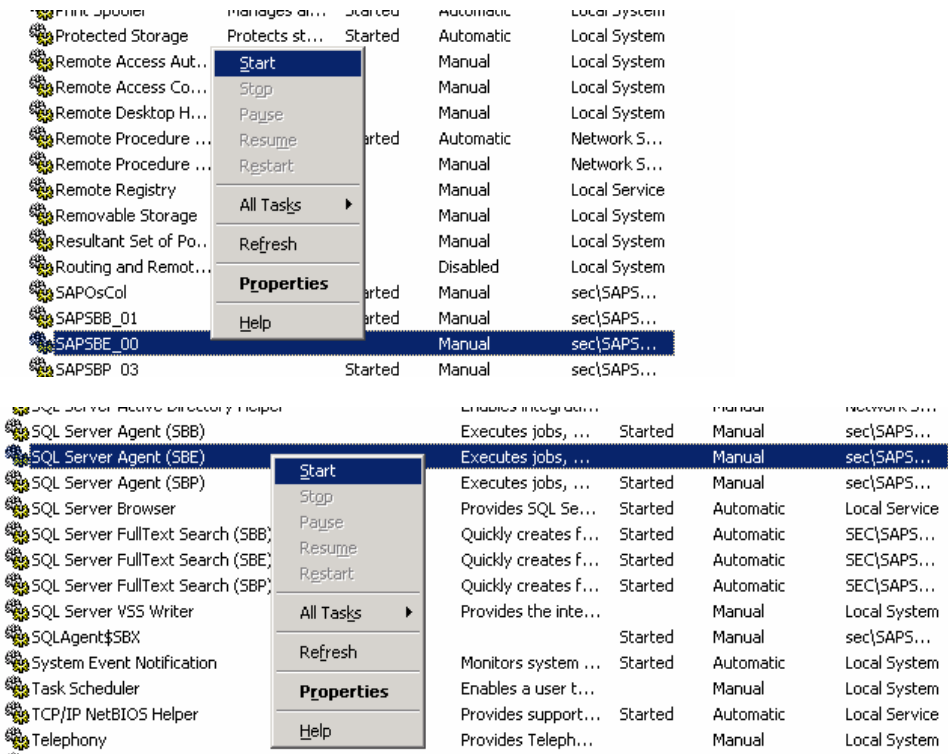
D:\usr\sap\SBP\SYS\exe\uc\NTIA64\mssjdbc>java -cp sqlserver.jar;base.jar;util.jar
com.sap.nwmss.jdbc.sqlserver.SQLServerDriver
[NWmss]SQLServer JDBC Driver]Driver Version: 3.50.40 <016246.009414.011330>

D:\usr\sap\SBP\SYS\exe\uc\NTIA64\mssjdbc>_
```

4.5 Running SQLTools

Run sapinst.exe Y:\Downloads\SAP Tools\MS SQL SERVER 2005\STM_EXTRACT\IA64

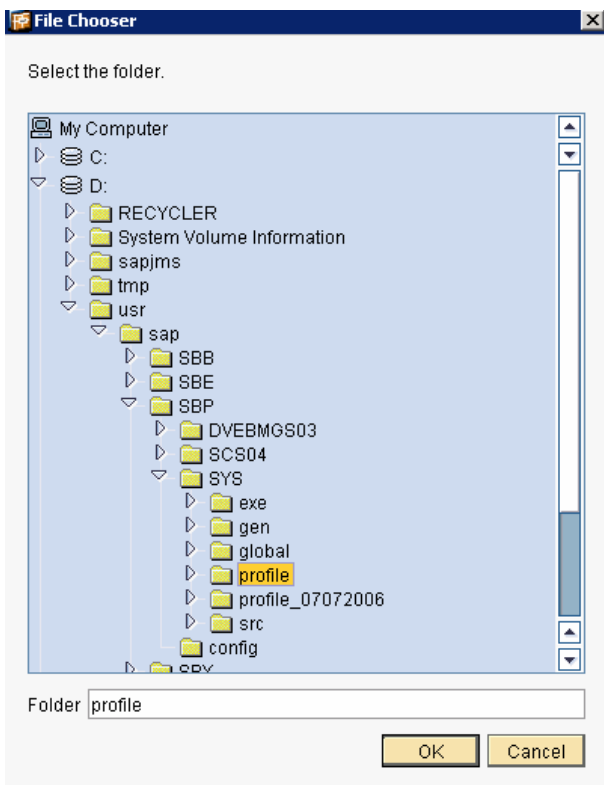
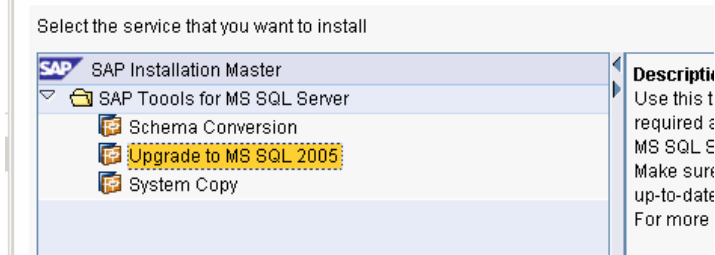
Note: - Delete the contents of the SAPINST directory before starting the SAP Tool – if you do not do this on multi-instance systems you will receive an error



HIT -> Unblock



Before you start the installation, make sure that you have identified the required scenery



SAP System > General Parameters

Enter the profile directory of the SAP system

SAP System Parameters

Profile Directory

Windows Domain

