Using JWT Tokens with SSO

Overview

Yellowfin 9.5 introduced the option to use JWT tokens when initiating a single sign-on (SSO) session.

Yellowfin will accept a JWT token and use the contents to provision a new session. The contents, or global configuration, of the JWT token can be used to specify:

- the user ID to login;
- the role of the user;
- the user's first name and last name for provisioning;
- the user's email address for provisioning;
- the default dashboards for the user; and,
- the landing page after a successful Yellowfin login.

The JWT entry point can also be used to provision a user if the user does not exist.

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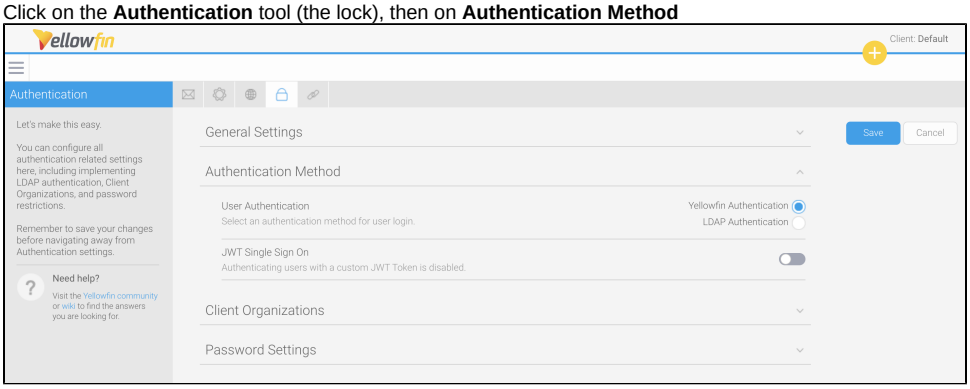
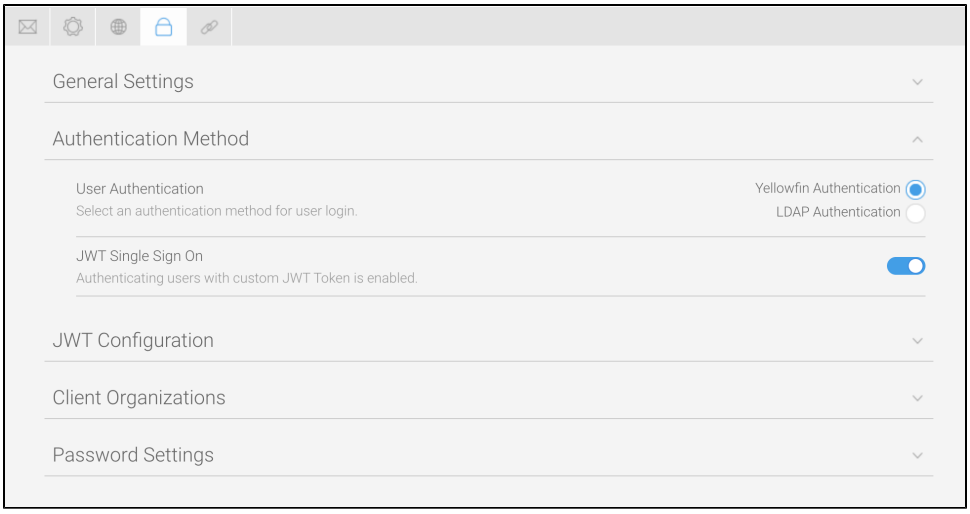
Activate JWT Single Sign On

JWT SSO is activated in the same place where it's used within the Config area of Yellowfin.

