



Blackboard

Blackboard Academic Suite™

Release Notes

Release 7.2
Blackboard Learning System™
Blackboard Community System™
Blackboard Learning System - Basic Edition
Blackboard Content System™
Blackboard Outcomes System™

Release Notes (172020en_US)

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INTRODUCTION

About the Release Notes

The Release Notes provide Administrators with the information needed for a successful installation. This includes information on running the Updater, product and browser compatibility, new feature descriptions, and fixed and known issues. It also includes changes to existing functionality that may impact the way the system is currently used.

What is in the Release Notes?

The Release Notes contain the following sections:

- [New Features and Enhancements](#) – Describes new features in this release, as well as, additional important enhancements that have been made to the system. This section also includes information about how to enable or disable these features.
- [Compatibility Matrixes](#) – Explains dependencies between the new application and existing Blackboard applications in the field. Also, includes information on which server configurations are supported with this release and which end user browsers and operating systems are supported.
- *Blackboard Academic Suite*™ [Updater instructions](#) – Describes general information about the *Blackboard Academic Suite* Updater and explains steps for running the Updater.
- [Reference materials](#) – Lists and describes reference manuals available for this release.
- Resolved Issues from previous releases and Known Issues in the current release can be found in separate reports. Please check Behind the BlackboardSM for more information.

NEW FEATURES AND ENHANCEMENTS

Overview

Blackboard Academic Suite Application Pack 2 (Release 7) introduces a number of new features and enhancements to the existing features in response to user feedback.

This section reviews the new features in Application Pack 2 (Release 7), explains their default availability upon installation, and specifies Blackboard license requirements.

New features and enhancements fall into the following categories:

- [Blackboard Outcomes System](#)
- [Early Warning System](#)
- [E-Portfolio Enhancements](#)
- [Observer Enhancements](#) – Including one to many Observer to User associations
- [Learning System Enhancements](#) – Including improvements to Announcements, Email, Messaging, Gradebook, and Building Block Management
- [Content System Enhancements](#) – Including Folder Passes, Centralized Content Settings Management, and Home pages
- [Discussion Board Enhancements](#)
- [Accessibility Enhancement](#)

BLACKBOARD OUTCOMES SYSTEM

Overview

The Blackboard Outcomes System is the newest product in the Blackboard Academic Suite. The Blackboard Outcomes system manages a comprehensive, multilevel assessment process to plan, track, and evaluate academic performance. Outcomes assessment becomes an effective agent for change through coordination of assessment at several levels throughout the institution and focusing on the outcomes that prove that the goal has become a reality. As a result, formal organizations and communities of practice work together to make evidence-based decisions.

Please contact Blackboard for more information about the Blackboard Outcomes System. If you have already licensed the Blackboard Outcomes System, please see the Blackboard Outcomes System Reference Manual.

Installing the Blackboard Outcomes System

The Blackboard Outcomes System is an integrated part of the Blackboard Academic Suite and uses the same Installer and Updater. Activating the Blackboard Outcomes System requires a valid license key.

Acquiring the Blackboard Outcomes System

If your institution already has the Blackboard Academic Suite and would like to acquire the Blackboard Outcomes System, then your license file should be updated accordingly. See the Blackboard Installation Guide for details.

EARLY WARNING SYSTEM

Overview

The Early Warning System is a new feature that builds upon the success of the Performance Dashboard and introduces the ability for instructors to proactively measure and monitor student performance based on key performance metrics.

- Instructors can proactively communicate student performance throughout the learning process to parents and guardians of K – 12 students so that they can be actively involved in the academic development of their children.
- Instructors can partner with advisors to target specific performance metrics to improve student retention, generating significant student satisfaction and considerable cost reductions.

The Early Warning System is available to Enterprise Licenses only.

Using the Early Warning System

The Early Warning System will appear as a new link on the course control panel. The Early Warning System tool is closely associated with the Performance Dashboard. Critical Early Warning Statistics will be displayed in the Performance Dashboard in a new column along with direct access to the relevant details for each student.

Instructors will use the Early Warning System to actively communicate with relevant parties based on the results of defined rules. Instructors can define rules that monitor for both positive and negative trends. Rules are defined against three key performance metrics within a course:

- Item Score/Grade
- Item Due Date
- Course Attendance

The latest results of how students measure against the rules are displayed each time the instructor refreshes the rule in a series of dashboard like views.

Instructors have the option to easily email the students and associated Observers. A comprehensive log tracks the notification activity for each course as initiated through the Early Warning System.

Early Warning System and Gradebook

The Early Warning System can be integrated with the Gradebook by using the Due Date field as the basis of a rule. The Date field on each item in the Gradebook has been updated to facilitate a more standard application of the value and to allow this optional integration with the Early Warning System.

Beginning with this release, the Date field will be relabeled Due Date and will no longer be required. The Creation Date of the Item is now exposed as a read-only field.

Early Warning System and Observers

When coupled with the enhanced Observer feature (see [Observer Enhancements](#)), it becomes a powerful and efficient tool for quickly identifying students that fit a particular performance profile, such as students whose class performance is at risk or who is performing exceptionally well. With this information, instructors can know when to reach out to advisors, parents, or other stakeholders.

E-PORTFOLIO ENHANCEMENTS

Overview

Portfolios are an invaluable tool in academic and professional development, providing a powerful medium for users to efficiently collect and organize artifacts representative of work completed over time. Portfolios offer a means to demonstrate formative and/or summative progress and achievement. Portfolio authors are empowered with tools to effectively present their information in a cohesive, personalized format. Current

The new Portfolio enhancements will be available with the Blackboard Content System.

Portfolio Enhancements

A new Content System Portfolio, Personal Portfolios, is included with Application Pack 2. Personal Portfolios will work with the existing Portfolio features to create two different Portfolio tools. Existing Portfolios are now called Basic Portfolios and serve as a simple tool for generating portfolios. Personal Portfolios will feature more robust tools for authors to give them greater flexibility for personalizing a Portfolio's style. Users will be able to customize colors, fonts, background images and overall content layout beyond the classic frame-based presentation. With Personal Portfolios, authors will collect one or many independent entities called Personal Artifacts which comprise the actual content presented in the Portfolio. Within the Portfolio, Artifacts are organized through the use of Portfolio Pages. Artifacts can be created as part of or independent of the Portfolio authoring process. Authored Artifacts can be reused in other Portfolios.

Administrators will also now have the ability define whole Portfolio templates that govern settings that apply to the entire authored Portfolio. Templates can control all aspects of the Portfolio style and overall layout; template designers have the flexibility to define whether certain template settings are restricted (and cannot be altered).

What about current Portfolios?

Current Portfolio functionality, renamed Basic Portfolios, will still be available to users but Administrators will have the option to disable Basic Portfolios. Users will notice a minor change to Basic Portfolio workflow; the links for **Manage** and **Content** on the current My Portfolios page have been moved under a single **Modify** link.

Further changes to Portfolios include:

- **Portfolio Landing Page:** Beginning with Application Pack 2, Portfolios will have a more visible presence within the Content System via the Portfolio Landing Page. This new page serves provides access to the key areas of the Portfolio feature. Users will see this new page when clicking on the **Portfolios** icon within the Content System shortcut view. Users that are using the My Portfolios Module will also be directed to this page when they click on the link from the Action Bar within the module.
- **Access to Portfolios from a Course:** Users will have a new link available within the Tools Menu when inside a Course. This link will facilitate access to Portfolios by displaying the Portfolio Landing Page inside the primary frame of the active window; students will still retain the Course Navigation frame.
- **New Administrator Settings:** Administrators are now able to control the availability of the Portfolio feature at the functional level. The entire Portfolio feature can still be disabled via a single setting, but now there is the option to disable users' ability to create new Personal Portfolios and Basic Portfolios. Basic Portfolio Wizard functionality can also be disabled independently of the other Portfolio features.
- **Received Portfolios Area:** The current Received Portfolios Area has been improved to reflect client feedback. Highlighting the improvements is the introduction of Folders inside this space to facilitate organization of large numbers of received Portfolios.

