

Blackboard Learn 9.1 Web Services

How To Login Using A Proxy Tool

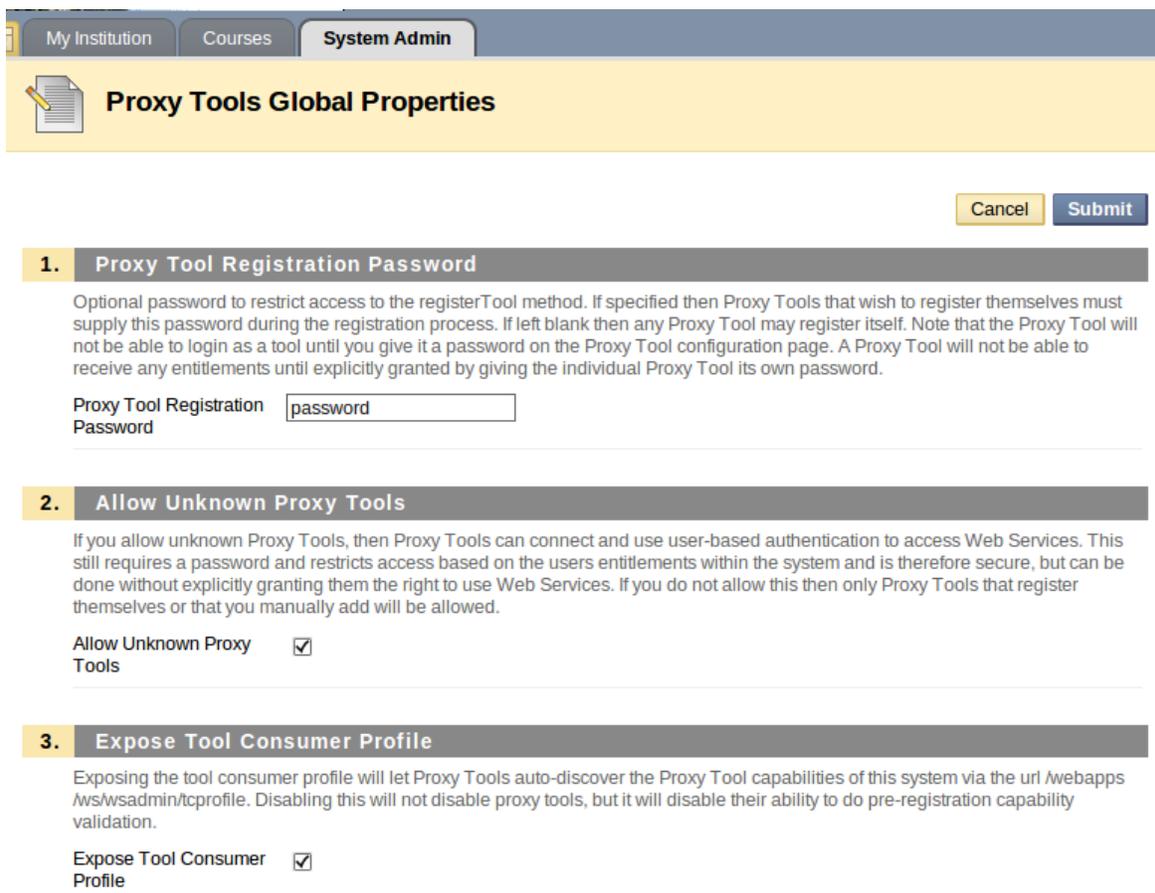
Introduction

To use the Blackboard Learn 9.1 web services you must first have your client application login to the Blackboard system. There are two main login methods. One is to login using a username and password of a Blackboard user who has enough rights to execute the web service classes and methods (for example a system administrator). The second method is to login using a proxy tool that was previously registered and authorized.

