

# Blackboardlearn<sup>+</sup>

*Release 9.0 Service Pack 2*  
*Release Notes*  
*9.0.505.0*



**Blackboard**

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# Introduction

## About the Release Notes

The Release Notes provide Instructors with information about new features and enhancements. This includes information on browser compatibility, new feature descriptions, and changes to the system from the previous release.

The Release Notes contain the following sections:

- [New Features and Enhancements](#) – Describes new features in this release and additional important enhancements that have been made to the system.
- [Bundled Building Blocks](#) – Describes the new bundled Building Blocks from Blackboard Premier Partners.
- [Performance and Scalability Notes](#) – Details the latest analysis from our Performance Engineering team and how to tune an installation of Blackboard Learn 9 Service Pack 2.
- [Supported Technologies](#) – Gives an overview of the changes to supported platform technologies and client technologies in this release. This section also lists supported upgrade paths to this release of Blackboard Learn.
- [Installation Instructions](#) – Provides basic instructions for upgrading to this version of Blackboard Learn.

## Where are the Resolved Issues?

The Resolved Issues Report has been replaced by a [Resolved Issues Page](#) on the Maintenance Center. This new page can be searched and sorted easily. There were over 100 client-reported issues addressed in this release and the new format should help Administrators quickly find the issues most important to them.

## New Features and Enhancements

Blackboard Learn Release 9 Service Pack 2 introduces a number of new features and enhancements to the existing features in response to user feedback. Any changes in functionality are also listed here.

### Individual Enhancements

<b>AS-134041</b>	Dramatic improvements when doing unqualified searches for courses and users. This allows the return of the “Not Blank” option in certain searches.
<b>AS-133787</b>	The default state for Edit Mode has been changed from OFF to ON.
<b>AS-133137</b>	Batch course uploads were improved in multi-domain environments. A Course Catalog field was added to prevent Domain Admins from creating courses they cannot administer.
<b>AS-132533</b>	Clients with Basic licenses can install Building Blocks signed by Blackboard.
<b>AS-131063</b>	Outcomes Reporting Improvements: provided views allowing extraction of all data and their context to aid in reporting.
<b>AS-134944</b>	The security fix from 9.0 SP1 HF2 was also included in 9.0 SP2
<b>AS-133289</b>	A security issue allowing instructors to remove content in other courses via URL manipulation was fixed.
<b>AS-133108</b>	Security issue fixed: The 'My Places' module did not take start and end date into account when allowing or disallowing student view. Students could see and access courses prior to the start date and after the end date.

### Not Blank Functionality

The “Not Blank” drop-down option has been returned in a few locations. In 9.0 SP1, “Not Blank” was removed from User Directory searches, Course Catalog searches, Organization Catalog searches, search for enrolled course users from within the course, and search for enrolled organization users from within the organization.

In 9.0 SP2, the “Not Blank” option has been returned for user searches from within a course and user searches from within an organization. The “Not Blank” option also remains available for user search and course search from within the Admin tab. The performance issue has been resolved in these locations by performing the search primarily within the database and paginating the results.

There remain two locations where “Not Blank” exists and can still cause performance problems. While enrolling a user in a course or organization the “Find users to enroll” feature will allow unqualified “Not Blank” searches that may cause performance issues. It is recommended that this feature be avoided when possible until performance enhancements can be made.

## WebDAV on Mac OSX 10.6 “Snow Leopard”

Users may not be able to setup certain WebDAV folders with the newly released Mac OSX 10.6 “Snow Leopard” operating system. While setting up the WebDAV folder the user is shown an error: “You cannot connect to this server because it is not found on the network.” Our current tests indicate that users can connect to their shared user and course directories, but not the root-level WebDAV folder. Please use AS-138374 to track this issue on the Known Issues list.

## Enviserv installation on Windows

Clients cannot install Enviserv on a Windows system. Enviserv is used to connect Blackboard Learn to Blackboard Transact. Clients are still able to install Enviserv on Linux and Solaris systems. Please use AS-138792 to track this issue on the Known Issues list.

