

Blackboardlearn⁺

Release 9.1

*32-bit to 64-bit Cross Platform Migration
for Windows*



Blackboard

Worldwide Headquarters	International Headquarters
Blackboard Inc.	Blackboard International B.V.
650 Massachusetts Avenue NW Sixth Floor Washington, DC 20001-3796	Paleisstraat 1-5 1012 RB Amsterdam The Netherlands
+1 800 424 9299 toll free US & Canada	
+1 202 463 4860 telephone	+31 20 7882450 (NL) telephone
+1 202 463 4863 facsimile	+31 20 7882451 (NL) facsimile
www.blackboard.com	www.blackboard.com

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Introduction

Blackboard Learn Release 9.1 is the first release to offer an entire application and database footprint using 64-bit addressable memory. To take advantage of more addressable memory, Blackboard strongly encourages clients to deploy using 64-bit operating systems (OSs) and sub components (Java and SQL Server or Oracle). Migrating to 64-bit operating systems allows institutions to deploy a 64-bit JVM with larger heap sizes that suppresses the need to run in Tomcat clustered environments.

Blackboard Learn 9.1 Service Pack 8 (SP8) requires a 64-bit operating system. Clients upgrading to SP8 must upgrade their operating system before upgrading the application. Instructions in this guide will help you through the process of migrating from a 32-bit system to a 64-bit system.

Migration Guide

Nomenclature

The **source application server (\$SRC_APP_HOSTNAME)** refers to the original server running your production Blackboard application instance, running on a Microsoft Windows Server 32-bit operating system.

The **source database server (\$SRC_DB_HOSTNAME)** refers to the original server running your production Blackboard database instance, running on a Microsoft Windows Server 32-bit operating system.

The **destination application server (\$DST_APP_HOSTNAME)** refers to the new server which is intended as the application instance migration target of this process, running on a Microsoft Windows Server 64-bit operating system.

The **destination database server (\$DST_DB_HOSTNAME)** refers to the new server which is intended as the database instance migration target of this process, running on a Microsoft Windows Server 64-bit operating system.

Process Overview and Server Combination Scenarios

When performing Blackboard Learn migrations from 32-bit platforms to 64-bit platforms, there are five distinct actions that take place in order, regardless of your server combinations:

- Backup the Application
- Backup the Database
- Restore the Database
- Restore the Application
- Upgrade the Application

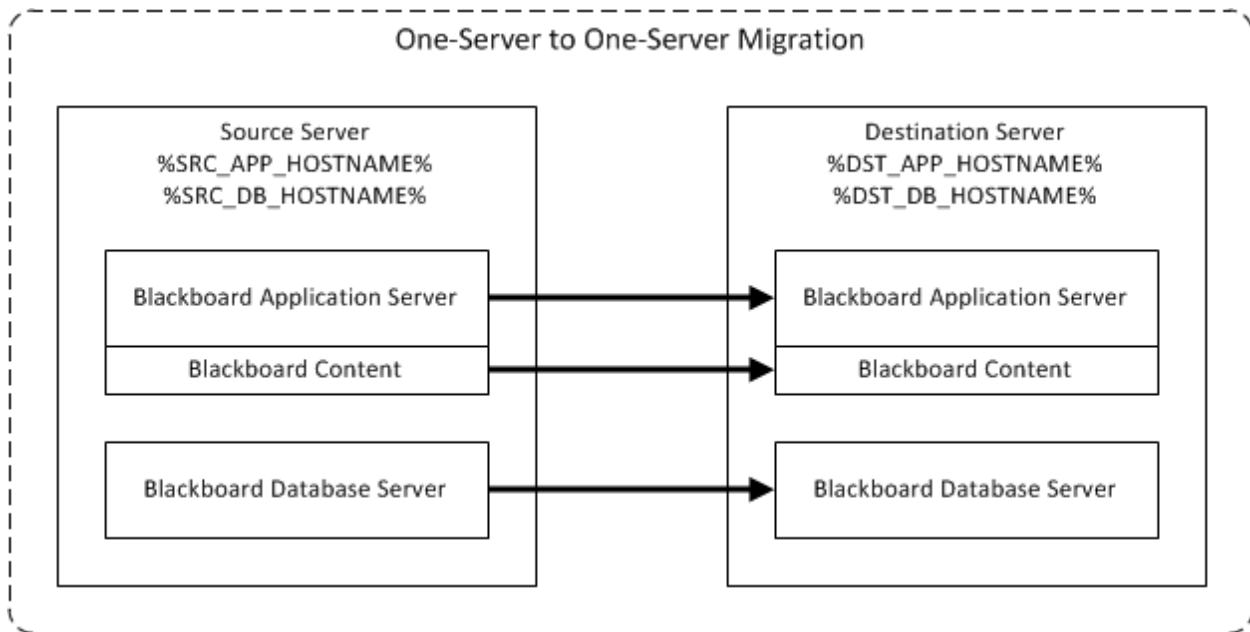
In order to condense this guide, each of these sections is written exactly once in such a manner that it can apply to any server combination that may be installed. As long as these actions are followed in order and unique hostnames are correctly specified during the restore steps, the migration process will be successful.

One Server to One Server

The source application server and source database server are the same
(%SRC_APP_HOSTNAME% == %SRC_DB_HOSTNAME%).

The destination application server and the destination database server are the same
(%DST_APP_HOSTNAME% == %DST_DB_HOSTNAME%).

Blackboard content is backed up and restored with the application.