A proxy tool is a client program identified by a specific name and that has a shared secret that must be passed in when logging in. A proxy tool first must be registered with your Blackboard installation. After the proxy tool is registered, a Blackboard system administrator must authorize the client program so that it can be used to login and make calls to the Blackboard web services. The proxy tool will only be allowed to access those web service classes and methods it requested access to and that were authorized by the Blackboard system administrator.

Setup The Proxy Tool

Login to Blackboard as an administrator. Click on the System Admin tab, then click on the Building Blocks, then click on Proxy Tools, then click on Manage Global Properties. You should see:



The screenshot shows the 'Proxy Tools Global Properties' configuration page in Blackboard. At the top, there are navigation tabs for 'My Institution', 'Courses', and 'System Admin'. Below the tabs is a yellow header with a pencil icon and the title 'Proxy Tools Global Properties'. On the right side of the header are 'Cancel' and 'Submit' buttons. The main content area is divided into three sections:

- 1. Proxy Tool Registration Password**

Optional password to restrict access to the registerTool method. If specified then Proxy Tools that wish to register themselves must supply this password during the registration process. If left blank then any Proxy Tool may register itself. Note that the Proxy Tool will not be able to login as a tool until you give it a password on the Proxy Tool configuration page. A Proxy Tool will not be able to receive any entitlements until explicitly granted by giving the individual Proxy Tool its own password.

Proxy Tool Registration Password
- 2. Allow Unknown Proxy Tools**

If you allow unknown Proxy Tools, then Proxy Tools can connect and use user-based authentication to access Web Services. This still requires a password and restricts access based on the users entitlements within the system and is therefore secure, but can be done without explicitly granting them the right to use Web Services. If you do not allow this then only Proxy Tools that register themselves or that you manually add will be allowed.

Allow Unknown Proxy Tools
- 3. Expose Tool Consumer Profile**

Exposing the tool consumer profile will let Proxy Tools auto-discover the Proxy Tool capabilities of this system via the url /webapps /ws/wsadmin/tcp/profile. Disabling this will not disable proxy tools, but it will disable their ability to do pre-registration capability validation.