## Bug Squad

In June 2009, Blackboard reached out to early Release 9 adopters to prioritize the bugs for 9.0 SP2 by voting using UserVoice.com. Blackboard provided our top 20 issues, and participants were able to add their own issues to the list for voting. Over 50 clients participated and the results helped shape the 9.0 SP2 release.

As a result of this project, four new issues were targeted for 9.0 SP2 and the priority of 3 issues was reduced. The top 9 issues are listed below:

JIRA Issue	Description	Votes	Issue Analysis
AS-133909	Instructors need 'Copy to New Course' privilege to perform a course copy	52	Originally targeted for 9.0 SP1. Was not fixed properly. Re-targeted for 9.0 SP2.
AS-134076	Announcements are missing until courses are available	25	Priority will be increased and targeted for 9.0 SP2.
AS-131129	Menu Items are different after doing a Course Copy	20	Priority will be increased and targeted for 9.0 SP2.
AS-90679	Permissions for CS items not copied while copying item from one course to another	16	Pre-existing issue. Targeted for 9.0 SP2; however, requires complex solution
AS-133127	Right-click Save-as prompts user to save ContentWrapper.jsp	40	Originally targeted for 9.0 SP2. Remained in the scope.
AS-133119	Cannot edit assessment settings if end date is not entered and the start date is set for a date later than the current	36	Originally targeted for 9.0 SP2. Remained in the scope.
AS-133141	Hidden Grade Center columns are visible to students	29	Originally targeted for 9.0 SP2. Remained in the scope.
AS-133126	Course Menu links are hidden	19	Originally targeted for 9.0 SP2. Remained in the scope.
AS-133128	Preview Tab and Modules Option Disregards Roles	16	Originally targeted for 9.0 SP2. Remained in the scope.

# Building Block Enhancements

With the release of Blackboard Learn 9.0 Service Pack 2 we have improved our Building Block experience. Clients with basic licenses now have the ability to use signed Building Blocks. In addition, we have bundled certain Premier Partner Building Blocks for all clients. Below are descriptions of each of these B2s:

## Wimba Pronto Basic

Wimba Pronto Basic is the instant messaging system designed specifically for educators to advance and promote learning. Its unique benefits include:

- Automatic Population of Classmates and Courses
- VoIP Conferencing
- Group Discussion capabilities
- Universal Accessibility
- Spanish Language Preference
- Mac/Windows compatibility
- Fully hosted SaaS solution
- Profile customization
- Emoticons
- Privacy Features

The Wimba Pronto Basic Building Block is available by default after installation of Service Pack 2.

## Acxiom Identify-X

Acxiom enables identity verification using real-time challenge questions which are based on public information. By integrating with Blackboard software, the Acxiom Identify-X creates an accessible and easy-to-use process for validating student identity and deterring academic fraud. The Acxiom Identify-X solution will periodically and randomly present challenge questions to students prior to Blackboard assessments. Institutions are able to manage:

- The courses and assessments which require verification
- The pass/fail and instructor notification policies
- The likelihood that students will be presented challenge questions
- The number of challenge questions presented to students.

The fully hosted, web-based solution requires a student to enter only their name and address. It does not store any private information. Blackboard clients receive free verifications based on the institution's total student count. Additional verifications may be purchased directly from Acxiom.

Because Acxiom Identify-X must be configured manually, it is set to unavailable by default after installation of Service Pack 2.



## NBC News Archives on Demand

NBC News Archives on Demand offers unique multimedia collections containing thousands of video resources, primary sources, historic footage, images, mini-documentaries and text resources for use in the classroom. These collections are easily searchable and designed specifically for education by NBC Learn. The NBC Archives on Demand Blackboard Building Block seamlessly integrates the archives with your instance of Blackboard. Instructors will be able to enhance course material and classroom learning by embedding videos from the collections directly into Blackboard courses.