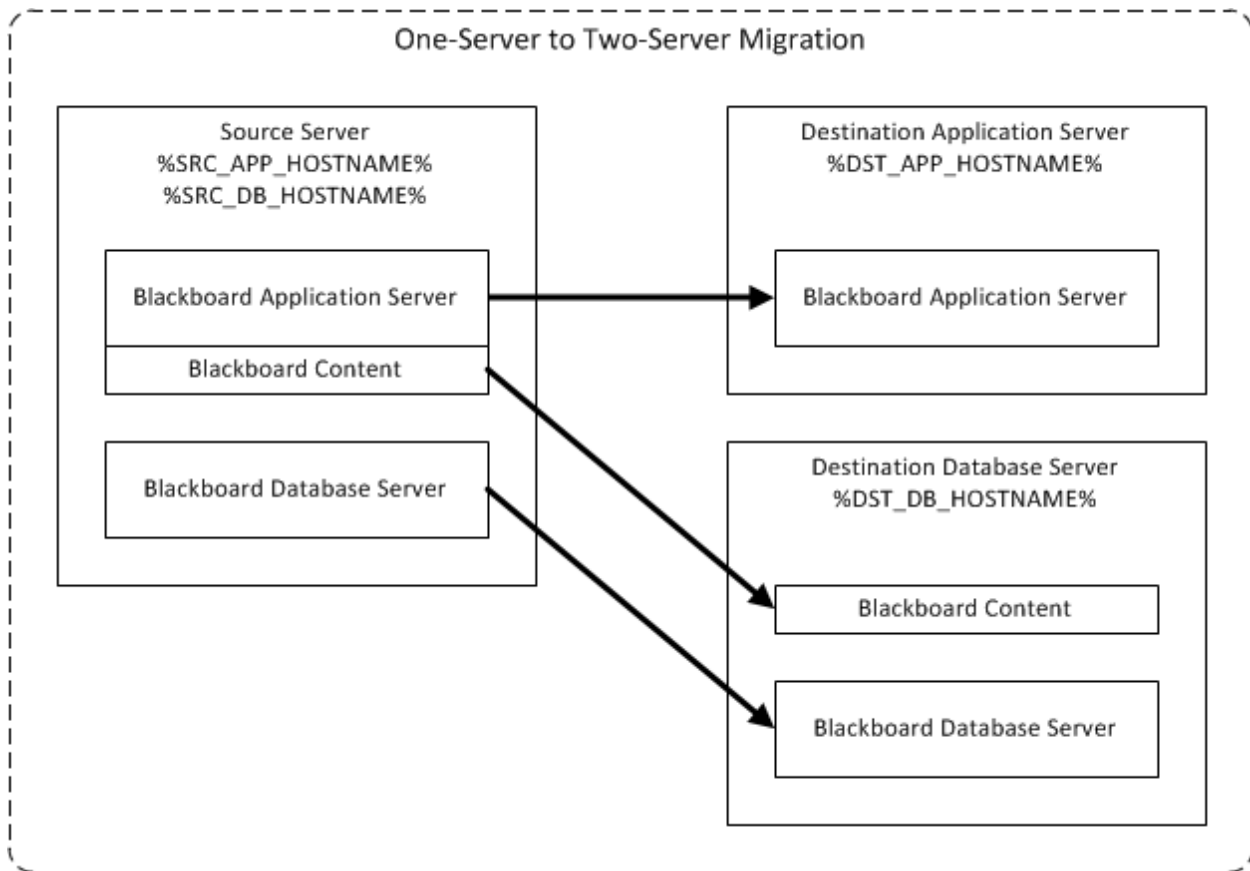


One Server to Two Servers

The source application server and source database server are the same
(%SRC_APP_HOSTNAME% == %SRC_DB_HOSTNAME%).

The destination application server and the destination database server are separate
(%DST_APP_HOSTNAME% != %DST_DB_HOSTNAME%).

Blackboard content is backed up and restored with the database.

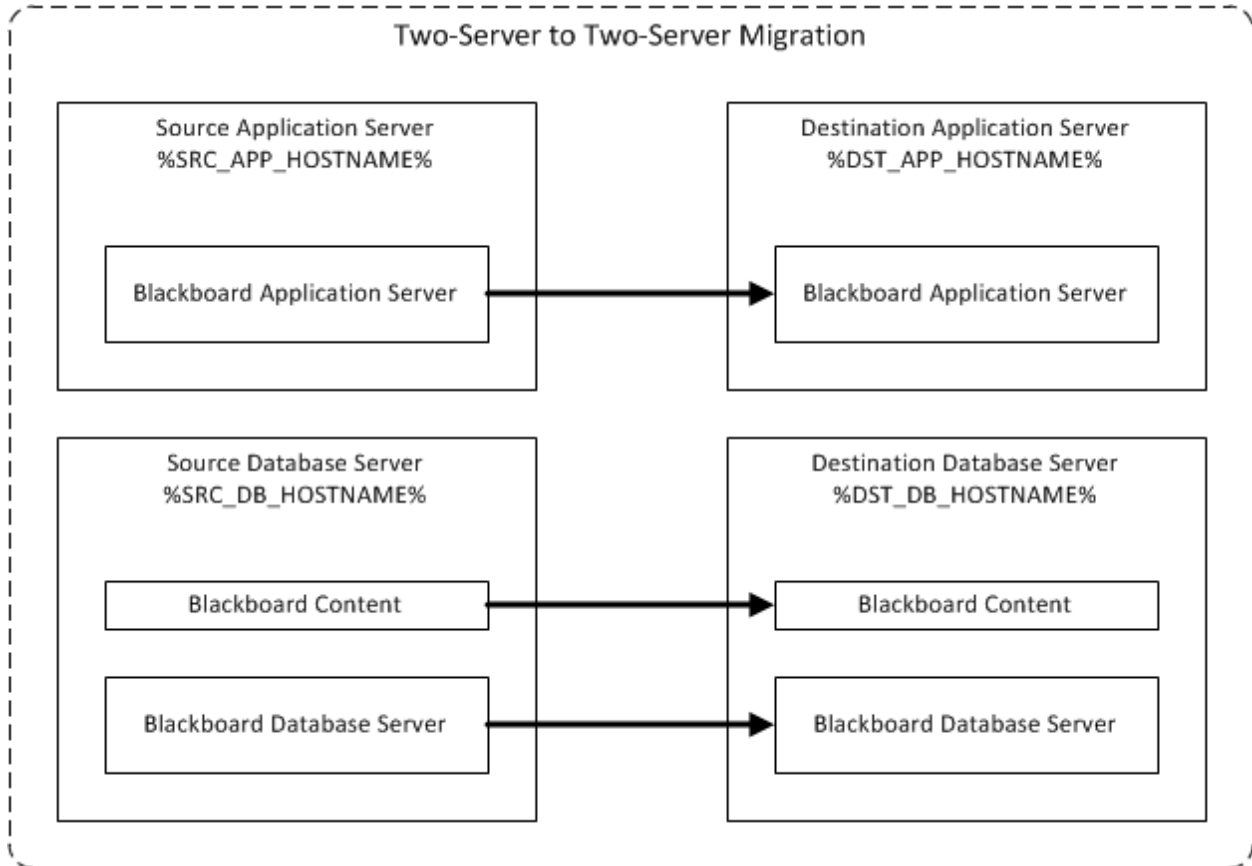


Two Servers to Two Servers

The source application server and source database server are separate (%SRC_APP_HOSTNAME% != %SRC_DB_HOSTNAME%).

The destination application server and the destination database server are separate (%DST_APP_HOSTNAME% != %DST_DB_HOSTNAME%).

Blackboard content is backed up and restored with the database. This is also a general case for many-server installations that are load-balanced.



Source Server Assumptions

If your configuration varies from these assumptions, then these instructions must be adjusted to fit your environment.

Source Application Server (%SRC_APP_HOSTNAME%)

You are running one of the following versions of Microsoft Windows Server:

- Microsoft Windows Server 2003 Enterprise Edition 32-bit

You are running one of the following versions of Blackboard Learn:

- Blackboard Learn 8.0 SP7 (8.0.494.0)
- Blackboard Learn 8.0 SP7 HF1 (8.0.494.5)
- Blackboard Learn 8.0 SP7 HF2 (8.0.494.35)
- Blackboard Learn 9.0 SP7 (9.0.692.0)

You are planning to upgrade to Blackboard Learn 9.1 SP8 (9.1.82223.0).

You have a full Blackboard License which includes the Learning System, the Content System, the Community System and the Outcomes System.

- This guide will work with other license types, but the database and database user counts may be different than what is reflected in this guide.

You have installed Blackboard to `c:\blackboard`.

You are running the latest version of JDK 1.6 32-bit at `c:\jdk1.6.0_30` (update 30 was used for this writing).

You are running the Blackboard appserver on port 8009 and the webserver on port 80.

Your collab server is running on port 8010 and port 8011.