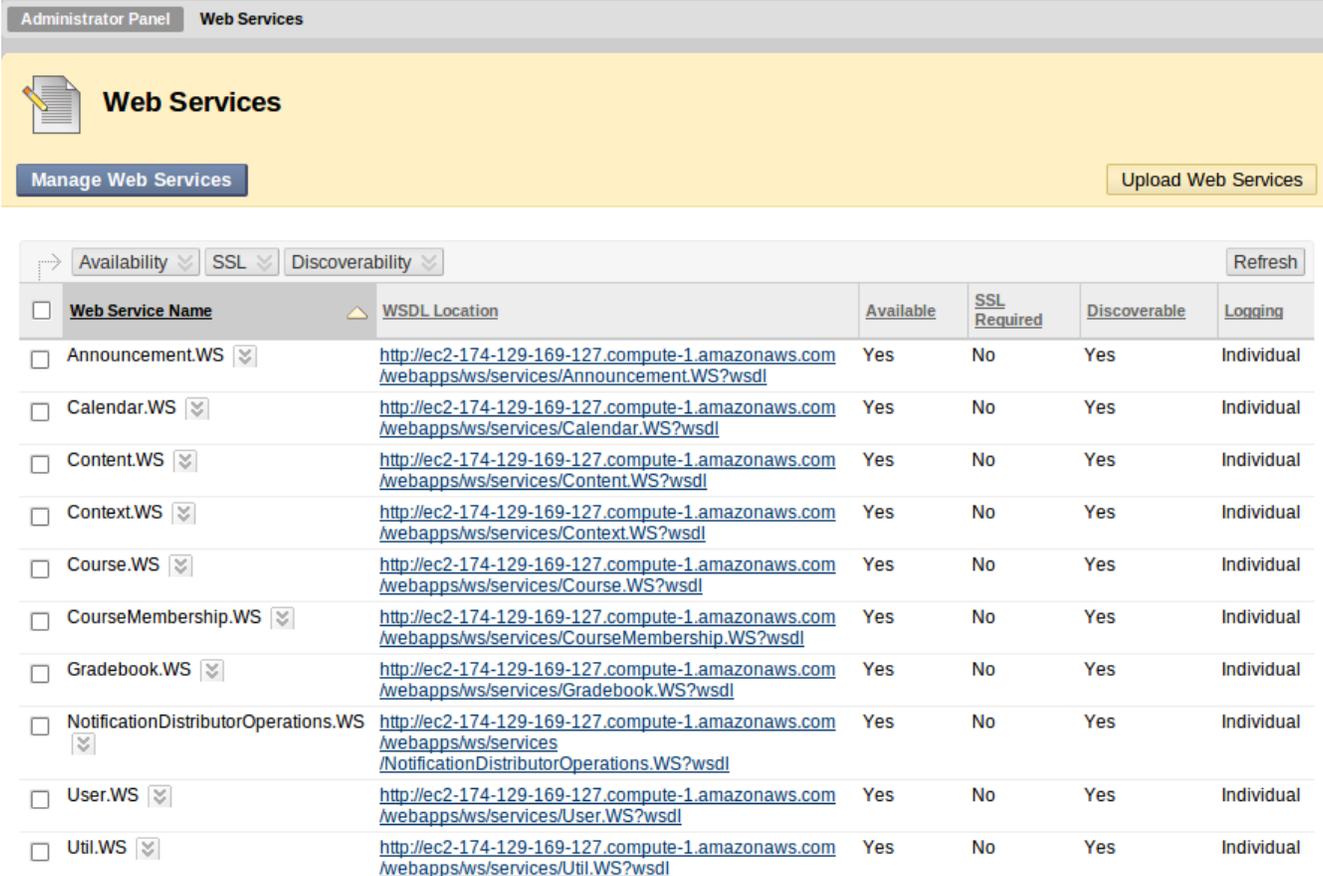
Expose Tool Consumer Profile

Note the value for Proxy Tool Registration Password. You'll need to use that value when registering

your proxy tool.

Make The Blackboard Learn 9.1 Web Services Available

We next must make the Blackboard Learn 9.1 web services available. Click on the System Admin tab, then click on the Web Services link (under Building Blocks). You should see:



The screenshot shows the 'Web Services' page in the Blackboard Administrator Panel. At the top, there are tabs for 'Administrator Panel' and 'Web Services'. Below the tabs, there is a 'Web Services' header with a document icon and a 'Manage Web Services' button. On the right side, there is an 'Upload Web Services' button. Below the header, there are three dropdown menus for 'Availability', 'SSL', and 'Discoverability', and a 'Refresh' button. The main content is a table with the following columns: 'Web Service Name', 'WSDL Location', 'Available', 'SSL Required', 'Discoverable', and 'Logging'. The table lists ten web services, all of which are currently set to 'Yes' for Availability, 'No' for SSL Required, 'Yes' for Discoverable, and 'Individual' for Logging.

