**This document is taken from the old oscelot site and was produced by the developers. I have included it for reference as I can no longer find it online. It’s useful for setting up.**

**General Introduction**

[AutoSignOn](http://projects-archive.oscelot.org/gf/project/autosignon/wiki/?pagename=AutoSignOn) is a Building Block solution that adds support for Single Sign On (SSO) to Blackboard Learn. Without knowledge of the user's password, it allows for an external system (eg. a portal) to forward a user to a URL on Learn with certain parameters which will grant that user access to Learn without any additional login steps. Security is ensured by the use of a Message Authentication Code (MAC) - an encoded concatenation of values and a shared secret only the two systems know. The solution supports 'deep linking' - directing the user to particular courses or interfaces in Learn.

Just as importantly, what it doesn't do:

* It does not support authentication from Learn to other systems. [AutoSignOn](http://projects-archive.oscelot.org/gf/project/autosignon/wiki/?pagename=AutoSignOn) only supports SSO into Learn from outside systems.
* It does not do authorization pre-checking. If you send a user to a page or a course in Learn that they aren't allowed to see, or try to authenticate a unavailable/disabled user, Learn will simply display an error message.
* It does not provide any software that can be installed on the external system. This is only 1/2 of a total SSO solution.

**Additional Documentation**

There are more detailed documents in the files section of the project for the earlier versions of the 'bbgs' release. They provide a lot of added value to what's here.

**History**

This solution has two parents. First it was designed to work much like the old 'Easy Sign On' method that was built-in for CE/Vista. Second, it was a common design for several custom solutions developed by Blackboard Consulting for Learn and its predecessors Academic Suite and Learning System. Blackboard Consulting released the original [AutoSignOn](http://projects-archive.oscelot.org/gf/project/autosignon/wiki/?pagename=AutoSignOn) to the open source community in 2010.Blackboard and community developers have provided updates to the Building Block and released updated versions hereover the years to keep up with changes in the Learn platform and to remedy discovered issues, but the base design remains the same. In 2014, Wiley Fuller redeveloped the solution to deploy as an Authentication Provider. As such, it inherits the capabilities of all providers - common auth logging, option for multiple instances, hostname alignment, etc. Additionally, Wiley added options for different types of secure encoding of the MAC.

For the sake of simplicity and consistency, we will try to refer to the old versions as the 'bbgs' (Blackboard Global Services) version and Wiley's version as 'oslt' (OSCELOT).

**Comparison Summary**

The following outlines/reviews the notable comparisons between the two versions detailed below

|  |  |
| --- | --- |
| **Old 1.1 (bbgs)** | **New 2.0 (oslt)** |
| Building Block management privilege to configure | Authentication management privilege to configure |
| Only 1 deployment | Multiple deployments |
| Attempts not in Authentication log | Attempts in Authentication Log |
| Only MD5 encoding of MAC | Supports MD5 and SHA1 with/without HMAC |
| No on-screen end point | Visible endpoints |
| Cascade batch\_uid then user\_id (\*) | Choose batch\_uid or user\_id explicitly |
| CourseId[?](http://projects-archive.oscelot.org/gf/project/autosignon/wiki/?pagename=CourseId&parent_page=FrontPage) = course batch\_uid | CourseId[?](http://projects-archive.oscelot.org/gf/project/autosignon/wiki/?pagename=CourseId&parent_page=FrontPage) = course\_id |
| No debug mode | Debug mode (+) |

(\*) The bbgs version has the potential to create a session for the wrong user. When presented with the UserId[?](http://projects-archive.oscelot.org/gf/project/autosignon/wiki/?pagename=UserId&parent_page=FrontPage) value [AutoSignOn](http://projects-archive.oscelot.org/gf/project/autosignon/wiki/?pagename=AutoSignOn) first attempts to match it to the batch\_uid. If no such user exists then it tries the user\_id.

**How it works**

Software on your source system (e.g. portal) needs to dynamically build a URL and Request string to which it will forward the user's browser.When the browser is directed here, the [AutoSignOn](http://projects-archive.oscelot.org/gf/project/autosignon/wiki/?pagename=AutoSignOn) uses the provided information and the shared secret to construct a MAC and compare it to the value in the request. If they match, then [AutoSignOn](http://projects-archive.oscelot.org/gf/project/autosignon/wiki/?pagename=AutoSignOn) will attempt to create a session for the user defined.