- Portfolio Wizard: No functional changes have been made to the Portfolio Wizard; it still only applies for creating Basic Portfolios and not the new Personal Portfolios. Access to the Wizard is also now available only from the My Portfolios page.

OBSERVER ENHANCEMENTS

New and Enhanced Features

Several new features and enhancements have been added to the Observers functionality to meet the critical needs of parents, guardians, advisors and managers who need insight into the learning process of their charges. Observers are now able to observe multiple users so that parents with more than one child enrolled at an institution will have a more consolidated means of overseeing the learning process of their students. Advisors and managers will also be able to associate with multiple users saving time and resources.

Observer Associations are available only to Enterprise License customers of the Learning System. Pre-existing associations of one observer to one observed user will remain intact.

Observer Management

Observer management has been integrated into the Users search and management tool available from the Administrator Panel. It now includes tools for adding and removing multiple associations of observers to observed users all at once, from either the observer user or the user being observed.

When managing users whose primary System Role is Observer, the Observer Association page will show the list of users they are observing. For users with a different primary System Role, this page will show the list of observers of the user. Associations can be added or removed in batches. For Administrator and Guest users, this page will show a message indicating they cannot be observed.

Setting Observers using Snapshot

The snapshot tool now accepts new feed types to manage observer associations:

OBSERVER_ASSOCIATION_MANUAL, OBSERVER_ASSOCIATION_SNPSHT
OBSERVER_ASSOCIATION_REMOVE

Additional information about using Snapshot feeds to manage observer associations will be found in the *Integration and Advanced Data Management Guide* for Academic Suite.

Observer Dashboard

Observers will have a new dashboard-like interface tools to facilitate management of multiple users. This tool allows Observers visibility into vital statistics for all associated users while also supporting the ability to switch from observing one user to another. The actual experience for observing a user does not change from existing functionality.

This new tool appears in the tool panel which can be enabled for any module tab. It is available to users whose primary System Role is Observer, and is enabled by default for those users. If more than one user is being observed, this tool allows observers to switch between users with whom they are associated. It also allows the observer to drill down into the individual course enrollments for each user, and see performance data for the observed user in each course as well as enter each course as an observer. If Observer access is enabled in a course, the course will be listed with performance data in the Dashboard view.

Observer Gateway Module

This new module provides similar access to users being observed, with more prominent, at-a-glance visibility on a tab page. This module is unavailable by default, but can be enabled for users whose primary Institution Role is Observer. Customers who want to deploy this module should make sure that Observer users are configured with both their primary System Role and their primary Institution Role set to Observer; otherwise the module will not provide the information desired.

LEARNING SYSTEM ENHANCEMENTS

Announcements

All Instructors will now be able to deliver information to students by generating a broadcast email when creating or modifying a course announcement. Instructors will not have to rely on their students visiting the course site to see new information. This email will be sent to all users enrolled in the course, and will contain the title and body of the announcement.

This feature appears as a new step on the following pages:
Control Panel > Course Tools > Announcements > Add Announcement
Control Panel > Course Tools > Announcements > Modify

If the course email tool is disabled in the course, the feature will be unavailable (the step will not appear) and Announcements will continue to function as in previous releases. This is not available for System Announcements.

Email

A new Course Email tool has been added that allows mail to be sent to all Student users (no other course roles are included). The functionality is exactly the same as the other course email tools.
Course > Communications > Send Email > All Student Users

All mail sent from within Blackboard can now include support for HTML-formatted messages. Users will not have access to the Visual Text Box Editor when composing an email, but the content may include HTML. This enhancement supports the rich-text formatting supported by Announcements which can now be emailed to users ([see above](#)).

Administrators may be affected by this change due to the larger size of HTML-formatted messages.

Messages

All users will now benefit from a more streamlined workflow and easier access to information when using the Messages tool. Enhancements include:

- The number of unread messages and total number of messages now appear in the folder list
Course > Communications > Messages
- The list of sent messages now displays the message recipients
Course > Communications > Messages > Folder
- Selecting recipients has been made easier to use by displaying it directly on the page and adding an "invert" option for quick results
Course > Communications > Messages > Compose Message
- The destination folder list when moving messages now sorts alphabetically. This enhancement is only visible when the "Allow Personal Folders" option is enabled by the administrator at the system level
Course > Communications > Messages > Folder > Move Message

These enhancements are available to Enterprise License customers of the Learning System.

Gradebook

For each grade Instructors can now add comments that are visible to students. Comments can be created by clicking on a grade, a hyphen, or a lock symbol within the gradebook spreadsheet to navigate to the Modify Grade page; or click on an assignment to the Item Options page, then click on **Item Grade List**. The instructor must click on **Modify Comments** to add a comment, which uses a simple, spell-check-only text area in a pop-up box. The instructor can add comments to a Blackboard-generated assessment when the assessment is in progress or completed; while an instructor can only add comments to a manual grade or a manually created assignment *once a grade has been entered*. The instructor cannot add comments to any grade that has been entered through Override Grade. Pop-up blockers must also be “off,” or the instructor must press CTRL + **Modify Comments**.

The existing Date field will be relabeled Due Date and will no longer be required for Gradebook Items. The Creation Date of the Item is now exposed as a read-only field. It is important to note that no new date fields were added to the database to support the changes described above. Existing Gradebook Items' date values will not be adversely impacted upon system update. (See [Early Warning System](#) for additional information.)

Building Block Management

Administrators who opt to make a Building Block available on a system will now have a flexible roll-out option so that they are not forced to automatically enable tools belonging to the block. A default tool setting can be assigned to each Building Block using the existing management tool in Admin Panel > Blackboard Building Blocks Management > Building Blocks, so that new courses or organizations created will not automatically have the Building Block tools already enabled, but can enable them from the Control Panel as with other tools. This setting applies to the initial state of the tool only, and is a single setting for both courses and organizations.

This setting does not affect tool availability in existing courses or organizations, which still are managed from Admin Panel > Learning System > Settings > Course Tools for courses or Admin Panel > Community System > Settings > Organization Tools for organizations as in previous releases.

CONTENT SYSTEM ENHANCEMENTS

Centralized Content Settings Management

The interface for managing folders and items has been greatly enhanced, reducing the number of clicks to streamline management across multiple folders and files. Related content management settings have been consolidated and moved to the Properties page for files and folders. All of these settings can be configured on the Add Item page. Cascading version, tracking and comment settings can now be enabled at the file, folder, and subfolder levels.

Centralized content settings management becomes available when users are adding or modifying any Content System file or folder.

Folder Passes

Users now have the ability to create Passes for folders and its contents, extending the current functionality of Passes on individual files. Folder Pass recipients are directed to a content page listing all subfolders and files.

Sending a Pass for a folder grants access (Read or Read/Write) to all subfolders and files within the folder where the pass is created. Pass recipients with Read access have the ability to view subfolders/files and copy or download files within folders. Pass recipients with Read/Write access have the ability to add and modify folders and files using the standard Content System interface as well as Web Folders.

Home Pages

Users are able to personalize their entry page to the Content System, limiting the amount of initial navigation they must do upon entering the system. Users can select a location to serve as their starting page when they enter the system by the Content Collection tab or by browsing the Content Collection when linking to files from another location. Homepages can be set from a new link on the tool panel in the Content System menu called Personal Settings.

Advanced Administrator Search Utilities

Administrators have been provided with a set of search tools to more easily manage content residing on their systems. These tools make it easy to identify orphaned content so that it can be maintained and cleaned up. Content (files and/or folders) is considered orphaned if the user who owns the item no longer has a valid system account. Content may also be orphaned in a course or organization when the course or organization is removed from the Learning System, but the associated folder and contents still resides in the Content System. The orphaned search tools are available through an improvement to the general Administrator search tool.