All clients are able to search the archives and embed short clips (approximately 15 seconds each). Full access to NBC News Archives on Demand, including the ability to view the full lengths of its videos, requires a paid annual subscription to the archives, which must be licensed directly from NBC Learn. Currently, only clients with Community Engagement are able to place NBC modules on the institution home page or My Courses page.

The NBC Archives on Demand Building Block is set to unavailable by default after installation of Service Pack 2. Once made available by the Administrator, Instructors can embed videos as course/organization content while edit-mode is ON.

## Performance and Scalability Notes

Performance and scalability release notes are designed to provide an overview of performance enhancements and resolved issues specific to a release. Blackboard continuously invests in making the product more responsive and able to handle greater volumes of user traffic.

Performance issues are defined as issues in which application responsiveness for a system not under load fails to meet user expectations. Scalability issues are defined as issues in which application responsiveness or stability of a page request for a system under load fails to meet user expectations.

Issues are identified from previous releases by clients through our traditional support channels. Issues are also identified from an array of performance and scalability exercises performed as part of the standard release. The Blackboard Performance Engineering team performed over 500 hours of performance and scalability testing for this service pack.

### Performance Improvements Specific to this Release

Release 9, Service Pack 2 contained fixes to address performance vulnerabilities in the areas of unbounded searches, environment configuration and large HTML payloads to the client. Most of these issues have been addressed to reduce the memory footprint required to support a running production instance of Blackboard.

Unbounded user and course searches have been called out by customers as performance issues for several reasons. With the performance enhancements in SP2, the overall memory footprint will decline as these transactions will perform most of the search operations strictly in the database. Users are now able submit certain unbounded searches using the “Not Blank” option that was previously removed for performance reasons.

Two environment configuration issue were addressed in SP2. The first addressed an issue reported regarding extra Tomcat JVM arguments. Tomcat options can be appended via the `bbconfig.jvm.options.extra.tomcat` once again. The second issue addressed the `UpdateCluster.sh` or `UpdateCluster.bat` script used to update configuration information inside of a Tomcat cluster.

A performance improvement was made to the Grade Center, specifically for the use case of viewing a history of a changed Grade Center. Response time was dramatically improved for Grade Center history views of all sizes based on eliminating unnecessary page rendering requests prematurely.

In general the release performs better than the previous releases of 9.0 and 9.0 SP1 from both a responsiveness and scalability perspective comparable across all supported platform configurations. No degradation was reported during any performance tests or benchmarks when comparing against any previous service pack using regression performance settings. Improvements were achieved through the use of Java 6 and the incorporation of the recommended non-standard options below.

### Recommended Tuning Set

One of our main goals for introducing performance information in the release notes is to provide up to date information about performance and scalability relevant to each release of the product. The Blackboard Performance Engineering team spends hundreds of hours every service pack studying the transactional and systemic performance of the product before it becomes generally available. With each service pack we study whether particular tuning sets will have a positive or negative impact on performance and/or scalability.

As part of this set of release notes, we would like to present our recommended Java Virtual Machine tuning set as executed in the Blackboard Performance Engineering laboratory against Release 9, Service Pack 2.

JVM sizing varies from platform to platform. 32-bit Windows and Linux deployments are limited to JVM sizes no greater than 1.7GB of addressable memory. This consists of the main heap area (Old and New Space) plus the permanent space. 64-bit Linux and Solaris configurations are not impeded by this limitation of addressable memory. Our testing has shown that when a system is under duress, specifically when the number of requests exceeds the capability of the JVM to fully collect and free up space, response time latency can be dramatically affected.

With the certification of Java 6, we are making a recommendation for customers to consider moving away from the Parallel Collector (-XX:+UseParallelGC) in favor of a higher performing Concurrent Mark Sweep Collector (-XX:+UseConcMarkSweepGC). This is a change in direction from previous releases based on Java 5. The performance engineering team was able to achieve stability on all supported platforms (Linux, Solaris and Windows) using the Concurrent Mark Sweep Collector. The options specified below were instrumental in helping our tests achieve little to no stop-the-world garbage collections. This is a monumental achievement as this option will substantially reduce latency caused at the application layer within the Java Virtual Machine.