Password of '<sapsid>adm'

Additional Information
SAPinst retrieves any parameters already entered parameters from the SAP sys:
profile directory:

- Windows: \\<SAPGLOBALHOST>\sapmnt\<SAPSID>\SYS\profile

Previous Screen Current Parameters Next Screen

Parameter Summary

Use the checkboxes to select parameter sections you would like to revise via

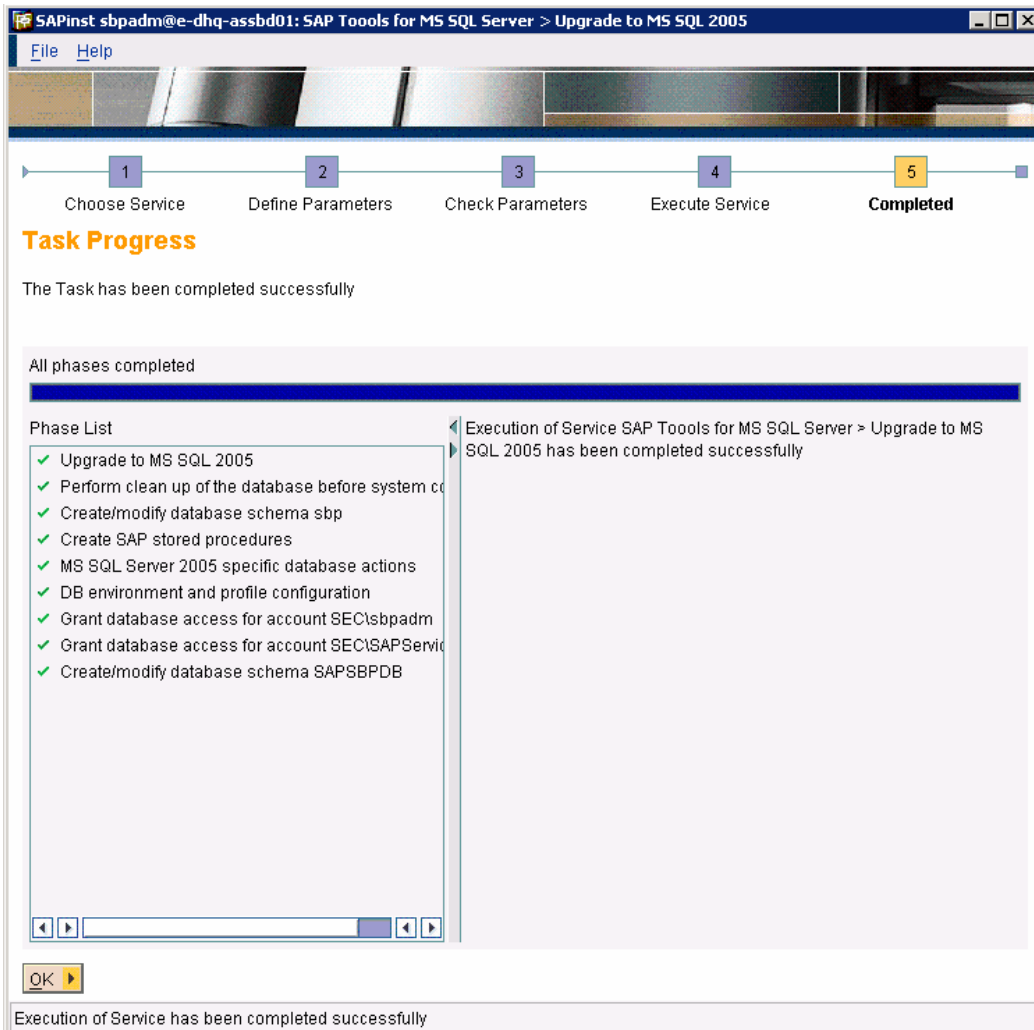
Parameter List

SAP System > General Parameters

Profile Directory

Windows Domain

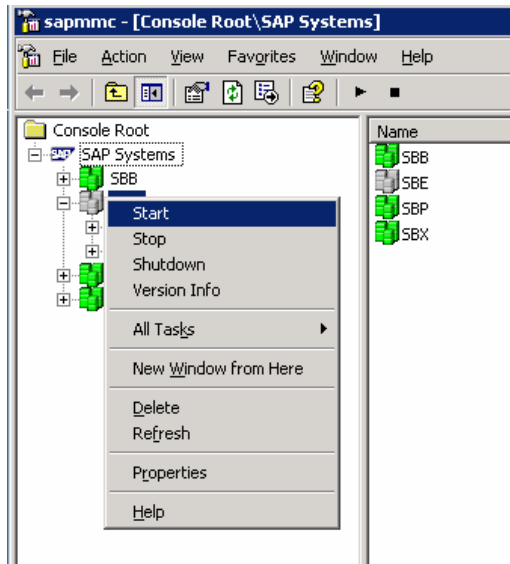
Password of '<sapsid>adm'



5 Post Processing

5.1 Login to system

Start System



Check SM21/SM50/DB02/ST04/ST22/SICK for any unusual error messages. If the upgrade has worked correctly there should be nothing abnormal

5.2 Running update statistics

These activities can be done while the system is online. It would be unwise to run this while a system was on high load.