Administrators will have new tools accessible from the System Administration Panel. New search utilities are available from the Content System section of the System Administration Panel. Content area availability and user list sharing is also managed through the administrative panel interface.

Content Area Availability Settings

Administrators have been provided with a tool to turn on and off the different content areas of the Content System, allowing institutions the flexibility to structure the Content System in a way to best fit their needs. When a content area is turned off, it is no longer accessible from any of the system's access points, including the Content Collection, courses and organizations. Associated command line tools have also been

updated to enable Administrators to quickly bulk populate content areas that are turned off and then turned back on.

User List Sharing Settings

The number of system provided shareable lists in the Content System has expanded. Using these settings, Administrators will be able to more easily manage the list of users that items may be shared to in the Content System. Administrators will be able to choose which institutional roles in the system have access to specific sharing lists.

DISCUSSION BOARD ENHANCEMENTS

User Interface

Several improvements have been made to the user interface:

- The Thread Detail page can display the entire thread in its own area. The user can also move this area to the top or bottom of the page, switching places with the selected post area.
- When a user modifies, deletes, or replies to a post they are returned to the last highlighted post or to the first post in the thread (if they are at the end of the thread) once the operation is completed.
- Date range-only searches are now allowed – no search text is required.
- A series of navigation exceptions (improper access denied or null pointer exceptions) have been fixed.

Discussion Board Grading

Discussion Board Grades are included in gradebook calculations by default. The user does not need to set new gradebook items for inclusion from inside the gradebook. If users have any concerns about existing gradebook items, they should contact their TSM. Disabled users no longer appear in the Discussion Board grading interface.

Thread Subscriptions

The following enhancements improve thread subscriptions:

- Replies to every message in a thread can trigger subscription emails.
- Copies of subscription alert emails are no longer sent to the administrator.
- Links in subscription alert emails are much shorter, and access problems by users who are not logged in have been corrected.

Database Improvements

The following database enhancements have been made:

- Blackboard has addressed the issue of disappearing post bodies when running on an Oracle database. The issue has been reported to Oracle and a workaround implemented. In rare occurrences, this issue may still occur, however, the likelihood has been diminished by the workaround.
- The forum copy function has been fixed for Oracle systems that contain more than 10,000 forums.
- Performance improvements on forum list loads and Performance dashboard statistics loads have been made for both supported database management systems.

BLACKBOARD ACADEMIC SUITE CHANGES

The table below displays a quick look at the functional changes in Application Pack 2.

COMPONENT/ SUBSYSTEM	CHANGE	REASON	IMPACT
Administrator Panel	New module for Outcomes System	The new Blackboard Outcomes System will be managed through the Blackboard Academic Suite Admin Panel	Administrators All Licenses Clients that do not license the Outcomes System will see the links in this module grayed out (inactive)
Administrator Panel	Observers link has been removed – Observer functions are now available below Users search	The new Observer Associations feature, which supports many-to-many associations, is found under the Modify action from User Search results	Administrators Enterprise Licenses When modifying users, select Observer Associations to add or remove Observers to the modified user. Selecting Observer Associations for an administrator or guest user will return an error message indicating that the user cannot be observed.
Building Blocks	Added a column to the Building Blocks list from Admin Panel, to allow a Building block to be added to a system as unavailable until turned on in specific courses or organizations	Requested enhancement - improve control of Building Blocks deployments within a course or organization.	Administrators Enterprise Licenses The new "Course/Org Default" column contains a pull-down menu with Available/Unavailable choices - this applies to the setting the tool will have in courses that have not yet been created (changing this value will not update existing course settings). Individual Building Block tools are still enabled or disabled using the Tool Management in the course control panel for a specific course.
Community System - Module Management	Added a search bar to the manage modules page	Requested enhancement – improve usability of the module listing page	Administrators All licenses Search bar added on the Module list page searches title and description fields.

COMPONENT/ SUBSYSTEM	CHANGE	REASON	IMPACT
Community System - My Courses Module	The course id now shows alongside the course name on the My Courses module and its customize page	Requested enhancement - improve usability of the Customize My Courses module page by distinguishing courses that might have the same name from one another.	All Users All Licenses As with the breadcrumb change (see below), long naming schemes for IDs or course names may introduce line-wrapping issues in this interface.
Community System - My Courses Module	The My Courses module subsections for announcements, tasks, and calendar are now suppressed when there are no such items in the course.	Requested enhancement - improve usability of the My Courses module by reducing wasted screen space.	All Users All Licenses Previous behavior would only suppress these subsections if the tools themselves were disabled in the course.
Community System - My Courses Module	For users who can see unavailable courses, they now show with the text 'Unavailable' next to the course title.	Requested enhancement – improve usability of the My Courses module by clearly identifying unavailable courses.	All Instructors, TAs, Course Builders, Graders All Licenses Text on page change.
Content System - Content Settings Management	Settings (Comments, Versions, Tracking) can now be enabled and disabled on the Add File or Add folder page as well as on the Properties page. Previously, Settings were only manageable from the Modify File or Modify Folder page.	Content settings management has been centralized to create a more streamlined process for setting up and managing content.	All Users Content System licenses What was previously a two step process (first, create item and then turn on individual settings) can now be done together when the item is added, or all at once on the Item Properties page. Access to Comments, Versions and Tracking data is still done via the same path, but the switches for the attributes have moved.

COMPONENT/ SUBSYSTEM	CHANGE	REASON	IMPACT
Content System – Portfolios	<p>Updated the My Portfolios list page</p> <ul style="list-style-type: none"> -added Portfolio Type column -moved the Manage Content function off the list page to a tool in the drop-down list -renamed the Manage button Modify -moved the Portfolio Wizard from the left frame tools menu to an action button on the list page. -Updated the My Portfolios Module -changed the Portfolios link to go to the Portfolio Landing page. 	Highlight newly released Portfolio features, including new portfolio types.	<p>All Users of Portfolios Content System license Wizard for creating Basic portfolios is now only accessible from the My Portfolios List Page</p> <p>The My Portfolios page is accessible from the new Portfolio Landing page or the left frame tools menu.</p>
Content System – Portfolios	<p>Added paging to Received Portfolios page, Course Portfolios page, and Portfolio Search Results.</p> <p>Author column on Received Portfolio page replaced with separate columns for first name, last name, and username</p>	Requested enhancement – improve usability of the Portfolio management pages.	<p>All Users Content System Licenses Received Portfolios now must be managed one page at a time, but sorting to the desired page of portfolios is more efficient.</p>
Content System – Portfolios	Added folder-based organization function; users can add folders (like in Bookmarks) and sub-folders for all viewable received portfolios.	Requested enhancement – add better support for organizing larger volumes of Portfolios	<p>All users who receive Portfolios Content System license Portfolios can still be removed from view, regardless of where they have been organized in the hierarchy.</p>

COMPONENT/ SUBSYSTEM	CHANGE	REASON	IMPACT
Learning System – Assignments and manual Gradebook Items	Optional Due Date field added.	The new Early Notification System Tool relies on this date for calculating compliance with the Due Date rule type. Attempts must occur on or before this date to satisfy the rule. Only Gradebook items with a specified Due Date may be measured in this way.	All Instructors, Graders, TAs, Students All Licenses, however, the Early Warning System is only available with an enterprise license. Instructors who want to set this date explicitly must select the checkbox and set the date. If the field previously known as Date in the Gradebook was being used for something besides Creation Date of the item or Due Date of the item, the new label may be confusing in the Student or Instructor Gradebook views, though functionally, the date may be used for any purpose if the Early Warning System rules are not being created for the item.
Learning System - Course/ Organization Management	Appended Course ID to course name on the navigation path and Course Menu	Requested enhancement - add clear course identification throughout course	All Users All Licenses Some lengthy schemes for Course Names or Course IDs may produce navigation paths that wrap to a second line in some browsers.
Learning System - Course/ Organization Management	Course Panel > Enroll User. Text on page changed for when no users are returned: "No user matching the search criteria was found. Note that users who are already enrolled do not show up in the search results."	Requested enhancement - clear up confusion about why already enrolled students do not appear in the course control panel tool for Enroll User.	All Instructors, Graders, Course Builders, TAs All Licenses Reduce user confusion about which users they expect to see in the Enroll Users tool.

