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Waukesha BB Scheduler 1.0 Users Guide



# Overview

The purpose of this document is to provide instructions for deploying, using, and updating the Waukesha BB Scheduler developed by Obsidian Solutions Consulting.

## Version Changes

## Purpose

This Application will allow The Waukesha School district to have a LTI-Based tool to assist admins and teacher in the creation of courses from Infinite Campus into BB Learn. Instructors will have a LTI tool that can be used to retrieve Infinite Campus courses/sections and to select them for integration and creation of Blackboard courses in real-time and the Admins will have an enhanced LTI tool for managing all Infinite Campus course and Blackboard courses with the added ability for Admin functions and syncing snapshot integrations.

## Infinite Campus Database Integration

The BB Scheduler interfaces with the Infinite Campus application through a direct JDBC connection with their MS SQL database. Many of the SQL integrations have been provided by the Waukesha team from the previous VB based BB Scheduler application (1.0)

## Blackboard Learn Integration

The BB Scheduler interfaces with the BB Learn system is 3 separate integrations. Course integration is performed via the BB Learn REST APIs. Application integration is through using LTI 1.1 integration for the User Interface. Data Synchronization is done using the BB Learn Snapshot Data Integration Framework.

## Backend Servers

The BB Scheduler is built on a Spring Boot framework running on Tomcat 10.x. Production and Staging are connected to a corresponding Windows Server running this framework. The Windows Servers are provided by the Waukesha Team and are configured to support port 80/443 for all HTTP/HTTPS traffic.

# Installation

## Pre-Requisites

Deploying the application

1. An account with system administrator rights to the backend Windows Server
2. An account with administrator rights to the system hosting the Blackboard application.
3. Tomcat Installation
4. The application \*.war file
5. A running instance of Blackboard Learn Ultra/Saas

## Installing the Tomcat Application

Installing Tomcat can be done utilizing the Tomcat binaries that can be found on the Tomcat download site. The version of Tomcat used for this application is version Tomcat version 9.

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| # | Step | Image |
| 1 | Download and install the Tomcat 10.1.39 Release | apache-tomcat-10.1.39.exe |
| 2 | Download and Install Java JDK 23.0.2 | Open Java |
| 3 | Configure the Tomcat Server to accept HTTP/HTTPS Connections over port 80/443 | conf/server.xml |
| 4 | Get the latest Waukesha BB Scheduler Application and place into the Tomcat webapps directory. It should auto-deploy | WaukeshaBBScheduler-x.x.x.war |

## Setting Up REST Integration

The REST Integration must be setup on the BB Learn Server. This is typically done by the System Admin. The following steps must be followed:

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| # | Step | Image |
| 1 | Go to BB Learn Admin Page and find the Integrations Module and select REST API Integrations |  |
| 2 | Create a New Integration |  |
| 3 | Enter the Application ID provided by the Developer and associate to a BB Learn User that has the required privileges. |  |
| 4 | This is an example |  |

## Setting Up LTI Integration

The BB Scheduler User Interface is integrated with BB Learn via LTI 1.1. System Admins must setup the LTI Endpoints in BB Learn and create the Placements to access the User interface. The following steps show the configuration of the LTI Endpoints in BB Learn

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| --- | --- | --- |
| # | Step | Image |
| 1 | Create the LTI Endpoint in BB Learn. Select the LTI Tool Providers in the Integrations menu in the Administration Page. |  |
| 2 | Select the “Register LTI 1.1 Provider” on the LTI Tool Providers page. |  |
| 3 | Fill out the following Data:  Provider Domain: bbscheddev.waukesha.k12.wi.us |  |
| 4 | Set the Provider key and secret. This must be configured based upon the setting on the Server |  |
| 5 | Set the Institution Policies and Submit |  |
| 6 | Now set the Placements, Right Click on the bbscheddev.waukesha.k12.wi.us listing and select Manage Placements |  |
| 7 | Placements can be anywhere in BB Learn where LTI Links are supported. Select Create Placement and fill out the form |  |
| 8 | Provide the Label, Handle and set the Availability to Yes. The Handle must be unique for each instance. |  |
| 9 | The Type is used to place the LTI Links into various locations in BB Learn. |  |
| 10 | The Tool Provider Information is key to the Portal User Interface. The URL must point to the LTI Endpoint in the application. Use the following URL for Production.  https://bbsched.waukesha.k12.wi.us/WaukeshaBBScheduler/lti  or  https://bbscheddev.waukesha.k12.wi.us/WaukeshaBBScheduler/lti  for Staging  The Tool Provider Key and Tool Provider Secret should be automatically set if the LTI Global option was set. |  |
| 11 | Hit Submit to add the Placement. Multiple Placements can be added to support various configurations and locations. |  |

## Configuring the BB Scheduler Properties

After the Tomcat application is installed, there is an application.properties file use in the configuration of the Waukesha BB Scheduler application. This file can be managed via the BB Scheduler Admin application/User Interface. This should be accessible from the BB Learn Admin Page under Tools.