You know your SMTP server hostname.

For one-server configurations:

- Your shared content location is `c:\blackboard\content`.
- Your storage location for `/courses` is `c:\blackboard\content\storage\courses`.
- Your storage location for `/institution` is `c:\blackboard\content\storage\institution`.
- Your storage location for `/library` is `c:\blackboard\content\storage\library`.
- Your storage location for `/orgs` is `c:\blackboard\content\storage\orgs`.
- Your storage location for `/users` is `c:\blackboard\content\storage\users`.

For two-server configurations:

- Your shared content location is `\\%SRC_DB_HOSTNAME%\bb_content`.
- Your storage location for `/courses` is `\\%SRC_DB_HOSTNAME%\bb_content\storage\courses`.

- Your storage location for /institution is
`\\%SRC_DB_HOSTNAME%\bb_content\storage\institution.`
- Your storage location for /library is
`\\%SRC_DB_HOSTNAME%\bb_content\storage\library.`
- Your storage location for /orgs is
`\\%SRC_DB_HOSTNAME%\bb_content\storage\orgs.`
- Your storage location for /users is
`\\%SRC_DB_HOSTNAME%\bb_content\storage\users.`

Source Database Server (%SRC_DB_HOSTNAME%)

You are running one of the following versions of Microsoft Windows Server:

- Microsoft Windows Server 2003 Enterprise Edition 32-bit

You are running one of the following versions of SQL Server and you know the instance name (ENG1 in this document).

- SQL Server 2005 SP3 (9.0.4053.0) 32-bit

You know your database "sa" administrator password.

Your database data files directory is `c:\blackboard\mssql\data.`

Your database log files directory is `c:\blackboard\mssql\data.`

For two-server configurations, your shared content location is `c:\bb_content` which is shared via CIFS as `\\%SRC_DB_HOSTNAME%\bb_content.`

Destination Server Assumptions

Destination Application Server (%DST_APP_HOSTNAME%)

You are running one of the following versions of Microsoft Windows Server:

- Windows Server 2008 R2 Enterprise Edition 64-bit

You have the latest version of JDK 1.6 64-bit installed at `c:\jdk1.6.0_30` (update 30 was used for this writing).

Destination Database Server (%DST_DB_HOSTNAME%)

You are running one of the following versions of Microsoft Windows Server:

- Windows Server 2008 R2 Enterprise Edition 64-bit

You are running one of the following versions of Microsoft SQL Server on port 1433/tcp and you know the instance name (ENG1 in this document).

- Microsoft SQL Server 2008 SP1 (10.0.2531.0)

Your database data files directory is `c:\blackboard\mssql\data`.

Your database log files directory is `c:\blackboard\mssql\data`.

For two-server configurations, your shared content location is `c:\bb_content` which is shared via CIFS as `\\%DST_DB_HOSTNAME%\bb_content`.

Prepare Destination Server

This work should be done as the Active Directory domain user that runs your Blackboard Learn instance (e.g. %DOMAIN%\blackboard), which has been granted administrative access to your servers.

The domain user (e.g. %DOMAIN%\blackboard) must be granted the "Log On as a Service" and "Log On as a Batch Job" rights on the server or within the domain so that services can be started on the application server.

Warning: When doing work through the command line, be sure to run the Command Prompt as administrator (right-click, Run as administrator) or you may see permissions errors.

Destination Application Server (\$DST_APP_HOSTNAME)

1. Increase the maximum number of ephemeral ports from 5000 to 65534, per [Microsoft KB196271](#). Requires a reboot.

```
Windows Registry Editor Version 5.00
```

```
[HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\Tcpip\Parameters]
```

```
"MaxUserPort"=dword:0000ffff
```

2. Disable User Account Control.
 - A. Start > Control Panel > User Accounts
 - B. Change User Account Control settings
 - C. Never notify > Ok
3. Install the IIS 7 Role and configure Role Services.
 - A. Right-click Computer > Manage
 - B. Server Manager > Roles > Roles Summary > Add Roles
 - C. Server Roles > Web Server (IIS) > Next > Next
 - D. The following seven (7) role services are REQUIRED:
 - i. Web Server > Application Development > ISAPI Extensions
 - ii. Web Server > Application Development > ISAPI Filters
 - iii. Web Server > Performance > Static Content Compression
 - iv. Web Server > Performance > Dynamic Content Compression
 - v. Management Tools > IIS 6 Management Compatibility > IIS 6 Metabase Compatibility
 - vi. Management Tools > IIS 6 Management Compatibility > IIS 6 WMI Compatibility
 - vii. Management Tools > IIS 6 Management Compatibility > IIS 6 Scripting Tools
 - E. The following four (4) role services are RECOMMENDED, to enhance management and troubleshooting capabilities:
 - i. Web Server > Common HTTP Features > HTTP Errors

- ii. Web Server > Health and Diagnostics > HTTP Logging
 - iii. Management Tools > IIS Management Console
 - iv. Management Tools > IIS Management Scripts and Tools
- F. The following role service is OPTIONAL. It should only be used if your installation has a legacy integration with Active Directory using web server authentication. The preferred method for integration with Active Directory is to use the LDAP authentication provider.
 - i. Security > Windows Authentication
- 4. Remove the Default Web Site.
 - A. Right-click Computer > Manage
 - B. Server Manager > Roles > Web Server (IIS) > Internet Information Services (IIS) Manager
 - C. Connections > %HOSTNAME% > Sites > right-click Default Web Site > Remove
- 5. Configure IIS 7 to allow double escaping within URLs and the upload of files greater than 20MB in size (applies to all sites).

```
%windir%\system32\inetsrv\appcmd.exe add backup "Blackboard Pre-Change Backup"
```

```
%windir%\system32\inetsrv\appcmd.exe list backup
```

```
%windir%\system32\inetsrv\appcmd set config ^  
/section:system.webServer/Security/requestFiltering ^  
-allowDoubleEscaping:True  
%windir%\system32\inetsrv\appcmd set config ^  
-section:requestFiltering ^  
-requestLimits.maxAllowedContentLength:104857600
```

```
%windir%\system32\inetsrv\appcmd.exe add backup "Blackboard Post-Change Backup"
```

```
%windir%\system32\inetsrv\appcmd.exe list backup
```

- 6. Restart the IIS service.
 - A. Right-click Computer > Manage
 - B. Server Manager > Configuration > Services

- C. Right-click World Wide Web Publishing Service > Restart
7. Configure IIS 7 security.
- A. Right-click Computer > Manage
 - B. Server Manager > Roles > Web Server (IIS) > Internet Information Services (IIS) Manager
 - C. Configure Directory Security.
 - i. %HOSTNAME% > Authentication
 - ii. right-click Anonymous Authentication > Enabled
 - iii. right-click Anonymous Authentication > Edit
 - iv. Specific User: IUSR (this is the default value)
 - D. Configure the Application Pool.
 - i. %HOSTNAME% > Application Pools > right-click DefaultAppPool > Advanced Settings
 - ii. Process Model > Identity > ... > Custom Account > Set... > enter the domain user name, e.g. %DOMAIN%\blackboard
 - iii. Ok > Ok > Ok
 - E. Restart IIS so that the changes will take effect.
8. Add the Domain User to the IIS_IUSRS Group.
- A. Right-click Computer > Manage
 - B. Server Manager > Configuration > Local Users and Groups > Groups
 - C. Right-click IIS_IUSRS > Add to group... > Add...
 - D. Enter the domain user "%DOMAIN%\blackboard".
 - E. Ok > Ok
9. Set the JAVA_HOME variable.
- A. Right-click Computer > Properties
 - B. Advanced System Settings > Tab: Advanced > Environment Variables...
 - C. System Variables list:
 - i. If the JAVA_HOME variable exists, verify that it matches the installation path for the JDK.
 - ii. If the JAVA_HOME variable does not exist in the System Variables list, then click New.
 - a. Variable Name: JAVA_HOME
 - b. Variable Value: enter the full path to the JDK, such as
c:\jdk1.6.0_30
 - D. Ok > Ok > Ok