<input type="checkbox"/>	Web Service Name	WSDL Location	Available	SSL Required	Discoverable	Logging
<input type="checkbox"/>	Announcement.WS	http://ec2-174-129-169-127.compute-1.amazonaws.com/webapps/ws/services/Announcement.WS?wsdl	Yes	No	Yes	Individual
<input type="checkbox"/>	Calendar.WS	http://ec2-174-129-169-127.compute-1.amazonaws.com/webapps/ws/services/Calendar.WS?wsdl	Yes	No	Yes	Individual
<input type="checkbox"/>	Content.WS	http://ec2-174-129-169-127.compute-1.amazonaws.com/webapps/ws/services/Content.WS?wsdl	Yes	No	Yes	Individual
<input type="checkbox"/>	Context.WS	http://ec2-174-129-169-127.compute-1.amazonaws.com/webapps/ws/services/Context.WS?wsdl	Yes	No	Yes	Individual
<input type="checkbox"/>	Course.WS	http://ec2-174-129-169-127.compute-1.amazonaws.com/webapps/ws/services/Course.WS?wsdl	Yes	No	Yes	Individual
<input type="checkbox"/>	CourseMembership.WS	http://ec2-174-129-169-127.compute-1.amazonaws.com/webapps/ws/services/CourseMembership.WS?wsdl	Yes	No	Yes	Individual
<input type="checkbox"/>	Gradebook.WS	http://ec2-174-129-169-127.compute-1.amazonaws.com/webapps/ws/services/Gradebook.WS?wsdl	Yes	No	Yes	Individual
<input type="checkbox"/>	NotificationDistributorOperations.WS	http://ec2-174-129-169-127.compute-1.amazonaws.com/webapps/ws/services/NotificationDistributorOperations.WS?wsdl	Yes	No	Yes	Individual
<input type="checkbox"/>	User.WS	http://ec2-174-129-169-127.compute-1.amazonaws.com/webapps/ws/services/User.WS?wsdl	Yes	No	Yes	Individual
<input type="checkbox"/>	Util.WS	http://ec2-174-129-169-127.compute-1.amazonaws.com/webapps/ws/services/Util.WS?wsdl	Yes	No	Yes	Individual

Click on the check box next to Web Service Name to select all the web services. Then click on the down arrow next to Availability and select Make Available. Repeat this step for SSL (set as not required) and Discoverability (make discoverable). To change the Logging value from the default of Common to Individual click on the check box for the web service. Then click on the down arrow next to that Web Service name and select Edit. You should see:

Web Service Description: Core Web Service providing login/logout capabilities and other commonly required functionality

* Indicates a required field.

Cancel Submit

1. Edit

* Available	<input checked="" type="radio"/> Yes Permit use of this service
	<input type="radio"/> No Restrict use of this service
* Discoverable	<input checked="" type="radio"/> Yes A discoverable service will render the WSDL upon request
	<input type="radio"/> No A non-discoverable service will still function but the WSDL will not render upon request
* SSL Required	<input type="radio"/> Yes Proxy Tools must use https to access this Web Service
	<input checked="" type="radio"/> No Proxy Tools may use either http or https to access this Web Service

2. Logging

Choose the type of logging to do for this Web Service, and which types of messages should be logged. **Common** log type will use a log file shared by all Web Services that use this log type, **Individual** log type will use a dedicated log file for this Service. For Verbosity, the types of messages are arranged in order from least messages generated to most messages generated.

Select Logging Type	Individual ▾ Choose the type of logging you wish to use for this Web Service. Common will log to one log file for this and any other common-logging services. Individual will log to a specific log file for this service.
Verbosity	All Diagnostic and Debug Messages ▾
Log File Location:	/u02/blackboard/logs/ws/Context.WS.log The log location shown does not dynamically upgrade when a different log location is selected.

In the Edit screen change Select Logging Type from Common to Individual. Make a note of the Log File Location (e.g. /u02/blackboard/logs/ws/Context.WS.log) in case you need to review the log when a problem occurs. Click on the submit button to save your changes.

Note you can make only certain web services available by checking just the box next to a specific web service and then clicking on the down arrow next to Availability.

Setup Rampart Module

To enable security for our requests to the Blackboard web services we will use Apache Rampart. Any call to a Blackboard Learn 9.1 web service requires a SOAP envelope that has a security header. Rampart will help us create the security header.

Download from <http://ws.apache.org/rampart/download.html> the Apache Rampart Module. Unzip the download. Copy rampart-1.5.mar (or whatever version of rampart.mar you downloaded) to a folder named modules on your computer. Be sure to note the path to the modules folder as you'll need that path later.

Setup And Run The registerproxytool program

Download the registerproxytool program from <http://www.brucephillips.name/blackboard/registerproxytool.zip>.