1.4GB JVMs (32-bit and 64-bit) on Windows, Linux and Solaris systems have the recommended settings listed below. These recommended settings can be managed within the bb-config.properties file or wrapper.conf file:

```
-Xms1400m -Xmx1400m -XX:NewSize=300m -XX:MaxNewSize=300m -XX:+UseConcMarkSweepGC
-XX:+UseParNewGC -XX:ParallelGCThreads=4 -XX:+UseTLAB -XX:PermSize=256m
-XX:MaxPermSize=256m -XX:+PrintVMOptions -XX:+PrintGCDetails
-XX:+PrintGCTimeStamps -XX:+PrintGCTaskTimeStamps -XX:+PrintCommandLineFlags
-XX:+PrintGCApplicationStoppedTime -XX:+PrintGCApplicationConcurrentTime
-Xloggc:/usr/local/blackboard/logs/tomcat/gc.log
```

64-bit JVMs are supported on Red Hat Enterprise Linux and Solaris platforms. Many customers have raised questions about recommended tuning sets for these platforms because they support heaps bigger than 1.7GB such as 2GB, 4GB and even 8GB. The tuning set does not vary drastically; however, we advise that customers consider initially removing the -XX:NewSize and -XX:MaxNewSize parameters. Instead customers can make use of the -XX:NewRatio option to determine the memory needs in the New Space region of the JVM. By default the -XX:NewRatio parameter is set to 7 making the New Space substantially smaller than desired. The Performance Engineering team typically sizes -XX:NewRatio at 1/4 or 1/3 the size of the entire JVM. The values of -XX:NewSize and -XX:MaxNewSize passed by -XX:NewRatio can be observed after using the -XX:+PrintVMOptions parameter and viewing the stdout log. Once the workload has been evaluated over time, it is recommended that the settings for -XX:NewSize and -XX:MaxNewSize be set based on what -XX:NewRatio passed. At that time, the -XX:NewRatio parameter can be removed as it may increase the frequency of garbage collection within the JVM.

**TIP for ORACLE DBAs**

For performance reasons, CURSOR\_SHARING should be set to EXACT or FORCE, especially for clients on Oracle 10g and licensing the Content Management module.

# Supported Technologies

The most up-to-date information about Supported Technologies can be found on the [Maintenance Center](#) on Behind the Blackboard. The following list highlights the new Server and Client configurations tested for this release.

There was no change in the supported server configurations for Service Pack 2. The following matrices will not change during the life cycle of Service Pack 2.

## 32-bit Server Configurations

	Application Server / JDK 1.6	SQL Server 2005 (32 bit)	SQL Server 2008 (32 bit)	Oracle 10g R2 (32 bit)
Windows Server 2003 SP1 (32-bit)	Certified (32-bit JDK)	Certified	Compatible	Unsupported
Red Hat Enterprise Linux Server 4 (32-bit)	Certified (32-bit JDK)	Unsupported	Unsupported	Certified
Red Hat Enterprise Linux Server 5 (32-bit)	Compatible (32-bit JDK)	Unsupported	Unsupported	Compatible

## 64-bit Server Configurations

	Application Server / JDK 1.6	SQL Server 2005 (64-bit)	SQL Server 2008 (64-bit)	Oracle 10g R2 (64-bit)
Window Server 2003 SP1 (64-bit)	DATABASE ONLY	Certified	Compatible	Unsupported
Red Hat Enterprise Linux Server 4 (64-bit)	Compatible (64-bit JDK)	Unsupported	Unsupported	Compatible
Red Hat Enterprise Linux Server 5 (64-bit)	Compatible (64-bit JDK)	Unsupported	Unsupported	Compatible
Sun Solaris 10 (64-bit SPARC)	Certified (64-bit JDK)	Unsupported	Unsupported	Certified

### Configuration Notes:

- Microsoft SQL Server 2005 must be SP2 or later.
- Windows Server 2003 64-bit can be used to host the SQL Server Database but the application server in such configurations should be Windows Server 2003 32-bit. This is because the 64-bit JDK is not yet compatible on Windows.
- Windows Server 2008 is not supported.
- As of Blackboard Learn 9.0 SP1, Sun JDK 1.5 is no longer supported on 32-bit or 64-bit platforms.