10. Create a directory for Blackboard Learn backup files. Create a CIFS share for the directory.

```
mkdir c:\public
```

```
net share public=c:\public /grant:%DOMAIN%\blackboard,FULL
```

Destination Database Server (%DST_DB_HOSTNAME%)

1. Configure SQL Server Agent for automatic startup.
 - A. Right-click Computer > Manage
 - B. Server Manager > Configuration > Services
 - C. Right-click SQL Server Agent (%INSTANCE%) > Properties
 - D. Startup Type: Automatic
 - E. Ok
2. Configure SQL Server to listen on port 1433/tcp.
 - A. Start > Programs > Microsoft SQL Server > Configuration Tools > SQL Server Configuration Manager
 - B. SQL Server Configuration Manager (Local) > SQL Server Network Configuration > Protocols for %INSTANCE%
 - C. Right-click TCP/IP > Properties
 - D. Tab: IP Addresses > IPAll
 - E. TCP Dynamic Ports: blank
 - F. TCP Port: 1433
 - G. Ok
 - H. Restart the SQL Server service.
3. Create a directory for the Blackboard Learn database backup files. Create a CIFS share for the directory.

```
mkdir c:\public
```

```
net share public=c:\public /grant:%DOMAIN%\blackboard,FULL
```

Backup the Application on the Source Server

Source Application Server (%SRC_APP_HOSTNAME%)

1. Shutdown the Blackboard Learn instance.

```
c:\blackboard\tools\admin\ServiceController.bat services.stop
```

2. Export the SSL Certificate as a PFX file.
 - a. Right-click My Computer > Manage
 - b. Services and Applications > Internet Information Services (IIS) Manager
 - c. Web Sites > right-click blackboard_bb_bb60 > Properties
 - d. Tab: Directory Security > Server Certificate > Next
 - e. Export the current certificate to a .pfx file > Next
 - f. Path and file name: c:\ssl_backup\ssl_cert.pfx > Next
 - g. Password: %PASSWORD% > Confirm Password: %PASSWORD% > Next > Next > Finish

3. Map a network drive to the destination application server.

```
net use z: \\%DST_APP_SERVER%\public
```

4. Copy the Blackboard Learn application (and content) to the destination application server. For Windows Server 2003, the robocopy utility is part of the [Windows Server 2003 Resource Kit Tools](#).

- a. One-server source, one-server destination; exclude the database files.

```
robocopy /E c:\blackboard z:\blackboard /XD c:\blackboard\mssql
robocopy /E c:\ssl_backup z:\ssl_backup
net use z: /delete
```

- b. One-server source, two-server destination; exclude the database and content files.

```
robocopy /E c:\blackboard z:\blackboard /XD c:\blackboard\mssql /XD
c:\blackboard\content
robocopy /E c:\ssl_backup z:\ssl_backup
net use z: /delete
```

- c. Two-server source, two-server destination.

```
robocopy /E c:\blackboard z:\blackboard
robocopy /E c:\ssl_backup z:\ssl_backup
net use z: /delete
```


Backup the Database on the Source Server

If you have a full Blackboard license which includes the Learning System, the Content System, the Community System and the Outcomes System, then there are 10 schemas and 5 users to backup. If you do not have all of these modules licensed, then there will be fewer schemas and users to backup and you should adjust these scripts as necessary.

Source Database Server (%SRC_DB_HOSTNAME%)

1. Create a directory to store the database backup.

```
mkdir c:\sql_backup
```

2. Start SQL Server Management Studio, log in as the "sa" administrator users and connect to the Blackboard instance (e.g. ENG1).
3. Backup the SQL Server 2005 database schemas for the Blackboard application. There are 10 schemas to backup.

A. New Query > Execute

```
BACKUP LOG bbadmin WITH TRUNCATE_ONLY
BACKUP LOG bb_bb60 WITH TRUNCATE_ONLY
BACKUP LOG bb_bb60_stats WITH TRUNCATE_ONLY
BACKUP LOG cms WITH TRUNCATE_ONLY
BACKUP LOG cms_doc WITH TRUNCATE_ONLY
BACKUP LOG cms_files_courses WITH TRUNCATE_ONLY
BACKUP LOG cms_files_inst WITH TRUNCATE_ONLY
BACKUP LOG cms_files_library WITH TRUNCATE_ONLY
BACKUP LOG cms_files_orgs WITH TRUNCATE_ONLY
BACKUP LOG cms_files_users WITH TRUNCATE_ONLY
BACKUP DATABASE bb_bb60 TO DISK = 'C:\sql_backup\bb_bb60.bak'
BACKUP DATABASE bb_bb60_stats TO DISK =
'C:\sql_backup\bb_bb60_stats.bak'
BACKUP DATABASE bbadmin TO DISK = 'C:\sql_backup\bbadmin.bak'
BACKUP DATABASE cms TO DISK = 'C:\sql_backup\cms.bak'
BACKUP DATABASE cms_doc TO DISK = 'C:\sql_backup\cms_doc.bak'
BACKUP DATABASE cms_files_courses TO DISK =
'C:\sql_backup\cms_files_courses.bak'
BACKUP DATABASE cms_files_inst TO DISK =
'C:\sql_backup\cms_files_inst.bak'
```

```
BACKUP DATABASE cms_files_library TO DISK =  
'C:\sql_backup\cms_files_library.bak'  
  
BACKUP DATABASE cms_files_orgs TO DISK =  
'C:\sql_backup\cms_files_orgs.bak'  
  
BACKUP DATABASE cms_files_users TO DISK =  
'C:\sql_backup\cms_files_users.bak'
```

4. Backup the SQL Server 2005 users for the Blackboard application.
5. We will be creating and executing a new version of the `sp_help_revlogin` stored procedure based on the listing in [Microsoft KB246133](#) to accomplish this task. This script was originally written for SQL Server 2000 and it has issues running in SQL Server 2005, so we will use an updated version posted on [Laurentiu Cristofor's Apr 3, 2006 blog](#) at Microsoft. This script will generate SQL code that will be used to recreate the logins on the destination server; save this output to a text file.