The link It will look something like one of these examples:

* [https://myschool.blackboard.com/webapps/bbgs-autosignon-bb\_bb60/autoSignon.do?auth=937201ffb74d7b103ff2742101a9057b&userId=bsmith&timestamp=1458501490](https://myschool.blackboard.com/webapps/bbgs-autosignon-bb_bb60/autoSignon.do?auth=937201ffb74d7b103ff2742101a9057b&userId=bsmith&timestamp=1458501490%3C/p%3E)
* [https://mycourses.myschool.edu/webapps/oslt-auth-provider-autosignon-BBLEARN/service/login/\_328\_1/?auth=d78c385e89f5ce458c2475e6c8ca3c6d&userId=bsmith&timestamp=1458501560&courseId=999999](https://mycourses.myschool.edu/webapps/oslt-auth-provider-autosignon-BBLEARN/service/login/_328_1/?auth=d78c385e89f5ce458c2475e6c8ca3c6d&userId=bsmith&timestamp=1458501560&courseId=999999%3C/li%3E)

**The 'link' has several parts**

Root System Protocol + Hostname

**This is the base**[**https//hostname**](http://projects-archive.oscelot.org/gf/project/autosignon/wiki/https//hostname)**of your Blackboard Learn installation. eg. (**[Error! Hyperlink reference not valid.](https://blackboard.myschool.edu%29%3C/h2%3E)

[**AutoSignOn**](http://projects-archive.oscelot.org/gf/project/autosignon/wiki/?pagename=AutoSignOn)**Path:**

This is the path to the [AutoSignOn](http://projects-archive.oscelot.org/gf/project/autosignon/wiki/?pagename=AutoSignOn) interface. The two versions have different formats. However both include the production database name.

Old 1.1 (bbgs)

* Since there is only one deployment, all you need to be aware of is the database name. (in this example BBLEARN)/webapps/bbgs-autosignon- BBLEARN
* /autoSignon.do

$$!!$$Auth Provider (oslt)$$!!$$ $$!!$$Since there may be more than one provider, the path for the oslt version includes a primary key value as seen here (eg. /\_328\_1) And you still have to be aware of the data base name (eg. example 1 = 'bb\_bb60' example 2 = BBLEARN) You can find the path on the [AutoSignOn](http://projects-archive.oscelot.org/gf/project/autosignon/wiki/?pagename=AutoSignOn) configuration page. (see below)

* /webapps/oslt-auth-provider-autosignon-**bb\_bb60**/service/login/**\_328\_1**
* /webapps/oslt-auth-provider-autosignon-**BBLEARN**/service/login/**\_342\_1**

**Database Names**

You might have noticed (or not) that the path to Building Block pages in Learn include a string that represents the name of the Learn production database. In this case it is the string that follows '-autosignon-' The vast majority of Learn deployments use default values - 'bb\_bb60' if the system was initially installed a long time ago or 'BBLEARN' if it was installed more recently. New SaaS deployments use cryptic strings automatically generated by the deployment software. You need to make sure you get it right in your string.

* Very old: bb\_bb60
* New(er): BBLEARN
* SaaS: BB200431SF172486 (example)

**Request Parameters**

All versions of the solution required that you pass at least three parameters (variables,value pairs) in the URL.

* a MAC (eg. auth=d78c385e89f5ce458c2475e6c8ca3c6d)
* the UserId[?](http://projects-archive.oscelot.org/gf/project/autosignon/wiki/?pagename=UserId&parent_page=FrontPage) of the person you want to sign in (eg.userId=bsmith)
* a timestamp (eg.timestamp=1458501490)

There are also two optional parameters that allow you to direct users to particular places in Learn

* CourseID - the identifier of a particular course or organization
* Forward - the path to a particular 'page' in Learn

**MAC (auth)**

The MAC (Message Authentication Code) is the security token that allows Learn to trust that the user was authenticated or otherwise validated by your source system. In the request examples above the MAC is the string that follows 'auth' (ex. auth=937201ffb74d7b103ff2742101a9057b) For [AutoSignOn](http://projects-archive.oscelot.org/gf/project/autosignon/wiki/?pagename=AutoSignOn), the MAC is an encoded combination of a few fields and the use of the 'Shared Secret', a string value shared by the source system and Learn. Assuming you have not added parameters to the MAC, it relies on three values: the timestamp, the userid and a shared secret.

**bbgs**

For the bbgs version, the MAC is simply the MD5 encoded digest of a concatenated string - combining the timestamp, userid and secret, in that order

* MD5 encode (timestamp+userid+secret)

**oslt**

With oslt version you can choose other encoding methods. Note that the Shared Secret is used as the key for HMAC methods and is NOT included in the encoded string.