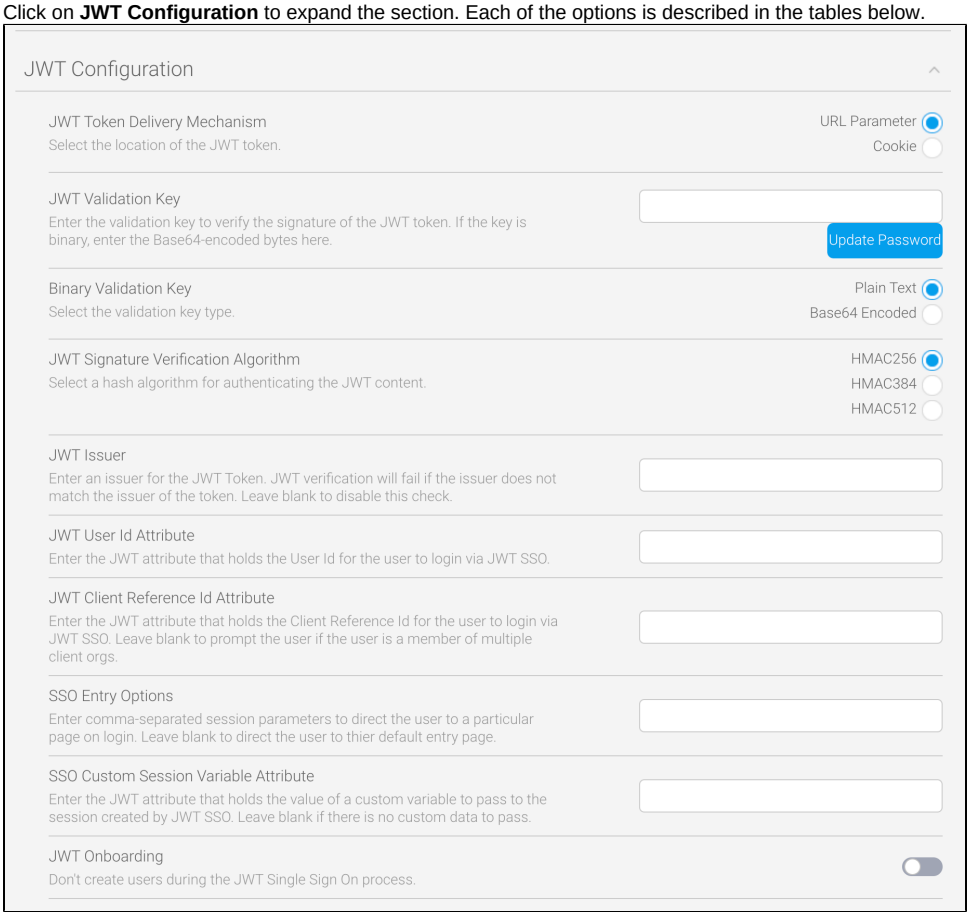
1. From the Yellowfin burger bun menu in the top left corner, click on **Administration**, then **Configuration**
2. Click on the **Authentication** tool (the lock), then on **Authentication Method**



3. Click on the toggle for **JWT Single Sign On** to enable it
   A new section called JWT Configuration will appear. This is where everything related to JWT SSO is configured:



4. Click on **JWT Configuration** to expand the section. Each of the options is described in the tables below.



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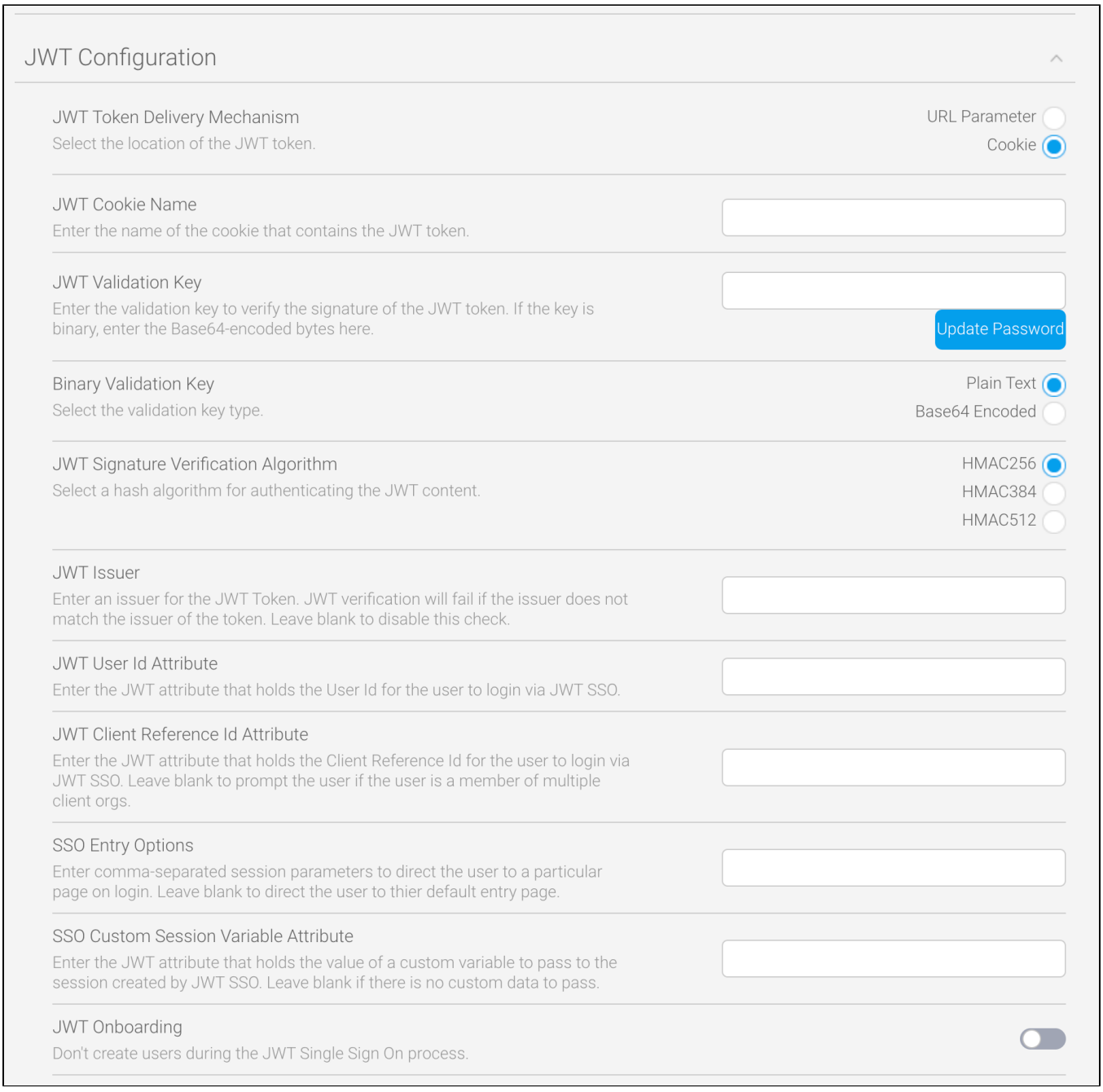
Configure database options for JWT SSO

The JWT Configuration section of Yellowfin contains a variety of settings for implementing JWT SSO to provide you with as much flexibility as possible. You can choose to include the bare minimum, as indicated in the table and instructions below, or customize the token to include additional details according to your needs.



Parameter name	Parameter description	Required?	Default
JWT Token Delivery Mechanism	This radio button defines how the JWT token is retrieved — Cookie or URL Parameter. If Cookie is chosen, the JWT token will be fetched from the cookie named in the JWT Cookie Name field.	No	URL Parameter
JWT Cookie Name	This field only appears when the JWT Token Delivery Mechanism field is set to Cookie. This parameter defines the name of the cookie used.	No	None
JWT Validation Key	This is the secret key for verifying the signature of the JWT token. This is a plain text secret. A binary key can be passed by encoding the secret in Base64. In this case, the Binary Validation Key field should be set to Plain Text. If you choose to use this, make sure you click the **Update Password** button after you've typed your secret key. Type the same secret key when creating your JWT token.	Yes	None
Binary Validation Key	By default, this parameter is set to Plain Text. For added security, select the Base64 Encoded option.	No	Plain Text

JWT Signature Verification Algorithm	By default, this setting is set to use the HMAC256 algorithm. Options are: • HMAC256 • HMAC384 • HMAC512	No	HMAC256
JWT Issuer	This parameter validates the Issuer attribute in the JWT token, if one exists. If set, the value of this field will be compared to the Issuer field in the JWT token, and token verification will fail if they don't match.	No	None
JWT User Id Attribute	This parameter provides the Yellowfin UserId.	Yes	None
JWT Client Reference Id Attribute	This parameter provides the location of the Client Reference Id of the client org that the user belongs to. Normally, this is set to '1' for Yellowfin instances that have no related client orgs.	No	None
SSO Entry Options	This parameter allows custom data that can be passed via the CustomParameters option on an SSO web service to be passed to the session created by the JWT SSO process. This is not attribute-based, so it applies to all users. See the Customize Data with CustomParameters and Parameters section for more details and an example.	No	None
SSO Custom Session Variable Attribute	This parameter allows options that can be passed via the Parameters option on an SSO web service call to be passed to the session created by the JWT SSO process. This is attribute-based and can apply to individual users. See the Customize Data with CustomParameters and Parameters section for more details and an example.	No	None
JWT Onboarding	This toggle enables a new user to be provisioned at their first login attempt if they don't already exist.	No	Off