A. New Query > Execute

```
USE master  
  
GO  
  
IF OBJECT_ID ('sp_hexadecimal') IS NOT NULL  
    DROP PROCEDURE sp_hexadecimal  
  
GO  
  
CREATE PROCEDURE sp_hexadecimal  
    @binvalue varbinary(256),  
    @hexvalue varchar (514) OUTPUT  
AS  
  
DECLARE @charvalue varchar (514)  
DECLARE @i int  
DECLARE @length int  
DECLARE @hexstring char(16)  
  
SELECT @charvalue = '0x'  
SELECT @i = 1  
SELECT @length = DATALENGTH (@binvalue)  
SELECT @hexstring = '0123456789ABCDEF'  
  
WHILE (@i <= @length)  
  
    BEGIN
```

```
DECLARE @tempint int
DECLARE @firstint int
DECLARE @secondint int
SELECT @tempint = CONVERT(int, SUBSTRING(@binvalue,@i,1))
SELECT @firstint = FLOOR(@tempint/16)
SELECT @secondint = @tempint - (@firstint*16)
SELECT @charvalue = @charvalue +
    SUBSTRING(@hexstring, @firstint+1, 1) +
    SUBSTRING(@hexstring, @secondint+1, 1)
SELECT @i = @i + 1
END
SELECT @hexvalue = @charvalue
GO

IF OBJECT_ID ('sp_help_revlogin') IS NOT NULL
    DROP PROCEDURE sp_help_revlogin
GO

CREATE PROCEDURE sp_help_revlogin @login_name sysname = NULL AS
DECLARE @name sysname
DECLARE @type varchar (1)
DECLARE @hasaccess int
DECLARE @denylogin int
DECLARE @is_disabled int
DECLARE @PWD_varbinary  varbinary (256)
DECLARE @PWD_string  varchar (514)
DECLARE @SID_varbinary varbinary (85)
DECLARE @SID_string varchar (514)
DECLARE @tmpstr  varchar (1024)
DECLARE @is_policy_checked varchar (3)
DECLARE @is_expiration_checked varchar (3)

IF (@login_name IS NULL)
    DECLARE login_curs CURSOR FOR
```

```

        SELECT p.sid, p.name, p.type, p.is_disabled, l.hasaccess,
        l.denylogin

        FROM sys.server_principals p LEFT JOIN sys.syslogins l ON (
        l.name = p.name )

        WHERE p.type IN ( 'S', 'G', 'U' ) AND p.name <> 'sa'
ELSE
    DECLARE login_curs CURSOR FOR

    SELECT p.sid, p.name, p.type, p.is_disabled, l.hasaccess,
    l.denylogin

    FROM sys.server_principals p LEFT JOIN sys.syslogins l ON (
    l.name = p.name )

    WHERE p.type IN ( 'S', 'G', 'U' ) AND p.name = @login_name
OPEN login_curs

FETCH NEXT FROM login_curs INTO @SID_varbinary, @name, @type,
@is_disabled, @hasaccess, @denylogin

IF (@@fetch_status = -1)
BEGIN
    PRINT 'No login(s) found.'

    CLOSE login_curs

    DEALLOCATE login_curs

    RETURN -1
END

SET @tmpstr = '/* sp_help_revlogin script '
PRINT @tmpstr

SET @tmpstr = '** Generated ' + CONVERT (varchar, GETDATE()) + '
on ' + @@SERVERNAME + ' */'
PRINT @tmpstr

PRINT ''

WHILE (@@fetch_status <> -1)
BEGIN
    IF (@@fetch_status <> -2)
    BEGIN
        PRINT ''

        SET @tmpstr = '-- Login: ' + @name

        PRINT @tmpstr
    
```

```
        IF (@type IN ( 'G', 'U'))

        BEGIN -- NT authenticated account/group

            SET @tmpstr = 'CREATE LOGIN ' + QUOTENAME( @name ) + ' FROM
            WINDOWS '

        END

    ELSE BEGIN -- SQL Server authentication

        -- obtain password and sid

        SET @PWD_varbinary = CAST( LOGINPROPERTY( @name, 'PasswordHash'
        ) AS varbinary (256) )

        EXEC sp_hexadecimal @PWD_varbinary, @PWD_string OUT

        EXEC sp_hexadecimal @SID_varbinary, @SID_string OUT

        -- obtain password policy state

        SELECT @is_policy_checked =

            CASE is_policy_checked WHEN 1 THEN 'ON' WHEN 0 THEN 'OFF'
            ELSE NULL END

            FROM sys.sql_logins WHERE name = @name

        SELECT @is_expiration_checked =

            CASE is_expiration_checked WHEN 1 THEN 'ON' WHEN 0 THEN 'OFF'
            ELSE NULL END

            FROM sys.sql_logins WHERE name = @name

        SET @tmpstr = 'CREATE LOGIN ' + QUOTENAME( @name )

            + ' WITH PASSWORD = ' + @PWD_string

            + ' HASHED, SID = ' + @SID_string

        IF ( @is_policy_checked IS NOT NULL )

        BEGIN

            SET @tmpstr = @tmpstr + ', CHECK_POLICY = ' +

                @is_policy_checked

        END

        IF ( @is_expiration_checked IS NOT NULL )

        BEGIN

            SET @tmpstr = @tmpstr + ', CHECK_EXPIRATION = ' +

                @is_expiration_checked

        END

    END

END
```

```
IF (@denylogin = 1)
BEGIN -- login is denied access

    SET @tmpstr = @tmpstr + '; DENY CONNECT SQL TO ' + QUOTENAME(
        @name )

END

ELSE IF (@hasaccess = 0)
BEGIN -- login has exists but does not have access

    SET @tmpstr = @tmpstr + '; REVOKE CONNECT SQL TO ' + QUOTENAME(
        @name )

END

IF (@is_disabled = 1)
BEGIN -- login is disabled

    SET @tmpstr = @tmpstr + '; ALTER LOGIN ' + QUOTENAME( @name ) +
        ' DISABLE'

END

PRINT @tmpstr

END

FETCH NEXT FROM login_curs INTO @SID_varbinary, @name, @type,
@is_disabled, @hasaccess, @denylogin

END

CLOSE login_curs

DEALLOCATE login_curs

RETURN 0

GO
```

B. New Query > Execute

```
EXEC master..sp_help_revlogin
```

This is sample output from the `sp_help_revlogin` stored procedure, restricted to the five Blackboard Learn database logins. Save the output related to the five Blackboard Learn database logins to a new text file

`c:\sql_backup\create_login.txt`. If you have additional logins in your database related to Blackboard Learn, then be sure to include them as well.

```
-- Login: bbadmin

CREATE LOGIN [bbadmin] WITH PASSWORD =
0x01009B0B2830D545616B065BBCAEAE2F4AA80C7A906245034D2D HASHED,
SID = 0x5769680D7874044A8FA68762FF01E9FB, CHECK_POLICY = ON,
CHECK_EXPIRATION = OFF

-- Login: bb_bb60

CREATE LOGIN [bb_bb60] WITH PASSWORD =
0x0100CFDEDFD72728293B7BA10707E744719530FD087568063184 HASHED,
SID = 0x30F13A5E6DBD384BAE4052EF3819DA7F, CHECK_POLICY = ON,
CHECK_EXPIRATION = OFF

-- Login: bb_bb60_stats

CREATE LOGIN [bb_bb60_stats] WITH PASSWORD =
0x0100EC250293C8A222C52E686C86978B85ADF399CB2FDC92133B HASHED,
SID = 0x6B863053E4529445A765230019A6CF8B, CHECK_POLICY = ON,
CHECK_EXPIRATION = OFF

-- Login: bb_bb60_report

CREATE LOGIN [bb_bb60_report] WITH PASSWORD =
0x0100B8CBFFA2EAFD162E86DD247A65B5BAEEB528C899A168F7A6 HASHED,
SID = 0x595104BF8945C242B15DC0442A48F424, CHECK_POLICY = ON,
CHECK_EXPIRATION = OFF

-- Login: cms_user

CREATE LOGIN [cms_user] WITH PASSWORD =
0x01009257460319A944DBA70944B1F16A710C9EC6F04602FAD6C4 HASHED,
SID = 0x13A660C6B9A2BC4495AF3582D3B75496, CHECK_POLICY = ON,
CHECK_EXPIRATION = OFF
```