COMPONENT/ SUBSYSTEM	CHANGE	REASON	IMPACT
Learning System - Course/ Organization Management	Added a column to Performance Dashboard showing Early Warning System counts	Serves as an entry point for the new Early Warning System feature	All Instructors, Graders, TAs Enterprise licenses When the tool is enabled, the Performance Dashboard will display the count of rules met and rules set in the tool for each student as a ratio (for example, 3/5). Clicking the ratio will lead into the workflow for the tool.
Learning System – Email	Added "All Students" selection to the caret list from Course > Communications palette, and Course > Control Panel > Send Email	Requested enhancement - Allow emailing to students only (excluding TA's and instructors)	All Users All Licenses If this functionality is not desired, it can be disabled using the Privileges management tool from the Admin Panel
Learning System – Email	Added alternative MIME-type section to send all emails on the system as both plaintext and HTML. Email clients will choose which to display based on user preferences or software capabilities in the mail client. The Visual Text Box Editor is not enabled for email tools.	Requested enhancement - Email tool should support ability to send HTML based emails.	All Users All Licenses Individual mail messages sent from Academic Suite will be larger – in some cases it is possible that the SMTP server may need to be tuned to allow for larger messages and more bandwidth. Faculty may need to be made aware of this change, depending on institution guidelines for e-mail etiquette or other policies.
Learning System – Gradebook	Added a Comment button to the Modify Grade page for manual items and to the Review Assessment page. Both lead to a new Modify Comment page where instructors can store comments for each grade as needed. Added a column to the Student My Grades tool to allow students to view comments when they are provided.	Requested enhancement - allow instructor to add comments for each user.	All Instructors, Graders, TAs, Students All Licenses

COMPONENT/ SUBSYSTEM	CHANGE	REASON	IMPACT
Learning System – Gradebook	Clickable white space padding added before and after the !, ? and - indicators in gradebook	Requested enhancement – make symbols in the gradebook easier to see and click	All Instructors, Graders, TAs All Licenses Improve usability of the gradebook. May affect some Screen Readers
Learning System – Messages	Replaced the sender field with Recipient Field in the message list for the Sent Messages folder	Requested enhancement – make it easier for users to see to whom they sent messages.	All Users Enterprise License only The Recipient field displays all the names in the TO field separated by semicolons.
Learning System – Messages	Move message page – destination folder list is now alphabetical order	Requested enhancement – make it easier to locate destination folders when moving messages	All Users Enterprise License only This feature is only available when the Messages option to allow Personal Folders is turned on at the system level.
Learning System – Messages	Converted the recipient selection tool in Message composition to use the standard multi-select tool	Requested enhancement – make it easier to select all users as recipients when composing a message.	All Users Enterprise License only
Learning System – Messages	Added two columns to folder lists: total messages and unread messages	Requested enhancement – show the number of new messages in the Inbox in folder lists.	All Users Enterprise License only Note that sent messages are always considered read, so this folder's unread message total is always zero.
Learning System – Privileges	New System Roles have been added to support Outcomes system	Roles and Privileges design requirement for Outcomes System product	Administrators with User creation privileges or System Role setting privileges All Licenses User creation/modification processes will see two extra System roles, Outcomes Administrator and Template Administrator.

COMPONENT/ SUBSYSTEM	CHANGE	REASON	IMPACT
Learning System – Privileges	Merged two columns into one on Manage Privileges page – Separate columns for System Roles and Course Roles are combined into a single Roles column	Roles and Privileges design to support the Blackboard Outcomes System	Administrators (Z only) All Licenses Individual sets of Roles are still labeled as System Roles: and Course Roles: on separate lines in the same cell of the list page.
Learning System - Virtual Classroom	Client-side applet for Mac OS 9, Netscape 4 & IE 4 dropped	These systems are no longer supported by their vendors.	All Users All Licenses The link to download the client applet has changed. Mac OS 9 and earlier users will not be able to use the later version of the applet, regardless of which browser they have (no JVM plug-in on this OS beyond 1.1), and users of Netscape 4 or IE 4 on Windows will need to upgrade their JVM plug-in before they can use the tools.

COMPATIBILITY MATRIXES

Overview

This section of the document includes information on the following:

- [Server Compatibility Matrix](#) – Explains which server configurations are supported with this release. For example, the required versions of databases and operating systems are included here.
- [End User Compatibility Matrix](#) – Reviews which end-user browsers and operating systems are supported with this release.

SERVER COMPATIBILITY MATRIX

Server Compatibility

Server software must meet certain requirements before installing the *Blackboard Academic Suite™* Application Pack 2 (Release 7.2). The following are important to keep in mind when setting up the server software:

- The database is run on a separate server when using two or more servers. Thus, appropriate client tools for the database must be installed on the Web/Application server or servers when using a configuration with two or more servers.
- Certified configurations are fully tested and supported.
- Compatible configurations are partially tested but should function properly.
- When installing the Java 2 Platform, Standard Edition (J2SE), make sure that both the JDK and the JRE components are installed. Also, ensure that there are no spaces in the path name to the J2SE.



NOTE: Clients running the *Blackboard Academic Suite* on a Windows Operating System must install the .NET framework if they plan on using .NET Building Blocks.

Updating the Operating System or Database Version

When installing an update to the operating system or database to support a new version of the Blackboard Academic Suite, always update the Blackboard Academic Suite and then make the updates to the database and operating system. Installing the database or operating system on an earlier version creates the risk of destabilizing the existing, earlier version. Please take care to back up the database and file system and test the restore process before installing an update.

Certified Server Configurations for the Blackboard Academic Suite

WINDOWS	SUN SOLARIS	RED HAT ENTERPRISE LINUX
Microsoft® Windows® 2003 Server SP1 (32-bit)	Sun® Solaris™ 10	Red Hat® Enterprise Linux® 4.0
<ul style="list-style-type: none"> • Microsoft® SQL Server 2005 Enterprise Edition or Microsoft® SQL Server 2005 Standard Edition • Microsoft® Internet Information Server (IIS) 6* (not included with Blackboard) • Java 2 Platform, Standard Edition 5.0 • Perl 5.6.1 / Perl Ex 2.3.1 • Tomcat 5.5 	<ul style="list-style-type: none"> • Oracle 10g R2 version 10.2.0.2 • Apache HTTP Server Version 1.3.33 • Java 2 Platform, Standard Edition 5.0 • Perl 5.6.1 / Perl Ex 2.3.1 • Tomcat 5.5 	<ul style="list-style-type: none"> • Oracle 10g R2 version 10.2.0.2 • Apache HTTP Server Version 1.3.33 • Java 2 Platform, Standard Edition 5.0 • Perl 5.6.1 / Perl Ex 2.3.1 • Tomcat 5.5