Unzip the registerproxytool.zip and view the ReadMe.txt file for how to build and run the application using either Eclipse (with Maven) or using just Maven.

The download is an archived Eclipse project created using Eclipse 3.5 and Maven 2. To import the project into your Eclipse workspace you'll need to be using Eclipse 3.5 or higher with the Maven 2 plugin. You can get Eclipse at <http://www.eclipse.org/>. Information about installing the Eclipse Maven 2 plugin is at <http://m2eclipse.sonatype.org/installing-m2eclipse.html>.

After importing the archived project into your Eclipse workspace read the ReadMe.txt file to view how to configure the application and how to run it.

If you are not using Eclipse, see the ReadMe.txt for how to build and run the application using only Maven.

Note the registerproxytool program uses two class in package edu.ku.it.si.bbcontextws.generated. To register a proxy tool you use the Blackboard Learn 9.1 Context web service so I previously generated the client classes for that web service and copied them into this project. These classes were generated using Axis2 and the WSDL file for the Blackboard Learn 9.1 Context web service. I'll cover in a future tutorial how to generate the Blackboard web service client files using Axis 2 and the Blackboard Learn 9.1 web service WSDL files.

Before building the application and running it, you must provide values for the properties defined in bbws.properties (src/main/resources). The comments in the bbws.properties should help you determine what values to enter.

Using either Eclipse (with Maven) or just Maven run the RegisterProxyToolApp to register your proxy tool with your Blackboard installation (see ReadMe.txt). The result of running RegisterProxyToolApp will appear in the Console (or terminal) window.

Troubleshooting Problems Registering A Proxy Tool

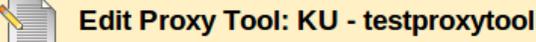
You can only register a proxy tool once. If you need to re-register the same proxy tool, you must first delete the proxy tool using System Admin – Building Blocks – Proxy Tools (click on the down arrow next to the Proxy Tool name and select Delete).

If the registerproxytool program was not able to register your proxy tool, there should be one or more error messages in the Console window. You can also view the log file for the context web service (the context web service is used to register the proxy tool) in your Blackboard installation.

Authorize The Proxy Tool

After successfully running the registerproxytool program to register your proxy tool with Blackboard Learn 9.1 web services you will need to login in to Blackboard as a System Administrator and change the availability of the proxy tool from No to Yes.

After logging in go to System Admin – Building Blocks – Proxy Tools. Click on the down arrow next to the proxy tool name and select Edit. You should see:



* Indicates a required field. Cancel Submit

1. Vendor and Program

Vendor and Program identifier

* Vendor	KU
* Program	testproxytool
Description	test of registering a proxy tool

2. Availability

Configure the availability and security for this Proxy Tool. If the Proxy Tool's Availability is not "Available" then it will not be able to login to any Web Services using any authentication methods (In addition to having any requested placements disabled). The password is only required for tool-authenticated Web Service sessions.

* Availability No
Restrict use of this Proxy Tool

Yes
Permit use of this Proxy Tool

Shared Password
By entering a password here you are granting the entitlements below to this tool when it logs in using this password.

3. Proxy Tool Details

Details for the Proxy Tool are provided here.

Requested tool entitlements `webservices.tools.EMULATE` : Required to emulate another user for subsequent operations.
`webservices.tools.getMemberships.VIEW` : Required to call the `getMemberships` method for any user.

Click on the Yes radio button for Availability and then click on the Submit button to make the change. The Availability column should now have a value of Yes for that proxy tool.

Login In To Blackboard Web Services Using The Proxy Tool

To test that you can login to the Blackboard Learn 9.1 web services using the proxy tool you registered above you can run the LoginApp that is part of the registerproxytool project.

Using either Eclipse (with Maven) or just Maven run the LoginApp to use the proxy tool registered previously to login to your Blackboard installation (see ReadMe.txt). The result of running LoginApp will appear in the Console (or terminal) window.

