

Service Pack 1

Building Blocks

Developers can improve Building Block performance and data persistence by adding requests for installing Building Block specific database objects to their Building Blocks. A tool which allows the System Administrator to approve or deny installation of Building Blocks which request creation of database objects is also provided.

Administrators experience improved dialog notification for Building Block management actions and retention of persisted data and location of upgraded Building Blocks.

Improved Disk Storage Information

System Administrators are provided with an improved display of disk storage information.

Search

Administrators can more easily find users and courses using two new search fields, Student ID and Data Source

Service Pack 2

New fields “Suffix” and “Other Name”

To improve the usability of sorting for countries where a last name prefix (e.g. “van der”) is common but should not be used for sorting, additional user information fields, `suffix` and `other name`, have been added.

In some locales, the `suffix` might be used for {Jr., Sr., II, III, etc.}, while in other locales it will be used for last names which contain multiple words like Van der Waals where “Waals” is the last name and “Van der” is the suffix (a.k.a Last Name Prefix).

The `other name` field provides for additional flexibility and freedom. Administrators can use this field to indicate a user’s nickname, additional id, or an entirely different purpose which meets their needs.

Renaming the fields

To change how these new fields are displayed on the user creation screen, administrators must use the Language Pack Editor to modify the `user_column_access.properties`. Each new field has two properties that can be edited:

- Suffix (`suffix.default_display_title`, `suffix.display_title`)
- Other Name (`othername.default_display_title`, `othername.display_title`)

This can also be done from **System Admin** tab, under **Customize User Information**.

Sorting

The administrator can modify the `LocaleSettings.properties` file in each Language Pack to modify the sorting and display order of user names. Using this file, names can be sorted in any order necessary for the locale. For example, a Dutch administrator might use

```
LOCALE_SETTINGS.COLUMN_ORDER=  
title,givenName,middleName,suffix,familyName,otherName
```

 to display the last name prefix correctly in a student search. The same administrator might also use

```
LOCALE_SETTINGS.SHORT_SURNAME={6} {3}, {1}
```

 to do the same thing in the Grade Center and related screens. These examples use the conventions set forth in the comments of the `LocaleSettings.properties` file.

Snapshot, Building Blocks, Web Services

If your institution adopts `suffix` or `other name`, and currently utilizes the snapshot utility or integrations through Building Blocks and web services, these integrations must be updated to include this new data. For reference, the six name fields (plus `UserInfo` getter function names) are included below:

- `title` (`getTitle`)
- `firstname` (`getGivenName`)
- `middlename` (`getMiddleName`)
- `lastname` (`getFamilyName`)
- `othername` (`getOtherName`)
- `suffix` (`getSuffix`)

Installer enables /Courses content area when upgrading to 9.1.

In 9.1 SP1 HF1 an improvement was added that enables the `"/courses"` content area during installation. This particular improvement is also included in 9.1 SP2. The improvement prevents failed upgrades and other undesirable behavior when coming from Learn 9.0 installations. After running the updater, the administrator has the ability to disable the `"/courses"` content area again. Instructors are then prompted to choose a default Course Directory when trying to add course content for the first time.

Service Pack 3

Course Quota Updates

Course Quota changes can now be made through the Quotas page accessed from the contextual menu next to a course name in the Courses list on the Administration Panel. Options are now available for Course Quota, which refers to the maximum storage for course files, and Legacy File Storage, which refers to any files that are not moved to course files and still exist in the old hidden storage system.

Different values can be entered for Course Quota and Legacy Files Storage to take into consideration whether all or only some course files will remain in the legacy storage system. The value will also appear in the Content Collection or Course Content Quota page for each course. The value can be changed from those pages and the change will appear from both the Course page and the

Administration page. The value entered from the Administration panel is the default for newly created courses once the value is set.

Service Pack 4

Data Sources

System Administrators can navigate to **Administration Panel > System Reporting > Data Sources** to create new data sources and open existing data sources to view details about each type of record currently associated with that data source. Existing keys can also be modified or deleted. Records can be disabled and purged as well.