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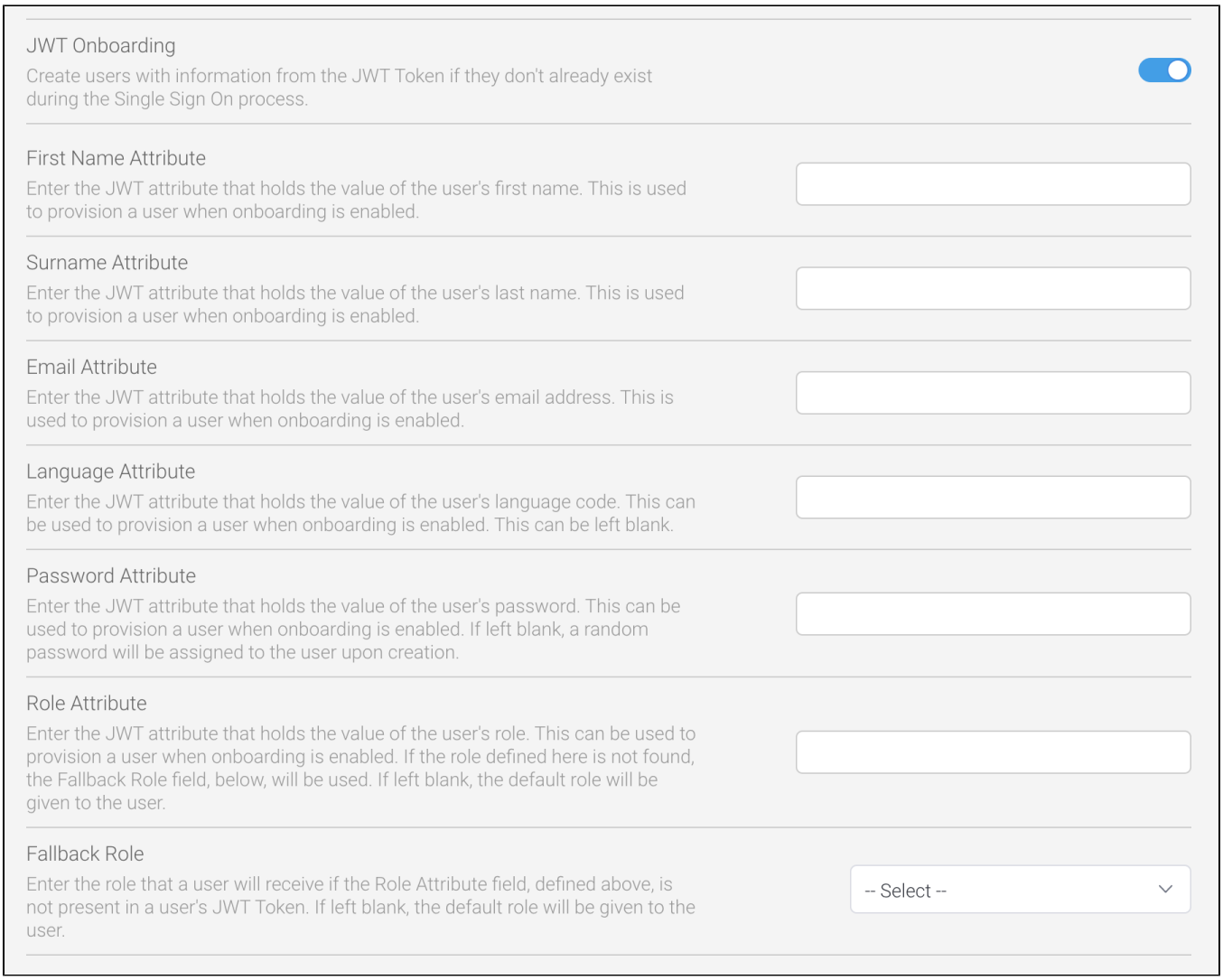
Database Options for JWT Onboarding

When the JWT Onboarding toggle is enabled, new users can be provisioned automatically when they first try to login.