6. Shutdown the SQL Server 2005 Instance.
 - A. Right-click > My Computer > Manage
 - B. Services and Applications > Services
 - C. Right-click SQL Server (ENG2005) > Stop
 - D. Also shut down the SQL Server Agent (ENG2005) service.
7. Map a network drive to the destination server.

```
net use z: \\%DST\_DB\_SERVER%\public
```

8. Copy the database backup (and content) to the destination database server. For Windows Server 2003, the robocopy utility is part of the [Windows Server 2003 Resource Kit Tools](#).

- a. One-server source, one-server destination.

```
robocopy /E c:\sql_backup z:\sql_backup  
net use z: /delete
```

- b. One-server source, two-server destination; copy content.

```
robocopy /E c:\blackboard\content z:\bb_content  
robocopy /E c:\sql_backup z:\sql_backup  
net use z: /delete
```

- c. Two-server source, two-server destination; copy content.

```
robocopy /E c:\bb_content z:\bb_content  
robocopy /E c:\sql_backup z:\sql_backup  
net use z: /delete
```


Restore the Database on the Destination Server

If you have a full Blackboard license which includes the Learning System, the Content System, the Community System and the Outcomes System, then there are 10 schemas and 5 users to restore. If you do not have all of these modules licensed, then there will be fewer schemas and users to restore and you should adjust these scripts as necessary.

This work should be done as the Active Directory domain user that runs your Blackboard Learn instance (e.g. %DOMAIN%\blackboard), which has been granted administrative access to your servers.

Warning: When doing work through the command line, be sure to run the Command Prompt as administrator (right-click, Run as administrator) or you may see permissions errors.

1. Move the Blackboard Learn content and database files to the proper location:

```
# move the content files, if they were copied to this server
move c:\public\bb_content c:\

# move the database backup files
move c:\public\sql_backup c:\
```

2. Shut down the `public` CIFS file share.

```
net share public /delete
```

3. Create the `bb_content` CIFS file share, if this is a two-server configuration.

```
net share bb_content=c:\bb_content /grant:%DOMAIN%\blackboard,FULL
```

4. Create the `c:\blackboard\mssql` directory structure.

```
mkdir c:\blackboard\mssql\data
```

5. Restore the database.

- A. Start SQL Server Management Studio, log in as the "sa" administrator user and connect to the Blackboard instance (e.g. ENG2008).
- B. Restore the databases from the backup files in `c:\sql_backups`.
- C. New Query > Execute

```
RESTORE DATABASE bb_bb60 FROM DISK =
'c:\sql_backup\bb_bb60.bak' WITH
MOVE 'bb_bb60_data' TO 'c:\bb_data\data\bb_bb60.mdf',
MOVE 'bb_bb60_log' TO 'c:\bb_data\logs\bb_bb60_log.ldf',
REPLACE
```

```
RESTORE DATABASE bb_bb60_stats FROM DISK =
'c:\sql_backup\bb_bb60_stats.bak' WITH
MOVE 'bb_bb60_stats_data' TO
'c:\bb_data\data\bb_bb60_stats.mdf',
MOVE 'bb_bb60_stats_log' TO
'c:\bb_data\logs\bb_bb60_stats_log.ldf',
REPLACE

RESTORE DATABASE bbadmin FROM DISK =
'c:\sql_backup\bbadmin.bak' WITH
MOVE 'bbadmin_data' TO 'c:\bb_data\data\bbadmin.mdf',
MOVE 'bbadmin_log' TO 'c:\bb_data\logs\bbadmin_log.ldf',
REPLACE

RESTORE DATABASE cms FROM DISK = 'c:\sql_backup\cms.bak'
WITH
MOVE 'cms_data' TO 'c:\bb_data\data\cms.mdf',
MOVE 'cms_log' TO 'c:\bb_data\logs\cms_log.ldf',
REPLACE

RESTORE DATABASE cms_doc FROM DISK =
'c:\sql_backup\cms_doc.bak' WITH
MOVE 'cms_doc_data' TO 'c:\bb_data\data\cms_doc.mdf',
MOVE 'cms_doc_log' TO 'c:\bb_data\logs\cms_doc_log.ldf',
REPLACE

RESTORE DATABASE cms_files_courses FROM DISK =
'c:\sql_backup\cms_files_courses.bak' WITH
MOVE 'cms_files_courses_data' TO
'c:\bb_data\data\cms_files_courses.mdf',
MOVE 'cms_files_courses_log' TO
'c:\bb_data\logs\cms_files_courses_log.ldf',
REPLACE

RESTORE DATABASE cms_files_inst FROM DISK =
'c:\sql_backup\cms_files_inst.bak' WITH
MOVE 'cms_files_inst_data' TO
'c:\bb_data\data\cms_files_inst.mdf',
MOVE 'cms_files_inst_log' TO
'c:\bb_data\logs\cms_files_inst_log.ldf',
REPLACE

RESTORE DATABASE cms_files_library FROM DISK =
'c:\sql_backup\cms_files_library.bak' WITH
MOVE 'cms_files_library_data' TO
'c:\bb_data\data\cms_files_library.mdf',
MOVE 'cms_files_library_log' TO
'c:\bb_data\logs\cms_files_library_log.ldf',
REPLACE

RESTORE DATABASE cms_files_orgs FROM DISK =
'c:\sql_backup\cms_files_orgs.bak' WITH
MOVE 'cms_files_orgs_data' TO
'c:\bb_data\data\cms_files_orgs.mdf',
```

```
MOVE 'cms_files_orgs_log' TO
'c:\bb_data\logs\cms_files_orgs_log.ldf',
REPLACE

RESTORE DATABASE cms_files_users FROM DISK =
'c:\sql_backup\cms_files_users.bak' WITH
MOVE 'cms_files_users_data' TO
'c:\bb_data\data\cms_files_users.mdf',
MOVE 'cms_files_users_log' TO
'c:\bb_data\logs\cms_files_users_log.ldf',
```

D. Restore the Blackboard Learn database logins from the backup file

c:\sql_backups\create_login.txt; you will copy and paste the contents of this file into the query console. The values provided below are only an example.