Certified Server Configurations for Blackboard Learning System – Basic Edition

WINDOWS	SUN SOLARIS	RED HAT ENTERPRISE LINUX
Microsoft® Windows® 2003 Server SP1 (32-bit)	SUN® SOLARIS™ 10	RED HAT® LINUX® ENTERPRISE LINUX 4.0
<ul style="list-style-type: none"> • Microsoft® SQL Server 2005 Enterprise Edition • Microsoft® SQL Server 2005 Standard Edition • Microsoft® Internet Information Server (IIS) 6* (not included with Blackboard) • Java 2 Platform, Standard Edition 5.0 • Perl 5.6.1 / Perl Ex 2.3.1 • Tomcat 5.5 	<ul style="list-style-type: none"> • Small-scale Oracle 9i version 9.2.0.7 • Apache HTTP Server Version 1.3.33 • Java 2 Platform, Standard Edition 5.0 • Perl 5.6.1 / Perl Ex 2.3.1 • Tomcat 5.5 	<ul style="list-style-type: none"> • Small-scale Oracle 9i version 9.2.0.7 • Apache HTTP Server Version 1.3.33 • Java 2 Platform, Standard Edition 5.0 • Perl 5.6.1 / Perl Ex 2.3.1 • Tomcat 5.5

Compatible Server Configurations for Blackboard Academic Suite

WINDOWS	WINDOWS	SUN SOLARIS	RED HAT LINUX
Microsoft® Windows® 2003 Server SP1 (32-bit)	Microsoft® Windows® 2003 Server SP1 (mixed mode)	Sun® Solaris™ 10	Red Hat® Enterprise Linux® 4.0
<ul style="list-style-type: none"> • Microsoft® SQL Server 2000 Enterprise Edition • Microsoft® SQL Server 2000 Standard Edition • Microsoft® Internet Information Server (IIS) 6* (not included with the Blackboard Academic Suite) • Java 2 Platform, Standard Edition 5.0 • Perl 5.6.1 / Perl Ex 2.3.1 • Tomcat 5.5 	<ul style="list-style-type: none"> • Microsoft® SQL Server 2005 Enterprise Edition on Windows 2003 64-bit • Microsoft® SQL Server 2005 Standard Edition on Windows 2003 64-bit • Microsoft® Internet Information Server (IIS) 6* (not included with the Blackboard Academic Suite) running on Microsoft Server 2003 32-bit • Java 2 Platform, Standard Edition 5.0 • Perl 5.6.1 / Perl Ex 2.3.1 • Tomcat 5.5 	<ul style="list-style-type: none"> • Oracle 9i version 9.2.0.7 • Apache HTTP Server Version 1.3.33 • Java 2 Platform, Standard Edition 5.0 • Perl 5.6.1 / Perl Ex 2.3.1 • Tomcat 5.5 	<ul style="list-style-type: none"> • Oracle 9i version 9.2.0.7 • Apache HTTP Server Version 1.3.33 • Java 2 Platform, Standard Edition 5.0 • Perl 5.6.1 / Perl Ex 2.3.1 • Tomcat 5.5

- Non-English applications, both operating systems and databases (such as a Chinese-language version of Oracle), are considered compatible with *Blackboard Academic Suite* Application Pack 2 (Release 7.2). These systems have not undergone official Blackboard Product Development testing.
- The Blackboard Academic Suite Application Pack 2 (Release 7.2) products ship with Apache HTTP Server Version 1.3.33 (UNIX operating systems only).
- The Blackboard Academic Suite Application Pack 2 (Release 7.2) products ship with Perl 5.6.1 / Perl Ex 2.3.1

END USER CONFIGURATION MATRIX

End User Configuration Guidelines

End users must use a certified or compatible operating system and browser configuration with the *Blackboard Academic Suite*.

		Windows® Operating Systems			Mac® Operating Systems		
		2000	XP	Vista Desktop	10.2	10.3	10.4
Microsoft® Internet Explorer® Web Browsers	5.2	N/A	N/A	N/A	N/A	N/A	N/A
	5.5	N/A	N/A	N/A	N/A	N/A	N/A
	6	C	✓	N/A	N/A	N/A	N/A
	7	N/A	P	P	N/A	N/A	N/A
Netscape® and Mozilla® Web Browsers	NS 7.1	C	C	P	C	C	N/A
	NS 8.0	C	✓	P	N/A	N/A	N/A
	Firefox 1.0	C	C	N/A	C	C	C
	Firefox 1.5	C	✓	P	N/A	C	✓
	Firefox 2.0	N/A	P	P	N/A	N/A	P
Web Browsers Apple® Safari®	1	N/A	N/A	N/A	C	N/A	N/A
	1.1	N/A	N/A	N/A	N/A	C	N/A
	1.2	N/A	N/A	N/A	N/A	✓	N/A
	2	N/A	N/A	N/A	N/A	N/A	✓

KEY	
✓	Certified – fully tested and supported
C	Compatible – key application areas tested
N/A	Not tested – specified Browser is not supported for the Operating System
P	Provisional – will test on Beta versions of new platforms and browsers. Certification is dependant on release by 3 rd parties

* All configurations marked as Compatible and have undergone a limited engineering analysis to test areas of the *Blackboard Academic Suite* that may have browser issues. Additional information on known browser issues may be found in the Knowledge Base.

** Microsoft Windows 2000 supported configurations are considered compatible when run on Windows 95, Windows 98, and Windows ME.

*** Gecko is the shared rendering engine at the heart of the Firefox 1.0, Netscape 7.1 and Mozilla 1.5 browsers, which are all considered compatible browsers. Only Firefox has undergone testing that qualifies it as Certified.

**** The Safari Web browser and the Gecko browsers for Mac do not currently fully support the Live Connect technology used by some features in the *Blackboard Learning System*. The Equation Editor, Collaboration tool and SCORM Content type may experience issues when these browsers are used. See the Knowledge Base articles 181-2429, 181-2428, 181-2431, 181-2432 for detailed information.

*****The preview version of Mozilla Firefox (version 0.10.0) is not supported.

SUPPORTED PATHS FOR IMPORTING AND RESTORING COURSES

Supported Paths for Blackboard Academic Suite Release 7

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.

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

*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.

**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.

SUPPORTED UPDATE PATHS

The table below outlines the update paths for Release 7, Application Pack 2.

PREVIOUS VERSION	DIRECT UPDATE TO 7.2	DETAILS
5.5.x	No	First migrate to 6.1.x then update through the Release 6 Application Packs to Release 6.3. Then update to Release 7.0 or Release 7.1 before upgrading to Release 7.2.
5.6.x	No	First migrate to 6.1.x then update through the Release 6 Application Packs to Release 6.3. Then update to Release 7.0 or Release 7.1 before upgrading to Release 7.2.
5.7.9 or higher (ML)	No	Install Release 7.2 and then move ML data from a separate server. See the ML Migration Guide for more information.
6.0.x	No	Update through the Release 6 Application Packs to Release 6.3. Then update to Release 7.0 or Release 7.1 before upgrading to Release 7.2.
6.1.x	No	Update through the Release 6 Application Packs to Release 6.3. Then update to Release 7.0 or Release 7.1 before upgrading to Release 7.2.
6.1.5.x (AP1)	No	Update through the Release 6 Application Packs to Release 6.3. Then update to Release 7.0 or Release 7.1 before upgrading to Release 7.2.
6.2.x (AP2)	No	Update to Release 6.3 and then update to Release 7.0 or Release 7.1 before upgrading to Release 7.2.
6.3.x (AP3)	No	Update to Release 7.0 or Release 7.1 before upgrading to Release 7.2. Update to Windows 2003 before running the updater to move to Release 7.0 or Release 7.1. Update to Oracle 9i while running Release 6.3. After moving to Release 7.0 or 7.1, update to Oracle 10g.
7.0	Yes	Direct update path to 7.2. See the following pages for updater instructions.
7.1 (AP1)	Yes	Direct update path to 7.2. See the following pages for updater instructions.

UPDATE INSTRUCTIONS FOR WINDOWS (FROM 7.0 OR 7.1)

Overview

Before running the updater, please backup the system and make sure it can be restored. Remember to run the Pre-Update Change Report before running the Updater.