Note 879941

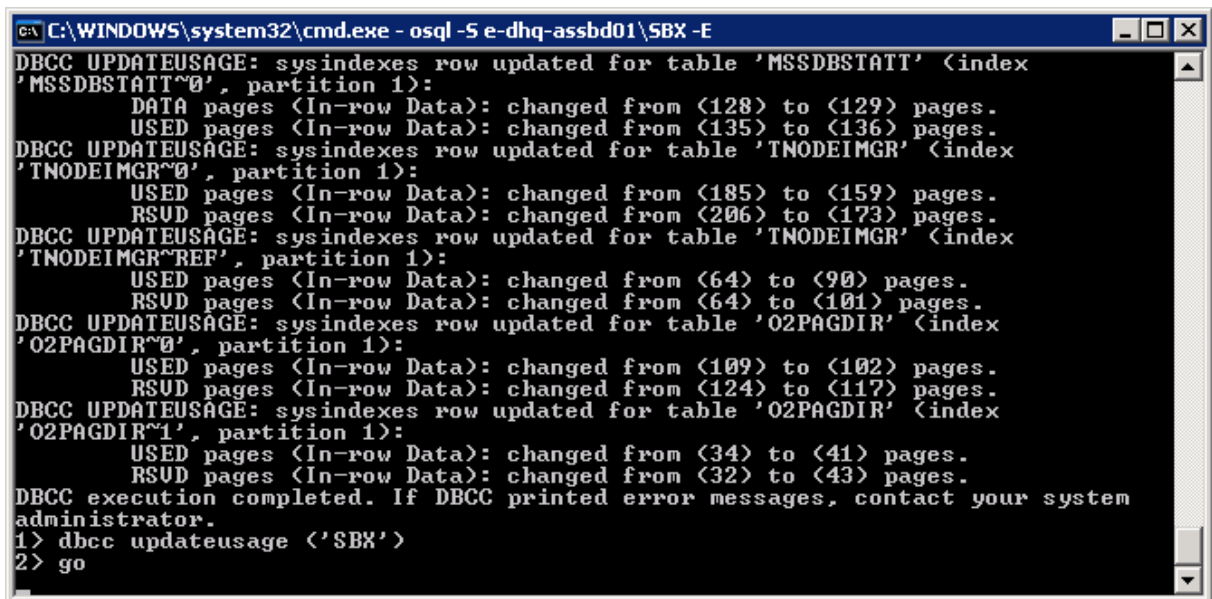
Auto update/create statistics

SAP strongly recommends to set the database options "**auto create statistics**" and "**auto update statistics**". SQL Server 2005 introduced a new database option, which is also recommended: "**auto update statistics async**". You can set all three database options for the <SID>-database by executing the following SQL script.