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| --- | --- | --- |
| # | Step | Image |
| 1 | Open the BB Scheduler in “Admin” mode |  |
| 2 | Once on the Admin Screen, there is a left menu to access the various modules. The 56 modules are:   * + - 1. REST Config       2. LTI Config       3. Portal Config       4. Admin Config       5. Snapshot Config   Select the menu icon to configure each module. The UI is responsive can be accessed via a device with smaller real-estate. |  |
| 2 | The REST Configuration Form is used to configure the application to connect to its corresponding BB Learn REST Server. This information is provided by BB Learn System admin once the REST Integrations has been completed. |  |
| 3 | The LTI Configuration Form is used to configure the LTI 1.1 integration to Blackboard. LTI 1.1 requires key/secret configuration to establish the LTI relationship with Blackboard. LTI is used to provide a SSO login from Blackboard to the Waukesha BB Scheduler. |  |
| 4 | The Portal Configuration Form is used to configure Application specific information. This form has the following fields (All required)  Logging Level – This dynamically set the log level of the application. The default is INFO. Adding log levels like DEBUG or TRACE will affect the performance of the application |  |
| 5 | The ADMIN Configuration Form is used to configure the Email Server used for the application. These settings should be configured for the SMTP Email server used by the application. The Waukesha IT group will provide these settings. |  |
| 7 | The Snapshot Configuration Form is used to support Snapshot file integration to Blackboard. The Blackboard Instance ID, Shared Username and Password from the Snapshot integration endpoint are required. The Email field is used to send the results of each integration run. |  |

## Configuring the Statistics Database and SFTP configuration

After the Tomcat application is installed, there is a spring.xml file used in the configuration of the Waukesha BB Scheduler application. This file can be edited and is located in the webapps/WaukeshaBBScheduler/WEB-INF/spring directory of the Tomcat application server. To edit the file, open it up on Notepad.

### Database Configuration

The bean that contains the database configuration is in this file. The below is what is looks like and the configuration parameters. Just edit and change the properties to match your configuration. A restart of the server is necessary after making a change.

<!-- database source to setup Statistics -->

<bean id="ds"

class="org.springframework.jdbc.datasource.DriverManagerDataSource">

<property name="driverClassName"

value="com.microsoft.sqlserver.jdbc.SQLServerDriver" />

<property name="url"

value="jdbc:sqlserver://waukeshawi.infinitecampus.org:7771;databaseName=waukesha\_sandbox;encrypt=true;trustServerCertificate=true;" />

<property name="username" value="SDW\_BBDEV" />

<property name="password" value="dWUV0nxK9\*9JwRGf" />

</bean>

### Task Configuration

The bean that contains the Snapshot Task configuration is in this file. Just edit and change the properties to match your configuration. A restart of the server is necessary after making a change.

<task:scheduled-tasks scheduler="myScheduler">

<task:scheduled ref="BBSchedulerTasks"

method="syncUsers" cron="0 0 6 \* \* \*" />

<task:scheduled ref="BBSchedulerTasks"

method="syncEnrollments" cron="0 0 7 \* \* \*" />

</task:scheduled-tasks>

# User Guide

## BB Scheduler 2.0 – Admin Mode

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| --- | --- | --- |
| # | Step | Image |
| 1 | The BB Scheduler operates in 2 modes. There is an “Instructor” mode and an “Admin” mode. Adim mode is only enabled when the user has a System Role of “Course Creator” assigned to their Blackboard Profile |  |

## BB Scheduler 2.0 – Instructor Mode

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| # | Step | Image |
| 1 | The BB Scheduler will normally be in “Instructor mode and only show IC Course or BB Courses that they are instructors in. No Admin Button will be displayed |  |

## BB Scheduler 2.0 – Features

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| # | Step | Image |
| 1 | There are 2 main screens for the BB Scheduler. “IC Courses” and “BB Courses”. IC Course are used for viewing the Infinite Campus courses assigned to an Instructor. BB Courses will show the Blackboard courses assigned to an Instructor | A screenshot of a course number  AI-generated content may be incorrect. |
| 2 | Both Screens provide the ability to Search globally for a value or on individual Columns. Type in the Search bar and the screen will update automatically as the filter is applied. To used individual columns, select the column and then type in the filter criteria in the search area |  |
| 3 | Example of a search |  |
| 4 | Each Column on the screens are sortable. Select the Columns and then the Arrow to the left can be used for ascending or descending |  |
| 5 | There is an “Actions” button on each row to assist the user in their specific operations. There are 2 Actions. Select Sections and Manage Sections |  |
| 6 | Select Sections is using in creating new courses in BB Learn. Users can select Sections from Various courses to be combined into a single BB Course. Users can start the process by selecting section from a variety of courses. Once selected, a sheet will pop up to show the list of sections are available to be selected |  |
| 7 | Sections that are available to be selected will have the Add Button enabled. If the Section is already linked, the Add button will be disabled. Users can select 1 or more sections or just select the Add All Sections button. |  |
| 8 | Once selected, the button will chane to a Remove button. Users can remove sections they no longer wish to use. Once happy with the selections, select the Left Arrow to return. |  |
| 9 | The course in which the section(s) were selected will now be highlighted in Green. |  |
| 10 | The Selection button will also be updated to show 2 Sections selected. Click on the button to see the details |  |
| 11 | Follow the same process to add more sections from other courses. The Selection area will update as more sections are added. |  |
| 12 | To clear all selections to start over, select the Clear Sections button. |  |
| 13 | Once you have selected all Sections to be put into a Blackboard Courses, select the “Create Course” button |  |
| 14 | This will bring up a new Create Course Sheet for building a new course to be submitted to Blackboard |  |
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## Snapshot File Integration

In this version, Blackboard Snapshot/SIS flat file integration was added. The BB Scheduler can be used in Admin Mode to manually start a sync in the following areas:

1. Student Sync
2. Staff Sync
3. Guardian Sync
4. Group Sync
5. Enrollment Sync

The application also provides automated Tasks that can be executed at various time to perform these BB Learn Snapshot refreshes.