Search and Select All

A large list of items, such as users or courses, is often returned from a search that uses the filter Not Blank or a generic character in the filter Contains. This list is displayed on multiple pages, the number of which is based on the setting of number of items to display on a page. Checking the top Status box selects all the items displayed on the page, but now gives you the additional option of selecting all items returned in the search. This option allows you to select the entire set so you do not have to go to each page and select all, or set the number of items displayed on the page to a very high number, causing performance problems.

Support for Google Analytics™

Google Analytics™ is a free service offered by Google for mining web traffic data to a website or application. The process for setting up Google Analytics is the same for each Blackboard Learn code line including 9.0 SP5 and 9.1 SP4 and beyond.

Resource Governor

A new command line feature that allows certain performance intensive database operations to run at a lower priority so that they do not consume CPU resources is shipped with SP4. This feature, a resource governor, is turned off by default.

Global XSS Filtering

To prevent cross-site scripting (XSS) attacks, Blackboard Learn now can globally filter user HTML input. The filtering changes the greater-than sign, ">" to ">" and the lesser-than sign, "<" to "<". This applies to all data entered using HTML forms, such as submitting a Create Discussion Board Forum Message form. Global XSS filter is also applied to file uploads, and will be apparent when rendering the contents of a form submission back to the screen.

Global XSS filtering only occurs for un-trusted user roles such as students. Trusted users, such as course instructors are allowed to post data and will not have their HTML filtered.

Service Pack 5

Default Maximum Upload Limit

The default size limit for content uploaded through the user interface has been raised from 250 MB to 2.5 GB. When attempting to upload files larger than 2.5 GB, Web Folders must be used.

Course Files Move Utility

Course Files migration is an integral part of the recommended upgrade path to Blackboard Learn 9.1. Full support and a renewed recommendation for using the Move Files Utility for all customers upgrading has been restored.

With the release of Learn 9.1, file management and storage was fundamentally changed. A new file storage system was implemented through the Control Panel of a course and is called "Course Files". Course Files gives users a way to manage their content files, file uploads, and attachments. It also provides a way for users to manage who has permission to see and change files stored here. Course Files provides a very basic file management interface.

For clients with a Content Collection license, Course Files is a window into their Content Collection files through the course Control Panel. All the functions of the Content Collection remain, but easy navigation to and from a course is available.

The Move Files Utility was created to populate the new file storage system with the course files from a legacy course. Since Blackboard Learn 9.1 GA was released, problems related to files moved using the utility after upgrading to 9.1 were discovered. With this release, we have holistically addressed this key area and can renew our recommendation for use of the Move Files Utility for all customers.

Restoring legacy courses in Blackboard Learn 9.1 without using the Move Files Utility places the files in a legacy storage area that is not revealed to users, although the files remain accessible in the course. New material developed after the course is upgraded is stored in the Files or Content Collection area. This does not give a consistent user experience managing files for a course. By using the Move Files Utility to move course files during an upgrade, legacy files are placed in Course Files, providing a consistent way to manage files in a course.

Security

Service Pack 5 addresses three key security vulnerabilities.

- Cross-site Request Forgery – Cross-site Request Forgery is an attack that attempts to execute actions on behalf of a user authenticated into Learn. SP5 provides further hardening of Learn Release 9.1 from cross-site request forgery by protecting key parts of the application such as the Grade Center.
- Cross-site Scripting Attacks – Cross-site Scripting is an attack where malicious scripts are injected into Learn. This occurs when specially crafted values are entered into a variable of a web page or stored and displayed by the application. Oftentimes, an attacker would need to convince an authenticated user to access a malicious web page or record in order for the attack to occur. Key parts of the application are now protected.
- Authorization Vulnerabilities – authorization vulnerabilities in the Address Book, Calendar, Grade Center, Portfolio Comments and Display, and Tasks have been eliminated.