* MD5 encode (timestamp+userid+secret)
* SHA1 encode (timestamp+userid+secret)
* HMAC-MD5 (timestamp+userid) with key = secret
* HMAC-SHA1 (timestamp+userid) with key = secret

**UserID**

Obviously this is the identifier of the person for whom you want to launch a session in Blackboard Learn, but the two versions have slightly different logic.

**bbgs**

In the older version of autosignon, there is a built in 'cascade' logic. First, [AutoSignOn](http://projects-archive.oscelot.org/gf/project/autosignon/wiki/?pagename=AutoSignOn) checks the provided value against the user.BATCH\_UID field. (This is the same field as External\_Person\_Key, for folks familiar with data integration.) If there is no match, then it checks for a match against user.USER\_ID (aka username). Note that this can and (as described in the forums) has caused problems if you cannot assume uniqueness across both fields. (i.e. if you have a person with batch\_uid = bsmith and a different person with username = bsmith, [AutoSignOn](http://projects-archive.oscelot.org/gf/project/autosignon/wiki/?pagename=AutoSignOn) will always pick the first one.)

**oslt**

As part of the GUI configuration of all authentication providers, you must choose which user field you want to match against. So you can explicitly choose which attribute for each instance of [AutoSignOn](http://projects-archive.oscelot.org/gf/project/autosignon/wiki/?pagename=AutoSignOn) you deploy.

**Timestamp**

Both versions use the same 'unix' (aka epoch or POSIX) timestamp value to ensure a level of 'freshness' in the SSO process.(see <http://www.epochconverter.com/>). The [AutoSignOn](http://projects-archive.oscelot.org/gf/project/autosignon/wiki/?pagename=AutoSignOn) configuration in Learn gives you control over how old the timestamp can be before the request is considered expired. Some of the very old versions of [AutoSignOn](http://projects-archive.oscelot.org/gf/project/autosignon/wiki/?pagename=AutoSignOn) expected this value to be in milliseconds (adding 3 zeros to the end of the string), but this is no longer required. (ex. timestamp=1458501490)

**CourseID**

Sometimes you might want to have a link in your portal that takes the user directly to a course or organization in Learn. You can do this by adding the CourseId[?](http://projects-archive.oscelot.org/gf/project/autosignon/wiki/?pagename=CourseId&parent_page=FrontPage) parameter to the URL. (ex. CourseID=201604.12345 or CourseID=BIO101-FA15-001). It is important to note that [AutoSignOn](http://projects-archive.oscelot.org/gf/project/autosignon/wiki/?pagename=AutoSignOn) cannot predict if the course exists or if the user has an active enrollment in the course. If for any reason the user is not authorized to view the course, they will receive a permission error.

* bbgs matches this value against the course\_main.BATCH\_UID (aka External\_Person\_Key) field
* oslt matches this value against the course\_main.COURSE\_ID (visible Course ID) field.

Forward

Sometimes you might want to have a link in your portal that takes the user directly to some particular part of Learn other than a course (ex. Portfolios or Personal Information Settings). You can add the parameter 'forward' to your URL and direct the user to that location. To ensure proper processing, the provided value should be URI encoded. For example

* Path in the browser address bar =/webapps/portfolio/execute/portfolio/portfolioManager?dispatch=portfolioList
* Encoded version =%2Fwebapps%2Fportfolio%2Fexecute%2Fportfolio%2FportfolioManager%3Fdispatch%3DportfolioList

**Installation**

These solutions are all Building Blocks and can be installed and made available in Learn by System Administrators using your browser via the System Admin tools. Basic help information is here:<https://en-us.help.blackboard.com/Learn/Building_Blocks/010_Install_Building_Blocks>.

**Configuration**

Once the Building Block is installed and made available, you can start with the configuration.