Parameter name	Parameter description	Required?	Default
First Name Attribute	The parameter defines the name of the JWT attribute for fetching the first name for a new user. Set this to First to automatically provision new users when they first try to login.	Yes	None
Surname Attribute	The parameter defines the name of the JWT attribute for fetching the last name for a new user. Set this to Last to automatically provision new users when they first try to login.	Yes	None
Email Attribute	The parameter defines the name of the JWT attribute for fetching the email address for a new user. This is used as a user's username when logging in to Yellowfin. Set this to UserId to automatically provision new users when they first try to login.	Yes	None
Language Attribute	The parameter defines the name of the JWT attribute for fetching the language code for a new user.	No	System default
Password Attribute	The parameter defines the name of the JWT attribute for fetching the password for a new user.	No	Random password (32 alphanumeric string)
Role Attribute	This parameter defines the name of the JWT attribute for fetching the role for a new user. If omitted, the default role will be given to the new user.	No	Whatever has been set as the default role (see https://wiki.yellowfinbi.com/display/yfcurrent/Roles)
Fallback Role	This dropdown list provides the means of selecting a fallback role if the role entered in the Role Attribute field is not available at the time of provisioning a new user.	No	Whatever has been set as the default role (see https://wiki.yellowfinbi.com/display/yfcurrent/Roles)

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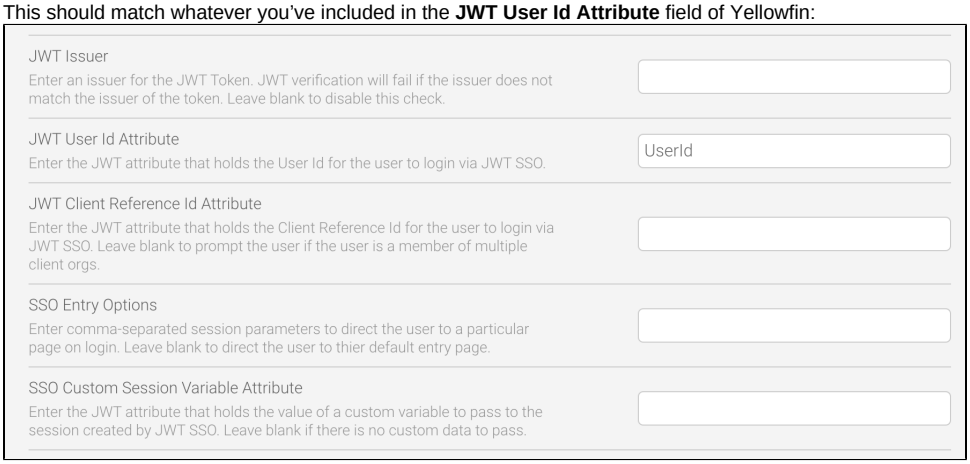
Create JWT tokens for use with Yellowfin

JWT token creation is undertaken through third-party software, so the instructions provided below are included solely to illustrate how to integrate the options above into your own JWT token. These instructions should be used as a basic guide only.

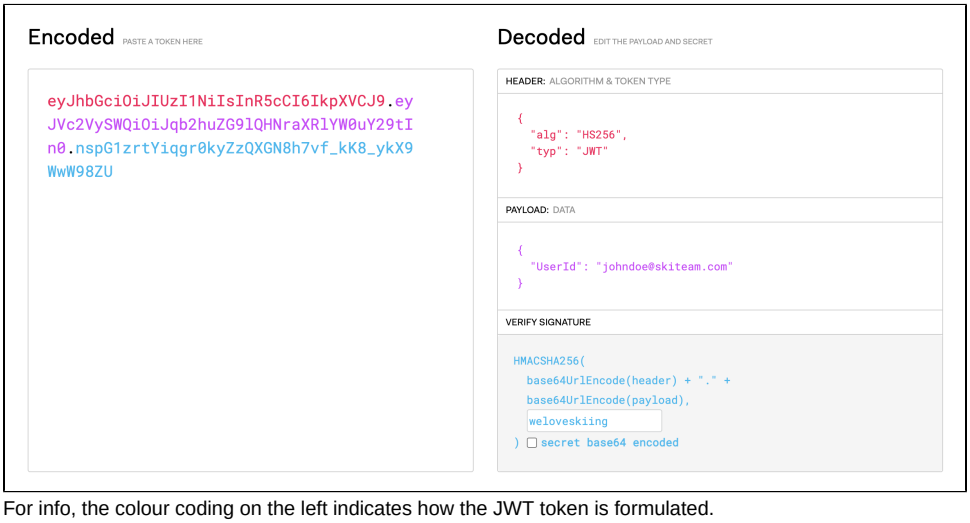
Create a JWT token for an existing Yellowfin user