Run the Updater on a Load-Balanced System

The Updater must be run on each Web/app server and the Collaboration server on a load-balanced system. The method is similar to the Installer—the Updater is run on each Web/App 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 Web/app servers and the Collaboration server. This option will update 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 Click on the Updater file to launch it or open a command-line prompt and navigate to the directory that holds the Updater.
- 2 Run the following command to launch the Updater:

```
C:\bb_updater>java -jar <updater_file>
```

To launch the Updater and use the command-line interface, run the following command (the following steps assume that the GUI Updater is used):

```
C:\bb_updater>java -jar <updater_file> -text
```

- 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 asks where the /blackboard is found and where the blackboard/content directory is found. 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 Academic Suite**, and **Uninstall appserver**. Type **1** and hit **ENTER** to select **Update**.
- 6 A message will appear that displays the changes that will be made when the Updater is run. Hit **ENTER** to start the update. 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 update.

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\bb7-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
```

Microsoft .NET Building Blocks on load-balanced configurations

After running the update, an error message may appear in the system when attempting to launch a Building Block built using Microsoft .NET. The system reports a Parser Error Message. To resolve the problem, copy the Webapp directory for any Building Blocks created using Microsoft .NET to each application server so that the directories may be accessed locally. Here is an example of the Webapp directory for a Building Block .NET directory on the UNC share:

```
\\UNC_server_name\bb_content\vi\bb_bb60\plugins\name_of_building_block\webapp
```

After copying the Building Blocks directories to each application server, follow these steps to remap the virtual directory in IIS on each application directory to point to the local directory:

1. Open **Start**. Select **Programs**. Select **Administrative Tools**. Select **Microsoft .NET Framework 1.1 Configuration**.
2. Expand **Runtime Security Policy**. Select **Machine**. Select **Code Groups**. Select **All_Code**.
3. Right-click **All_Code**. Select **New...**
4. Create a code group name, for example dotNETB2, and then choose **Next**.
5. Set **condition type** to URL.
6. In the URL field, enter:

```
file:///\\[local_server_name]\[sharename]
```

for example:

```
file:///\\bb_app_server_01\bb_content\vi\*
```

7. Restart IIS.

Token Warnings

Users may see token warnings that begin with antarg. These warnings can be safely ignored.

```
Infinite loop in tokens. Currently known tokens : [antargs.default.users.admini
trator.password]
Problem token : @antargs.default.users.administrator.password@ called from @ant
rgs.default.users.administrator.password@
Infinite loop in tokens. Currently known tokens : [antargs.default.users.integr
ation.password]
Problem token : @antargs.default.users.integration.password@ called from @antar
s.default.users.integration.password@
Infinite loop in tokens. Currently known tokens : [antargs.default.users.rootad
in.password]
Problem token : @antargs.default.users.rootadmin.password@ called from @antargs
```

```
default.users.rootadmin.password@  
Infinite loop in tokens. Currently known tokens : [bbconfig.cs.db.cms-user.pass
```

Language Pack Changes

To ensure consistency across releases, the Blackboard Academic Suite 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.

UPDATE INSTRUCTIONS FOR UNIX (FROM 7.0 OR 7.1)

Overview

Before running the updater, please backup the system and make sure it can be restored. Remember to run the Pre-Update Change Report before running the Updater.

Run the Updater on a Load-Balanced System

The Updater must be run on each Web/app server and the Collaboration server on a load-balanced system. The method is similar to the Installer—the Updater is run on each Web/App 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 Web/app servers and the Collaboration server. This option will update 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:

```
/usr/local/bbupdater/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 Academic Suite* 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 **Update**, **Provide new License file**, **Uninstall Blackboard Academic Suite**, and **Uninstall appserver**. Type **1** and hit **ENTER** to select **Update**.
- 6 A message will appear that displays the changes that will be made when the Updater is run. Hit **ENTER** to start the update. Do not close the command line window or any of the other windows that pop-up during the update.
- 7 After running the update, stop the Blackboard services and then stop the shutdown the Oracle database. Restart in the reverse order. Start the Oracle database first and then start the Blackboard services. Shutting down and restarting the Blackboard services and the Oracle database will prevent any potential problems with database caching after running the update.

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/bb7-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 Academic Suite 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.

Oracle 10gR2 Installation Error

Users installing the Blackboard Academic Suite on the Oracle 10g (Release 2) database report that the Blackboard installation fails to complete. Only the BBADMIN and BB_BB60 users and tablespaces are created. When this problem occurs, the following error is reported in the bb7-installer-log.txt file:

```
java.sql.SQLException: ORA-01031: insufficient privileges
at oracle.jdbc.driver.DatabaseError.throwSQLException(DatabaseError.java:125)
Error while running tool: blackboard.apis.updatetools.FatalUpdateToolException:
An error occurred creating the database for your virtual installation.
Review log logs/update-tools/update-tool-log.txt for details
```

The update-tool-log.txt file reports the error as:

```
blackboard.apis.updatetools.FatalUpdateToolException: An error occurred
creating the database for your virtual installation.
at
blackboard.apis.updatetools.tooldefs.install.DatabaseSetupTool.createAllDatabases(DatabaseSetupTool.java:91)

java.sql.SQLException: ORA-01031: insufficient privileges
at oracle.jdbc.driver.DatabaseError.throwSQLException(DatabaseError.java:125)
```

Prior to Oracle 10g Release 2, the **CONNECT** role was granted eight privileges: **create session**, **create table**, **create view**, **create synonym**, **create database link**, **create cluster**, **create sequence**, and **alter session**. With the release of Oracle 10.2.0.1, only the **create session** privilege is granted to the **CONNECT** role. Oracle removed the additional **CONNECT** role privileges in Oracle 10g (Release 2) to provide additional security by enforcing a principle of least privileges.

The Blackboard installer requires the **CONNECT** role to have both the **create session** and **create table** privileges.

The following will grant the two privileges that are required to install Blackboard on Oracle 10g (Release 2):

```
sqlplus "/as sysdba"  
SQL> @$ORACLE_HOME/rdbms/admin/rstrconn.sql  
SQL> GRANT create session, create table TO CONNECT;  
SQL> commit;  
SQL> exit
```

Another minor issue that occurs with Oracle 10g (Release 2) is that the databases and listener will not startup correctly when running the `dbstart` and `dbshut` oracle scripts to startup and shutdown the databases. To fix the problem follow these steps:

Linux:

1. `su - oracle`
2. `vi $ORACLE_HOME/bin/dbstart & vi $ORACLE_HOME/bin/dbshut`
3. Replace `ORACLE_HOME_LISTNER=$i` with `ORACLE_HOME_LISTNER=$ORACLE_HOME`
4. Save the file.

Solaris:

1. `su - oracle`
2. `vi $ORACLE_HOME/bin/dbstart & vi $ORACLE_HOME/bin/dbshut`
3. Replace `ORACLE_HOME_LISTNER=$i` with `ORACLE_HOME_LISTNER=$ORACLE_HOME`
4. Replace `ORATAB=/etc/oratab` with `ORATAB=/var/opt/oracle/oratab`
5. Save the file.

UPDATE SMALL-SCALE ORACLE DATABASE

Overview

The Blackboard Learning System – Basic Edition includes a version of Oracle that is run on a UNIX-based operating system. This version of Oracle is called Small-Scale Oracle. This topic contains information on upgrading the Small-Scale Oracle database from version 9I to 10G.



NOTE: Cloning the database and performing a test upgrade on the clone database before updating is strongly recommended. This encourages familiarity with the process without risking loss or corruption of data.