Supported Browsers and Operating Systems may change during the life cycle of Service Pack 2. As new client-side technologies become available they may be listed as Provisional. The matrices below will remain static so please visit the [Maintenance Center](#) for the most current information.

## Windows Client Configurations

	Internet Explorer 8	Internet Explorer 7	Firefox 3.5	Firefox 3.0
Windows XP (32-bit)	Compatible	Compatible	<b>Certified</b>	Compatible
Windows Vista (32-bit)	<b>Certified</b>	Compatible	<b>Certified</b>	Compatible
Windows Vista (64-bit)	Compatible	Compatible	Compatible	Compatible
Windows 7 (32/64-bit)	Provisional	Unsupported	Provisional	Unsupported

## Mac OSX Client Configurations

	Safari 4.0	Safari 3.x	Firefox 3.5.x	Firefox 3.0.x
Mac OSX 10.4 "Tiger"	<b>Certified</b>	Compatible	<b>Certified</b>	Compatible
Mac OSX 10.5 "Leopard"	<b>Certified</b>	Compatible	<b>Certified</b>	Compatible
Mac OSX 10.6 "Snow Leopard"	Provisional	Unsupported	Provisional	Provisional

### Configuration Notes:

- *Blackboard strives to make all its products as accessible as possible. JAWS for Windows 9 and 10 were used during accessibility testing of Service Pack 2*
- *Browsers NOT supported: Internet Explorer 6; Firefox 1.x & 2.0; Safari 2.0*
- *Internet Explorer 8 was tested in Standards Mode only. Some known issues can be resolved by using Compatibility Mode (emulates IE7 behavior).*
- *Java 5 is no longer supported. It may continue to work but Java 6 Update 13 is the only supported JRE.*

# Supported upgrade paths

## Details on upgrade paths to Release 9.0 Service Pack 2 (9.0.505.0)

Direct upgrade paths:

- Blackboard Academic Suite 8.0 Service Pack 5 Hotfix 1 (8.0.422.7) & Hotfix 2 (8.0.422.8)
- Blackboard Learn Release 9.0 Service Pack 1 (9.0.440.0), Hotfix 1 (9.0.440.7), & Hotfix 2 (9.0.440.8)

CE 4.1.7 clients can migrate to this release or use the Learning Environment Connector (LEC) for co-production. Clients with Vista/CE 8.0 Service Pack 3 can also run a co-production environment by using the LEC.

## Chart of non-direct upgrade paths

Previous Version	Suggested Path
9.0 GA	Upgrade to 9.0 SP1 before upgrading to SP2
8.0 GA, SP1, SP2, Sp3, and SP4	Increment through the service packs to 8.0 SP5; then upgrade to 9.0 SP2
7.3 SP2	BASE PATH: Upgrade directly to 8.0 SP5; then upgrade to 9.0 SP2
7.3 SP1	Upgrade directly to 7.3 SP2; then follow the BASE PATH
7.3 GA	Upgrade to 7.3 SP1; then SP2; then follow the BASE PATH
7.2 SP1	Upgrade directly to 7.3 SP2; then follow the BASE PATH
7.2 GA	Upgrade to 7.2 SP1; then 7.3 SP2; then follow the BASE PATH
7.1 SP2 or later	Upgrade directly to 7.3 GA; then SP1; then SP2; then follow the BASE PATH
7.1 GA and SP1	Upgrade to 7.1 SP2, then upgrade to 7.3 GA; then SP1; then SP2; then follow the BASE PATH
7.0.x	Upgrade to 7.0 SP1; then 7.1 SP2; then 7.3 GA; then SP1; then SP2; then follow the BASE PATH
6.3.x	Upgrade to 6.3 SP2; then 7.0 SP1; then 7.1 SP2; then 7.3 GA; then SP1; then SP2; then follow the BASE PATH