* For the 'bbgs' versions of the software, the configuration is done directly in the 'settings' interface of the Building Block. (System Admin -> (Building Blocks module) -> Building Blocks -> Installed Tools -> [AutoSignOn](http://projects-archive.oscelot.org/gf/project/autosignon/wiki/?pagename=AutoSignOn) -> Settings)
* For the 'oslt' version, go to the 'Authentication' management interface (System Admin -> (Building Blocks module) -> Authentication)
  + You will need to create a new Authentication Provider of the type '[AutoSignOn](http://projects-archive.oscelot.org/gf/project/autosignon/wiki/?pagename=AutoSignOn)'.  The first page is essentially the same configuration page for all authentication providers. If you've configured LDAP, CAS or Shibboleth/SAML2 this should be familiar.
    - Here's a link to the Blackboard[Help Page](https://en-us.help.blackboard.com/Learn/9.1_2014_04/Administrator/070_Server_Management_and_Integrations/Authentication/030_Auth_Implementing/Authentication_Planning)
    - Set the 'User Lookup Method' to the attribute you want to match in Learn. (Usually this is Username)
    - (ToDo[?](http://projects-archive.oscelot.org/gf/project/autosignon/wiki/?pagename=ToDo&parent_page=FrontPage): provide some help regarding hostname restrictions in the advance section below)
    - Link Text: Put whatever you want here - maybe even just a dash. We will hide this later - see Advanced section below.
  + The second page is the [AutoSignOn](http://projects-archive.oscelot.org/gf/project/autosignon/wiki/?pagename=AutoSignOn) configuration interface, which is nearly identical to the 'bbgs' version.
  + You can replicate these steps to create additional [AutoSignOn](http://projects-archive.oscelot.org/gf/project/autosignon/wiki/?pagename=AutoSignOn) providers for other source systems.

**Security Settings**

These are the settings that control the security of the interface:

* MAC Algorithm (only for 'oslt') - choose the method you are using to create the MAC. (MD5 is the only option for the 'bbgs' version)
* Extra Parameters for MAC - If you are adding more parameters to the MAC note which ones here.
* Shared Secret - this is the string shared between the systems used in or as the key for the MAC
* Timestamp Delta - this is the amount of time in milliseconds that you will allow between the timestamp in the request and the system time of the Learn system. Note that anything less than 30 seconds (30000) is prone to fail if servers have slightly different times.

**Request Parameter Settings**

There is usually no reason to change these unless you're~~paranoid~~very cautious about security or your source system already uses other parameter names.

* MAC Parameter = auth
* User ID Parameter = userId
* Timestamp Parameter = timestamp
* Forward Parameter = forward
* Course Id Parameter = courseId

**Other Configuration Items**

You will find these two very helpful items in the 'oslt' version only

* Debug Mode (for development debugging): Check this box while you are testing. It will display the MAC generated by Learn and other important information.
* Autosignon URL: as mentioned above, this will show you the exact string (with primary key and database name) you need to authenticate users through THIS particular [AutoSignOn](http://projects-archive.oscelot.org/gf/project/autosignon/wiki/?pagename=AutoSignOn) instance.

**Advanced Section**

**Link Text - Cleaning Up the Login Page (oslt only)**

Perhaps the one negative externality of the authentication provider deployment is the on-screen display of the “login redirect” link with the login form. For CAS, SAML and Shibboleth, this link serves a purpose for directing user login actions, but for [AutoSignOn](http://projects-archive.oscelot.org/gf/project/autosignon/wiki/?pagename=AutoSignOn), this link provides nothing but confusion. Hence, we want to hide it.You can do this by sneaking a little CSS/JavaScript[?](http://projects-archive.oscelot.org/gf/project/autosignon/wiki/?pagename=JavaScript&parent_page=FrontPage) code into the 'Link Text' field.

There are two conditions we need to address:

If [AutoSignOn](http://projects-archive.oscelot.org/gf/project/autosignon/wiki/?pagename=AutoSignOn) providers are the only links, we want to hide the entire 'Login With' <div id='loginRedirectProviders'>. Put the following in the Link Text field.

<style> #loginRedirectProviders {display:none;}</style>hidden\_link

If there is already a CAS or Shib link, we want to hide ONLY the [AutoSignOn](http://projects-archive.oscelot.org/gf/project/autosignon/wiki/?pagename=AutoSignOn) Links. Put the following javascript in the Link Text field.

<script>$$('li:contains('autosignon')').invoke('hide');</script>hidden\_link

**Minor-ish Issues**

1. In the oslt version, the debugger is great, but
   1. it doesn't account for your 'User Lookup Method' choice. The software works as expected, but the debug screen displays the label 'user id' even if you've selected 'batch\_uid'
   2. If SSO fails because the timestamp is too old, the debugger shows the timestamp to be zero time (Jan 1, 1970) even when it is not.
2. As of the latest update here, it appears that the 'forward' parameter doesn't work with the oslt version.
3. As noted with the bbgs version, there is the possibility of cross-user signon if you don't have uniqueness across usernames and batch\_uid in Learn.