New Query > Execute

```
-- Login: bbadmin
CREATE LOGIN [bbadmin] WITH PASSWORD =
0x01009B0B2830D545616B065BBCAEAE2F4AA80C7A906245034D2D
HASHED, SID = 0x5769680D7874044A8FA68762FF01E9FB,
CHECK_POLICY = ON, CHECK_EXPIRATION = OFF

-- Login: bb_bb60
CREATE LOGIN [bb_bb60] WITH PASSWORD =
0x0100CFDEDFD72728293B7BA10707E744719530FD087568063184
HASHED, SID = 0x30F13A5E6DBD384BAE4052EF3819DA7F,
CHECK_POLICY = ON, CHECK_EXPIRATION = OFF

-- Login: bb_bb60_stats
CREATE LOGIN [bb_bb60_stats] WITH PASSWORD =
0x0100EC250293C8A222C52E686C86978B85ADF399CB2FDC92133B
HASHED, SID = 0x6B863053E4529445A765230019A6CF8B,
CHECK_POLICY = ON, CHECK_EXPIRATION = OFF

-- Login: bb_bb60_report
CREATE LOGIN [bb_bb60_report] WITH PASSWORD =
0x0100B8CBFFA2EAFD162E86DD247A65B5BAEEB528C899A168F7A6
HASHED, SID = 0x595104BF8945C242B15DC0442A48F424,
CHECK_POLICY = ON, CHECK_EXPIRATION = OFF

-- Login: cms_user
CREATE LOGIN [cms_user] WITH PASSWORD =
0x01009257460319A944DBA70944B1F16A710C9EC6F04602FAD6C4
HASHED, SID = 0x13A660C6B9A2BC4495AF3582D3B75496,
CHECK_POLICY = ON, CHECK_EXPIRATION = OFF
```

E. Set the default database for each Blackboard Learn database login.

New Query > Execute

```
EXEC master..sp_defaultdb bb_bb60, bb_bb60
EXEC master..sp_defaultdb bb_bb60_report, bb_bb60
EXEC master..sp_defaultdb bb_bb60_stats, bb_bb60_stats
EXEC master..sp_defaultdb bbadmin, bbadmin
EXEC master..sp_defaultdb cms_user, cms
```

- F. Reconfigure the Blackboard Learn parameters within the restored database.
%DST_APP_HOSTNAME% should be replaced with the unqualified hostname of the destination application server, %DST_DB_HOSTNAME% should be replaced with the unqualified hostname of the destination database server,
%DB_INSTANCE% should be replaced with your database instance name and
%DOMAIN% should be replaced with your DNS domain name.

New Query > Execute

```
update bbadmin.dbo.BB_CONFIG_REGISTRY set HOSTNAME =
'%DST_APP_HOSTNAME%';
update bbadmin.dbo.BB_INSTANCE set DB_HOST =
'%DST_DB_HOSTNAME%';
update bbadmin.dbo.BB_INSTANCE set DB_INSTANCE =
'%DB_INSTANCE%';
update bbadmin.dbo.BB_INSTANCE set STAT_DB_HOST =
'%DST_DB_HOSTNAME%';
update bbadmin.dbo.BB_INSTANCE_HOST set HOSTNAME =
'%DST_APP_HOSTNAME%.%DOMAIN%';

update cms.dbo.XY_FILE_SYSTEMS
set JDBC_CONNECTION_URL =
'jdbc:inetdae7:%DST_DB_HOSTNAME%.%DOMAIN%\%DB_INSTANCE%:143
3?database=cms_files_users&secureLevel=0'
where DISPLAY_NAME = 'cms_files_users';
update cms.dbo.XY_FILE_SYSTEMS
set JDBC_CONNECTION_URL =
'jdbc:inetdae7:%DST_DB_HOSTNAME%.%DOMAIN%\%DB_INSTANCE%:143
3?database=cms_files_courses&secureLevel=0'
where DISPLAY_NAME = 'cms_files_courses';
update cms.dbo.XY_FILE_SYSTEMS
set JDBC_CONNECTION_URL =
'jdbc:inetdae7:%DST_DB_HOSTNAME%.%DOMAIN%\%DB_INSTANCE%:143
3?database=cms_files_orgs&secureLevel=0'
where DISPLAY_NAME = 'cms_files_orgs';
update cms.dbo.XY_FILE_SYSTEMS
set JDBC_CONNECTION_URL =
'jdbc:inetdae7:%DST_DB_HOSTNAME%.%DOMAIN%\%DB_INSTANCE%:143
3?database=cms_files_inst&secureLevel=0'
where DISPLAY_NAME = 'cms_files_inst';
update cms.dbo.XY_FILE_SYSTEMS
set JDBC_CONNECTION_URL =
'jdbc:inetdae7:%DST_DB_HOSTNAME%.%DOMAIN%\%DB_INSTANCE%:143
3?database=cms_files_library&secureLevel=0'
where DISPLAY_NAME = 'cms_files_library';
update cms.dbo.XY_FILE_SYSTEMS
set JDBC_CONNECTION_URL =
'jdbc:inetdae7:%DST_DB_HOSTNAME%.%DOMAIN%\%DB_INSTANCE%:143
3?database=cms_doc&secureLevel=0'
where DISPLAY_NAME = 'cms_doc';

# update content system storage locations, if this is a
one-server to two-server scenario
update cms.dbo.XY_STORAGE_LOCATIONS
```

```
set WINDOWS_STORAGE_LOCATION =
'://%DST_DB_HOSTNAME%/bb_content/storage/users'
where STORAGE_LOCATION_ID = 1001;
update cms.dbo.XY_STORAGE_LOCATIONS
set WINDOWS_STORAGE_LOCATION =
'://%DST_DB_HOSTNAME%/bb_content/storage/courses'
where STORAGE_LOCATION_ID = 1002;
update cms.dbo.XY_STORAGE_LOCATIONS
set WINDOWS_STORAGE_LOCATION =
'://%DST_DB_HOSTNAME%/bb_content/storage/orgs'
where STORAGE_LOCATION_ID = 1003;
update cms.dbo.XY_STORAGE_LOCATIONS
set WINDOWS_STORAGE_LOCATION =
'://%DST_DB_HOSTNAME%/bb_content/storage/institution'
where STORAGE_LOCATION_ID = 1004;
update cms.dbo.XY_STORAGE_LOCATIONS
set WINDOWS_STORAGE_LOCATION =
'://%DST_DB_HOSTNAME%/bb_content/storage/library'
where STORAGE_LOCATION_ID = 1005;
update cms.dbo.XY_STORAGE_LOCATIONS
set WINDOWS_STORAGE_LOCATION =
'://%DST_DB_HOSTNAME%/bb_content/storage'
where STORAGE_LOCATION_ID = 1101;
```

Restore the Application on the Destination Server

This work should be done as the Active Directory domain user that runs your Blackboard Learn instance (e.g. DOMAIN\blackboard), which has been granted administrative access to your servers.

Warning: When doing work through the command line, be sure to run the Command Prompt as administrator (right-click, Run as administrator) or you may see permissions errors.

1. Move the Blackboard Learn files to the proper location.

```
move c:\public\blackboard c:\
```

2. Shut down the public CIFS file share.

```
net share public /delete
```

3. Reconfigure Blackboard Property Files.

- a. The property and configuration files that have a corresponding file with a *.bb extension will be regenerated by PushConfigUpdates.
- b. %DST_APP_HOSTNAME% should be replaced with the unqualified hostname of the destination application server, %DST_DB_HOSTNAME% should be replaced with the unqualified hostname of the destination database server, %DB_INSTANCE% should be replaced with your database instance name and %DOMAIN% should be replaced with your DNS domain name.