## Supported Paths for Importing and Restoring Courses

The table below identifies the supported paths for importing or restoring a Course that was exported or archived from an earlier version. Certified paths are fully tested and supported by Blackboard. Compatible paths are not fully tested but should function correctly based on past performance.

NOTE: Paths for Importing and Restoring Courses are not backward compatible. Courses may be Imported or Restored to a newer version, but Courses from a newer version may not be Imported or Restored to an earlier version.

Source	Support
Academic Suite Release 7	Certified
Academic Suite Release 6	Certified
Blackboard ML	Certified
Blackboard 5.5**	Certified
Blackboard 5.0**	Compatible
CourseInfo 4	Not Supported

\*\*Blackboard 5 and Blackboard 5.5 did not include an Archive and Restore function. Courses from these releases may be imported but Courses cannot be restored with user data and interactions intact.

# Upgrade Instructions for Windows

## Overview

Before running the updater, please backup the system and make sure it can be restored. Make sure all customizations are properly documented as the Updater will reset many customizations. Examples of affected settings include the resetting of several service accounts and the JAVA\_HOME variable and overwriting of the bb-config.properties and wrapper.conf files. Most customizations will need to be re-applied after the upgrade.

**Note:** It is strongly recommended to turn off various utilities that may conflict with the upgrade process, such as Firewalls, Virus Scanners, and Backup Utilities.

## Run the Updater on a Load-Balanced System

The Updater must be run on each Application server and the Collaboration server on a load-balanced system. After running the Updater the first time, choose the Update an App Server for all other Application servers and the Collaboration server. This option will upgrade the application files without making any of the database changes. If .NET Building Blocks are used in the system, please see the troubleshooting section below for an important step to ensure that .NET Building Blocks function correctly in a load-balanced system.

## Run the Updater on Windows

Follow these steps to run the Updater on Windows:

1. Make sure that the Java environment variable is properly set.
2. Click on the Updater file to launch it.
3. A welcome message will appear with a reminder to read the release notes and the installations instructions completely before updating. Click **Next** to continue.
4. The first updater page confirms the auto-detected install and content directories. Click **Next** to accept the defaults or enter new values and then click **Next**. Load-Balanced users should use the mapped UNC path.
5. The next prompt presents several options. The options are **Update**, **Provide new License file**, **Uninstall Blackboard Learn**, and **Uninstall Application Server**. Select the appropriate option and click **Next**. The **Update** option will use the license file already configured and **Provide new license file** will upgrade the system and apply the new license.
6. A message will appear that displays the changes that will be made when the Updater is run. Click **Next** to start the upgrade. If the Updater was launched from the command line, do not close the command line window or any of the other windows that pop-up during the upgrade.

## Troubleshooting the Updater

The Updater logs are an important source of information when troubleshooting issues that arise during an upgrade. The Updater writes the following logs:

`\blackboard\logs\bb-installer-log.txt`

If the installer log file does not identify the problem, the update tool log most likely contains the cause of any installation errors:

`\blackboard\logs\update-tools\update-tool-log.txt`

Also check:



```
blackboard\logs\install\  
\blackboard\logs\install\db-install-errors-log-bb_bb60.txt  
\blackboard\logs\install\db-install-errors-log-bb_bbadmin.txt  
\blackboard\logs\install\db-install-info-log-bb_bb60.txt  
\blackboard\logs\install\db-install-info-log-bb_bbadmin.txt
```

## Language Pack Changes

To ensure consistency across releases, the Blackboard Learn Updater will compare the existing en\_US language pack against the version that is being installed. The differences are noted and output in a file called `bundle_diff.txt`. This file is added to the `blackboard/backups/<updater_time_stamp>` directory. Use this file to review the text differences between releases and make updates to any custom Language Packs.