Page verify

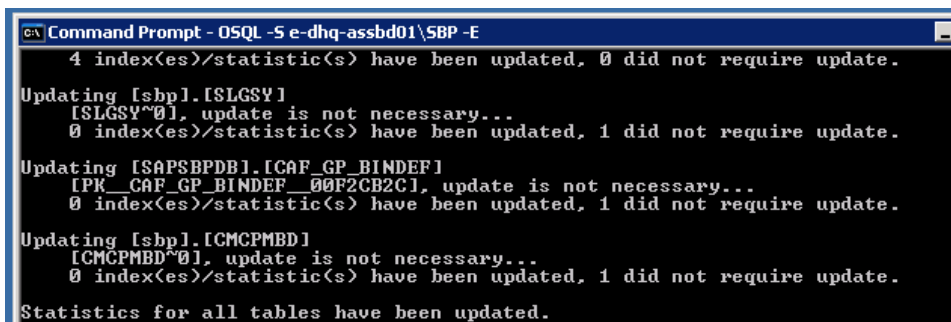
SQL Server 2005 can write a checksum to each database page written to disk. This allows to detect disk errors and database corruptions as soon as the page is read from disk the next time. **SAP recommends to turn on this option** by executing the following SQL command:

```
alter database <SID> set page_verify checksum
go
alter database <SID> set auto_create_statistics on
go
alter database <SID> set auto_update_statistics on
go
alter database <SID> set auto_update_statistics_async on
go
dbcc updateusage ('<SID>')
go
exec sp_updatestats
go
```



```
C:\WINDOWS\system32\cmd.exe - osql -S e-dhq-assbd01\SBX -E
DBCC UPDATEUSAGE: sysindexes row updated for table 'MSSDBSTAT' (index
'MSSDBSTAT~0', partition 1):
    DATA pages (In-row Data): changed from (128) to (129) pages.
    USED pages (In-row Data): changed from (135) to (136) pages.
DBCC UPDATEUSAGE: sysindexes row updated for table 'TNODEIMGR' (index
'TNODEIMGR~0', partition 1):
    USED pages (In-row Data): changed from (185) to (159) pages.
    RSUD pages (In-row Data): changed from (206) to (173) pages.
DBCC UPDATEUSAGE: sysindexes row updated for table 'TNODEIMGR' (index
'TNODEIMGR~REF', partition 1):
    USED pages (In-row Data): changed from (64) to (90) pages.
    RSUD pages (In-row Data): changed from (64) to (101) pages.
DBCC UPDATEUSAGE: sysindexes row updated for table 'O2PAGDIR' (index
'O2PAGDIR~0', partition 1):
    USED pages (In-row Data): changed from (109) to (102) pages.
    RSUD pages (In-row Data): changed from (124) to (117) pages.
DBCC UPDATEUSAGE: sysindexes row updated for table 'O2PAGDIR' (index
'O2PAGDIR~1', partition 1):
    USED pages (In-row Data): changed from (34) to (41) pages.
    RSUD pages (In-row Data): changed from (32) to (43) pages.
DBCC execution completed. If DBCC printed error messages, contact your system
administrator.
1> dbcc updateusage ('SBX')
2> go
```

```
1> alter database SBP set page_verify checksum
2> go
1> alter database SBP set auto_create_statistics on
2> go
1> alter database SBP set auto_update_statistics on
2> go
1> alter database SBP set auto_update_statistics_async on
2> go
1> EXEC sp_updatestats
2> go
```



```
ex) Command Prompt - OSQL -S e-dhq-assbd01\SBP -E
4 index(es)/statistic(s) have been updated, 0 did not require update.
Updating [sbp].[SLGSY]
[SLGSY~0], update is not necessary...
0 index(es)/statistic(s) have been updated, 1 did not require update.
Updating [SAPSBPDB].[CAF_GP_BINDEF]
[PK_CAF_GP_BINDEF_00F2CB2C], update is not necessary...
0 index(es)/statistic(s) have been updated, 1 did not require update.
Updating [sbp].[CMCPMBD]
[CMCPMBD~0], update is not necessary...
0 index(es)/statistic(s) have been updated, 1 did not require update.
Statistics for all tables have been updated.
```

5.3 Check for warnings and errors

Run sap_mon_sqlsetup in ST04

ST04>Detailed analysis menu>DB Utilities>Stored Procedure

Type and execute Sap_mon_sqlsetup is the stored procedure CCMS uses to provide some of the data in the CCMS tree. It is very useful to run this after the upgrade to SQL 2005 as there are several changes. Enter the stored procedure name and press execute. Correct any errors reported by the stored procedure.

Example: ALTER DATABASE tempdb MODIFY FILE (NAME = templog, SIZE = 60MB)

WARNING: WAS 7.0 based systems and possibly other 6.20 and 6.40 based systems may produce a false warning regarding the DB compatibility mode. This is fixed in nw2004s Support Pack Stack 08 and ERP 2005 SPS 05. A new version of Sap_mon_sqlsetup is delivered with these support packs. If you receive a warning stating that the Database Compatibility mode should be 80 ignore this message and refer to note **382293**.

5.4 Post Installation SQL & Security Steps

It is recommended that you run the SQL Surface Area Configuration Tool and the Microsoft Security Configuration Wizard after the installation.

High security environments may wish to convert the MS Security Configuration Wizard file into an Active Directory Policy and apply this to all SAP servers (for Advanced Security Consultants only – this can be dangerous).

The SQL Administrative connection can be activated for customers who centrally manage their SQL servers.

Download and install the Book Online SP1 onto your PC and/or remove the SQL 2000 Books Online