Red Hat Linux Prerequisite

If the Oracle database is running on Linux, make sure `/etc/sysctl.conf` contains the following lines:

```
kernel.sem = 250 32000 100 128
kernel.shmmax = 4294967295
net.ipv4.ip_local_port_range = 1024 65000
net.core.rmem_default = 262144
net.core.rmem_max = 262144
net.core.wmem_default = 262144
net.core.wmem_max = 262144
```

Solaris Prerequisite

If the Oracle database is running on Solaris, make sure `/etc/system` contains the following line:

```
set noexec_user_stack=1
```

General Prerequisites

Before beginning the upgrade process, perform the following tasks:

- Perform a full backup of the Blackboard database.
- Perform a system backup of the database server, including the directory that contains the Oracle software.
- Perform a backup of the `/etc/oratab` and `/etc/orainst.loc`.

Once all of the prerequisite tasks are complete, reboot or execute `/sbin/sysctl -p` as root. After that, check for invalid objects in the database and recompile them if necessary. The next step is gathering schema statistics, which is discussed in the next section.



NOTE: The database server and application server must meet the system requirements described in the appropriate version of the Release Notes.

Gathering Schema Statistics

Before performing the upgrade collect optimizer statistics for the standard schemas. Follow these steps to collect these schema statistics:

1. Login as oracle user:

```
su - oracle
```

2. Start SQL*Plus and execute the following:

```
sqlplus "/ as sysdba"
spool gdict
grant analyze any to sys;
exec dbms_stats.gather_schema_stats('WMSYS',options=>'GATHER',
estimate_percent => DBMS_STATS.AUTO_SAMPLE_SIZE,
method_opt => 'FOR ALL COLUMNS SIZE AUTO', cascade => TRUE);
exec dbms_stats.gather_schema_stats('CTXSYS',options=>'GATHER',
estimate_percent => DBMS_STATS.AUTO_SAMPLE_SIZE,
method_opt => 'FOR ALL COLUMNS SIZE AUTO', cascade => TRUE);
exec dbms_stats.gather_schema_stats('XDB',options=>'GATHER',
estimate_percent => DBMS_STATS.AUTO_SAMPLE_SIZE,
method_opt => 'FOR ALL COLUMNS SIZE AUTO', cascade => TRUE);
exec dbms_stats.gather_schema_stats('OUTLN',options=>'GATHER',
estimate_percent => DBMS_STATS.AUTO_SAMPLE_SIZE,
method_opt => 'FOR ALL COLUMNS SIZE AUTO', cascade => TRUE);
exec dbms_stats.gather_schema_stats('DBSNMP',options=>'GATHER',
estimate_percent => DBMS_STATS.AUTO_SAMPLE_SIZE,
method_opt => 'FOR ALL COLUMNS SIZE AUTO', cascade => TRUE);
exec dbms_stats.gather_schema_stats('SYSTEM',options=>'GATHER',
estimate_percent => DBMS_STATS.AUTO_SAMPLE_SIZE,
method_opt => 'FOR ALL COLUMNS SIZE AUTO', cascade => TRUE);
exec dbms_stats.gather_schema_stats('SYS',options=>'GATHER',
estimate_percent => DBMS_STATS.AUTO_SAMPLE_SIZE,
method_opt => 'FOR ALL COLUMNS SIZE AUTO', cascade => TRUE);
spool off
```

3. Stop the database services (if they are installed):


```
/usr/local/blackboard/tools/admin/ServiceController.sh services.stop
```

4. Shut down the Oracle 9i database:

```
su - oracle
sqlplus "/ as sysdba"
shutdown immediate;
```

Performing the Oracle Database Upgrade

The upgrade process involves installing the Small-Scale Oracle database software and then upgrading the database itself using `BbUpdateSSO.sh`.

	<p>NOTE: If the upgrade process fails, execute the DB Restore Script first and then contact Blackboard support:</p> <pre>su - oracle [Linux only] /usr/local/oracle/dbuabackup9i/SMALL9I_restore.sh</pre>
---	---


Follow these steps to upgrade the Small-Scale Oracle database from 9I to 10G:


1. Install the Oracle 10G database software.

	<p>NOTE: For detailed information on installing the Oracle 10G software (SSO), refer to the appropriate Small-Scale Oracle 10G Guide (SSO).</p>
---	--

2. Upgrade the database by logging in to oracle and execute the following commands:

```
su - oracle
cd /usr/local/SSO
/usr/local/SSO/BbUpdateSSO.sh -b /usr/local/oracle -h
/usr/local/oracle/10g -i /usr/local/oracle/9i -k
/usr/local/oracle/dbuabackup9i -s SMALL9I
```

	<p>NOTE: The parameters -A, -B, and -S are used to specify your current bbadmin bb_bb60, and bb_bb60_stats users' passwords, respectively.</p>
---	---

	<p>NOTE: Replace SMALL9I with the name of the real instance in these commands.</p>
---	---

3. Set the ORACLE_HOME directory in `.profile` or `.bash_profile` to point to the Oracle 10g home directory by executing the following command:

```
ORACLE_HOME=/usr/local/oracle/10g
```

4. Log out and then log back in as Oracle user.
5. Start up the Oracle 10G database.

```
sqlplus "/ as sysdba"
startup
```

6. Start the Blackboard services:

```
/usr/local/blackboard/tools/admin/ServiceController.sh services.start
```

UPDATE ECOMMERCE

Installation Process

If the Blackboard Transaction System—Universal Edition or Windows Edition is used, the Enviserv middleware must be updated along with the Blackboard Community System. Enviserv is additional software that allows communication between the Blackboard Transaction System and the Blackboard Community System. Updating the Enviserv software requires the uninstallation of the old version and installation of the new version. Before doing so, make a backup of the existing installation so the system can be restored to its current state.

Clients running the Blackboard Transaction System—UNIX Edition must configure the Blackboard Community System to support communication using the TIA protocol. The TIA protocol is supported beginning with Hotfix 1 for Service Pack 1 of the Blackboard Academic Suite, Release 7, and Application Pack 1.

The process for connecting the Community System to the Transaction System depends upon the licensed version of the Transaction System. Use the table below to determine which process to follow:

TRANSACTION SYSTEM VERSION	PLEASE SEE . . .
Blackboard Transaction System—Universal Edition	Install Envision
Blackboard Transaction System—Windows Edition	Install Envision
Blackboard Transaction System—UNIX Edition	Configure TIA

e-Commerce Prerequisites

The following prerequisites must be met before connecting the Blackboard Community System to the Blackboard Transaction System.

- Blackboard Transaction System—Universal Edition; Blackboard Transaction System—Windows Edition, package 212 or higher; or Blackboard Transaction System—Unix Edition, Release 9.0 or higher.
- Blackboard Community System Release 7.0 or higher with the Blackboard Transaction System—Universal Edition and the Blackboard Transaction System—Windows Edition. The version of Enviserv must match the version of the Blackboard Community System. For example, if the Blackboard Community System is build 7.0.298, use Enviserv 7.0.298 or Optiserv 7.0.298.
- Hotfix 1 for Service Pack 1 for the Blackboard Academic Suite Release 7.1 or higher is required for the Blackboard Transaction System—UNIX Edition to communicate through the TIA protocol.
- SSL-Enabled on the Blackboard Community System.

NOTE: For SSL to work with the MyAccounts module it must be enabled for all parts of the Blackboard Community System. If SSL Choice is used, the MyAccounts module will not be secured under SSL. Also, it is not possible to make purchases in the eMarketplace without an SSL certificate.

Information on installing the Blackboard Community System can be found in the Blackboard Community System Setup Guide. Information on configuring SSL can be found in the Server Administration Guide. Please consult the Blackboard Transaction System documentation for information on installing the Blackboard Transaction System.

ENVISERV INSTALLATION

The EnviServ server enables communication between the Blackboard Community System and the Blackboard Transaction System—Universal Edition or the Blackboard Transaction System—Windows Edition. The EnviServ middleware is installed on the Blackboard Transaction System server. Instructions for installing EnviServ appear below.