## Upgrade Failure due to Strict Password Requirements (SQL Server)

On an upgrade with SQL Server, the installation may fail due to the strict parameters for password requirements. The user will receive the following message:

**Password validation failed. The password does not meet Windows policy requirements because it is too short.**

To override or reset the password requirements run the Academic Suite installer as follows (text in caps should be filled in as appropriately): `java -jar bb-as-PLATFORM-VERSION.jar -config mycustom.properties`

# Upgrade Instructions for UNIX

## Overview

Before running the updater, please backup the system and make sure it can be restored. Solaris users: ensure that the Swap space for the operating system is at least twice the amount of physical RAM on the server.

Also, make sure all customizations are properly documented as the Updater will reset many configurations. Examples of affected settings include resetting some service accounts and overwriting the `bb-config.properties` and `wrapper.conf` files. Most customizations will need to be re-applied after the upgrade.

**Note:** It is strongly recommended to turn off various utilities that may conflict with the upgrade process, such as Firewalls, Virus Scanners, and Backup Utilities.

## Run the Updater on a Load-Balanced System

The Updater must be run on each Application server and the Collaboration server on a load-balanced system. The method is similar to the Installer—the Updater is run on each Application server in sequential order and then run on the Collaboration server (if the Collaboration server resides on a separate server). After running the Updater the first time, choose the Update an App Server for all other Application servers and the Collaboration server. This option will upgrade the application files without making any of the database changes.

## Run the Updater on UNIX

Follow these steps to run the Updater on UNIX.

1. Open a command-line prompt and navigate to the directory that holds the Updater.
2. Run the following command to launch the Updater:

```
$JAVA_HOME/bin/java -jar <updater_file>
```

If Xwindows or a similar GUI is running and the `DISPLAY` variable is properly configured, the Updater will launch in GUI mode (remember that the following steps assume that the command line Updater is used)

A welcome message will appear with a reminder to read the release notes and the installations instructions completely before updating. Hit ENTER to continue.

3. Instructions will appear for navigating through the Updater prompts. The Updater, in most cases, will provide a default value in brackets. Hit ENTER to accept the default and continue or enter a different value. Hit ENTER to continue after entering a new value.
4. The first Updater prompt asks for the directory where Blackboard will be found. Hit ENTER to accept the default or enter a new value and then hit ENTER. If The Blackboard Learn is not found in the directory provided, the Updater will attempt to install at the given location.
5. The next prompt presents several options. The options are “**1 – Upgrade and Convert**” and “**2 – Upgrade App Server Only.**” Type **1** and hit ENTER to select **Upgrade**.
6. A message will appear that displays the changes that will be made when the Updater is run. Hit ENTER to start the upgrade.

## Troubleshooting the Updater

The Updater logs are an important source of information when troubleshooting issues that arise during an update. The Updater writes the following logs:

```
/blackboard/logs/bb-installer-log.txt
```

If the installer log file does not identify the problem, the update tool log most likely contains the cause of any installation errors:

```
/blackboard/logs/update-tools/update-tool-log.txt
```

Also check:

```
/blackboard/logs/install/
```

```
/blackboard/logs/install/db-install-errors-log-bb_bb60.txt
```

```
/blackboard/logs/install/db-install-errors-log-bb_bbadmin.txt
```

```
/blackboard/logs/install/db-install-info-log-bb_bb60.txt
```

```
/blackboard/logs/install/db-install-info-log-bb_bbadmin.txt
```

## Language Pack Changes

To ensure consistency across releases, the Blackboard Learn Updater will compare the existing en\_US language pack against the version that is being installed. The differences are noted and output in a file called `bundle_diff.txt`. This file is added to the `blackboard/backups/<updater_time_stamp>` directory. Use this file to review the text differences between releases and make upgrades to any custom Language Packs.