- c. **File:** c:\blackboard\apps\isapi\bb-odbc.ini

Property	Purpose
odbc.db.instance = %DB_INSTANCE%	Update SQL Server instance name
odbc.db.server = SERVER=%DST_DB_HOSTNAME%.%DOMAIN%	Update server name

- d. **File:** c:\blackboard\apps\xythos\xythos.properties

Property	Purpose
Xythos.BaseJDBCConnectionURL= jdbc:inetdae7:%DST_DB_HOSTNAME%.%DOMAIN% \\%DB_INSTANCE%:1433?database=cms&secureLevel=0	Update server name and SQL Server instance name. Note that this is a single line in the file; it was broken up here for readability.

- e. **File:** c:\blackboard\config\bb-config.properties

Property	Purpose
bbconfig.java.home=C:/jdk1.6.0_30	Update JDK location, if necessary
bbconfig.java.home.win=C:\\jdk1.6.0_30	Update JDK location, if necessary
bbconfig.base.shared.dir=//%DST_DB_HOSTNAME%/bb_content	Check the shared content location
bbconfig.base.shared.dir.win=\\\\%DST_DB_HOSTNAME%\\bb_content	Check the shared content location
bbconfig.webserver.fullhostname=%DST_APP_HOSTNAME%.%DOMAIN%	Set the webserver hostname, fully qualified
bbconfig.appserver.fullhostname=%DST_APP_HOSTNAME%.%DOMAIN%	Set the appserver hostname, fully qualified
bbconfig.appserver.machinename=%DST_APP_HOSTNAME%	Set the appserver machinename, unqualified
bbconfig.appserver.domainname=%DOMAIN%	Set the appserver domainname
bbconfig.smtpserver.hostname=%SMTP_HOSTNAME%.%DOMAIN%	Update the SMTP server, if necessary, fully qualified
bbconfig.collabserver.fullhostname.default=%DST_APP_HOSTNAME%.%DOMAIN%	Set the collabserver hostname, fully qualified
bbconfig.platform.64bit=true	Set the platform to 64bit
bbconfig.platform.libdir=lib64	Set the libdir to 64bit
(9.0) bbconfig.database.server.systemuserpassword=\$PASSWORD (8.0) bbconfig.database.bbadmin.machine.systemuserpassword=\$PASSWORD	Check the database systemuser password
(9.0) bbconfig.database.datadir=C:/blackboard/mssql/data (8.0) bbconfig.database.bbadmin.db.datadir=C:/blackboard/mssql/data	Check the database data directory
(9.0) bbconfig.database.datadir.win=C:\\blackboard\\mssql\\data (8.0) bbconfig.database.bbadmin.db.datadir.win=C:\\blackboard\\mssql\\data	Check the database data directory
(9.0) bbconfig.database.server.name=%DST_DB_HOSTNAME% (8.0)	Set the database server hostname, unqualified

Property	Purpose
bbconfig.database.bbadmin.machine.machineName=%DST_DB_HOSTNAME%	
(9.0) bbconfig.database.server.fullhostname=%DST_DB_HOSTNAME%.%DOMAIN%	Set the database server hostname, fully qualified
(8.0) bbconfig.database.bbadmin.machine.fullhostname=%DST_DB_HOSTNAME%.%DOMAIN%	
(9.0) bbconfig.database.server.instanceName=%DB_INSTANCE%	Set the database server instance name
(8.0) bbconfig.database.bbadmin.machine.instanceName=%DB_INSTANCE%	
bbconfig.database.stats.server.name=%DST_DB_HOSTNAME%.%DOMAIN%	Set the database stats server hostname, fully qualified
(9.0) bbconfig.database.logdir.mssql=C:\\blackboard\\mssql\\data	Check the database log directory
(8.0) bbconfig.database.bbadmin.db.mssql.logdir.win=C:\\blackboard\\mssql\\data	
(9.0) bbconfig.database.indexdir.oracle=C:/blackboard/mssql/data	Check the database index directory
(8.0) bbconfig.database.bbadmin.db.oracle.indexdir=C:/blackboard/mssql/data	
bbconfig.appserver.service.account.win=%AD_DOMAIN%\\%USERNAME%	Check the Active Directory domain user that will run the appserver
bbconfig.appserver.service.password.win=%PASSWORD%	Check the password for the Active Directory domain user
bbconfig.collabserver.service.account.win=%AD_DOMAIN%\\%USERNAME%	Check the Active Directory domain user that will run the collabserver
bbconfig.collabserver.service.password.win=%PASSWORD%	Check the password for the Active Directory domain user
bbconfig.cs.external.data.courses=//%DST_DB_HOSTNAME%/bb_content/storage/courses	Set the courses shared content location
bbconfig.cs.external.data.inst=//%DST_DB_HOSTNAME%/bb_content/storage/institution	Set the institution shared content location
bbconfig.cs.external.data.library=//	Set the library shared content

Property	Purpose
%DST_DB_HOSTNAME%/bb_content/storage/library	location
bbconfig.cs.external.data.orgs=//%DST_DB_HOSTNAME%/bb_content/storage/orgs	Set the orgs shared content location
bbconfig.cs.external.data.users=//%DST_DB_HOSTNAME%/bb_content/storage/users	Set the users shared content location
bbconfig.cs.external.storage.location=//%DST_DB_HOSTNAME%/bb_content/storage	Set the storage shared content location
bbconfig.cs.db.systemuser.pass=\$PASSWORD	Check the database systemuser password

- f. **File:** c:\blackboard\tools\admin\PushConfigUpdates.bat

Property	Purpose
set JAVA_HOME=C:\jdk1.6.0_30	Update JDK location, if necessary

4. Update the Blackboard configuration by running PushConfigUpdates.
 - A. This will push the bb-config.properties updates to the appropriate files, create the Bb-Collab service running as your domain user, create the Bb-Tomcat service running as your domain user and create the blackboard_bb_bb60 website within IIS.
C:\blackboard\tools\admin\PushConfigUpdates.bat
5. Import your SSL certificate from the PFX file in c:\public\ssl_backup\ssl_cert.pfx, if you have one.
 - a. Right-click Computer > Manage
 - b. Server Manager > Roles > Web Server (IIS) > Internet Information Services (IIS) Manager
 - c. Connections > %HOSTNAME% > Features View > Server Certificates > Import...
 - d. Certificate file (.pfx) : c:\public\ssl_backup\ssl_cert.pfx > Password: %PASSWORD% > Check: Allow this certificate to be exported > Ok
 - e. Connections > %HOSTNAME% > Sites > right-click blackboard_bb_bb60 > Edit bindings...
 - f. Add... > Type: https > IP Address: All Unassigned > Port: 443 > SSL Certificate: %CERTIFICATE% > Ok

Upgrade the Application on the Destination Server

1. Run the Blackboard installer jar to upgrade the application.

```
$JAVA_HOME/bin/java -jar bb-as-windows-9.1.82223.0.jar
```