NOTE: The EnviServ version must match the version of the Blackboard Community System.

Enviserv Settings

The following settings are required when installing Enviserv. Gather the values for each setting before running the installer. This data can be found in the properties file:

`C:\enviserv\blackboard\config\bb-config.properties`

SETTING	VALUE
Enviserv Directory	The directory where Enviserv will be installed. The default value is C:\Enviserv
J2SE Directory	The location of the Java 2 Platform, Standard Edition. Make sure that the full SDK is available on the server and matches the version required for the Blackboard Community System.
Enviserv Server Configuration	
Host Name	Enter the IP Address or DNS name for the server hosting Enviserv.
Port	Enter the port number that Enviserv will use to listen for requests from the Blackboard Community System. The default is Port 3784 (The port must match transaction system settings configuration of the Community System.)
Secret Key	The Key must be 16 characters long and can be any combination of alphanumeric characters. The same key will later be entered into the Blackboard Community System.
Windows Service Name	Enviserv runs as Bb-Enviserv within the Windows operating system.
Transaction System Configuration	
Host Name	Enter the IP Address or DNS name for the server hosting the Transaction System Database.
Port	1521
SID	Enter the Database SID used with Transaction System Database.
User	Enter the user name as envision.
Password	Enter a password for the user.

Install Enviserv on a Windows Server

Follow these steps to install the EnviServ server software.

1. Stop Enviserv.

```
C:\enviserv\blackboard\tools\admin\ServiceController.bat services.stop
```

2. Remove the NT service.

```
C:\enviserv\blackboard\tools\admin\RemoveServices.bat
```

3. Rename the C:\enviserv directory to C:\enviserv.orig.

4. Download bb_enviserv_windows_X_X_X_XXX (Where the X's are the version number) to the Blackboard Transaction System server. Make sure that the Enviserv version number matches the version number of the Blackboard Community System.

5. Run the installer.

6. Confirm the license agreement and click **Next**.

7. Complete the fields in the installer using **Next** and **Back** to navigate between pages. Descriptions of the data that must be provided are included above in the Enviserv Settings table.

8. Click **Finish** after completing the installer.

9. Once the installation is finished, start the Bb-Enviserv service through the Windows operating system.

10. After installation is complete and the Bb-Enviserv service is running, test the system.

11. After verifying that Enviserv is operating properly, remove the C:\Enviserv.orig backup directory.

Enviserv Config File and Command Line Tools

After installing Enviserv, the properties file that stores user-defined settings is stored at:

```
C:\enviserv\blackboard\config\bb-config.properties
```

This file is useful when making updates to Enviserv. Keep a backup copy to easily reapply settings after an update. Keep in mind that the Enviserv version must be kept consistent with the Blackboard Community System version. Update Enviserv every time the Blackboard Community System is updated.

To start and stop Enviserv services, use the following tool:

```
C:\enviserv\blackboard\tools\admin\ServiceController.bat
```

To start services:

```
C:\enviserv\blackboard\tools\admin\ServiceController.bat services.start
```

To stop services:

```
C:\enviserv\blackboard\tools\admin\ServiceController.bat services.stop
```

As part of the uninstallation process, the service must be removed from the server. Use the following tool to remove the NT service:

```
C:\enviserv\blackboard\tools\admin\RemoveServices.bat
```

CONFIGURE COMMUNICATION BETWEEN THE BLACKBOARD COMMUNITY SYSTEM AND THE BLACKBOARD TRANSACTION SYSTEM—UNIX EDITION

Overview

Communication between the Blackboard Community System and the Blackboard Transaction System—UNIX Edition no longer uses Optiserv or a Lantronix device. Instead, communication occurs through the TIA protocol.

Configuration requires Hotfix 1 for Service Pack 1, Blackboard Academic Suite, Release 7.1.

TIA Protocol Configuration

After installing the Hotfix, follow these steps to configure communication between the Blackboard Transaction System and the Blackboard Community System.

1. Stop the Optiserv service. This service is no longer required.
2. Record the following information from the Blackboard Transaction System:
 - Server:** IP address that identifies the Blackboard Transaction System server.
 - Port:** Port used by the Blackboard Transaction System server to communicate with the Blackboard Community System.
 - Key:** 32 bit hexadecimal encryption key. This key must match the key on the Blackboard Transaction System.
 - Terminal:** Used to match the Blackboard Community System to a specific point of sale identified by the Blackboard Transaction System.
 - Tender:** Used to match the Blackboard Community System to a specific point of sale identified by the Blackboard Transaction System.
3. Configure the Blackboard Transaction System to implement TIA using a properly formatted iptxninterface file. Details can be found in the *Transaction Integration Agent Setup, Configuration and Support Guide*, which is available on Behind the Blackboard.
4. Login to the Blackboard Community System as a user with Administrator privileges.
5. From the Admin tab, click **eCommerce** and then select **Transaction System Settings**.
6. Under **TIA – UNIX Transaction System Settings**, enter the information recorded in step 2. Click **Submit**.
7. The Blackboard Community System should now be able to communicate with the Blackboard Transaction System to handle eCommerce transactions.

REFERENCE MATERIALS

About Reference Materials

A full suite of reference materials is available with the Academic Suite. All materials are located in the Reference Center at <http://behind.blackboard.com>. These materials include:

MANUAL NAME	DESCRIPTION
<i>Blackboard Academic Suite Hardware/Software Guide</i>	
Hardware Sizing Guide	Helps Administrators plan their hardware needs for running the <i>Blackboard Academic Suite</i> .
<i>Blackboard Academic Suite Installation Guide</i>	
Setup Guide	Installing the <i>Blackboard Academic Suite</i> .
<i>Blackboard Academic Suite Administrator Guides and Manuals</i>	
System Administrator Manual	Reference manual detailing the tools and functions available through the Administrator Panel. This manual covers the entire <i>Blackboard Academic Suite</i> .
Server Administrator	Background information, specific instructions, and resources covering different types of end-user authentication, application architecture, Virtual Installations, and SSL.
Advanced Integration and Data Management Manual	Background information on integration and instructions for using integration tools included in the <i>Blackboard Academic Suite</i> .
<i>Blackboard Academic Suite API Specifications and Building Blocks</i>	
Introduction to the Building Blocks APIs and Runtime	Reference material about the Building Block APIs and Runtime for developers creating Building Blocks.
System Extension Developers Guide	An overview of the Building Block framework and a quick start reference to begin creating Building Blocks.
Module Developers Guide	A quick start reference to create Building Block modules.
Building Block API Specifications	The Building Block API JavaDoc; this serves as the authoritative reference for developers creating Building Blocks for the <i>Blackboard Learning System</i> and the <i>Blackboard Community System</i> .
Administrative API Specifications	The Snapshot API JavaDoc; this serves as the authoritative reference for Administrators using the snapshot tool.
<i>Blackboard Academic Suite End User Manuals</i>	

MANUAL NAME	DESCRIPTION
User Manual	Reference manual detailing the tools and functions included in the platform from the general user perspective. This manual includes information on the <i>Blackboard Learning System</i> and the <i>Blackboard Community System</i> .
Instructor Manual	Reference manual providing detailed information about building and managing courses and organizations. This manual includes information on the <i>Blackboard Learning System</i> and the <i>Blackboard Community System</i> .
<i>Blackboard Content System API Specifications and Building Blocks</i>	
<i>Blackboard Content System</i> Building Blocks API Specifications	The Building Block API JavaDoc for the <i>Blackboard Content System</i> ; this serves as the authoritative reference for developers creating Building Blocks for the <i>Blackboard Content System</i> .
<i>Blackboard Content System End User Manuals</i>	
User Manual	Reference manual detailing the tools and functions included in the system for all end users. This manual includes information on the <i>Blackboard Content System</i> .