1. Visit your preferred JWT token creator (in this example, we've used https://jwt.io/)
2. At a minimum, add a username to the **Payload** section on the right

This should match whatever you've included in the **JWT User Id Attribute** field of Yellowfin:



3. If you've used a secret key in the Yellowfin field **JWT Validation Key**, type the same key into the text field in the signature section in the bottom right



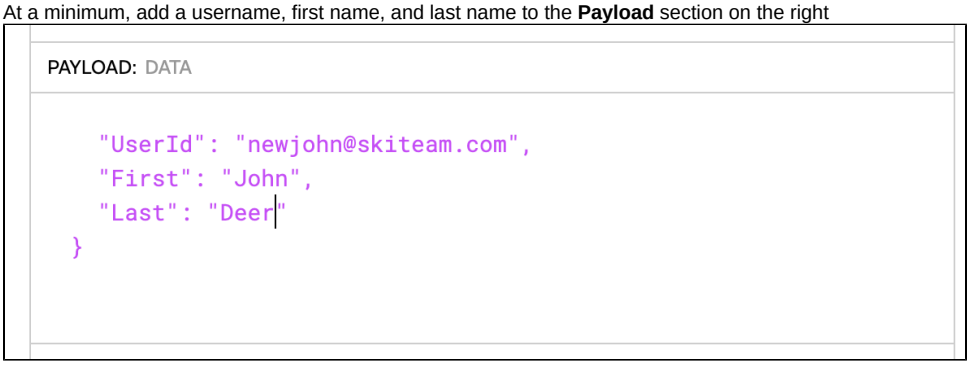
For info, the colour coding on the left indicates how the JWT token is formulated.

4. Copy the encoded token on the left
5. At the end of your Yellowfin URL, add the JWT token login and query string: JWTLogin.i4?jwtToken=
6. At the end of the query string, paste the encoded token

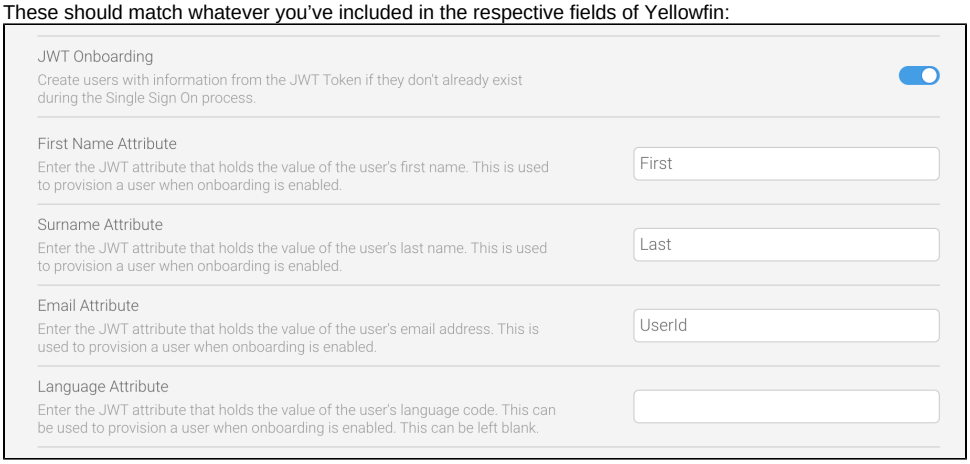
The user you specified in the JWT payload will now be automatically logged in.

Create a JWT token for a new Yellowfin user

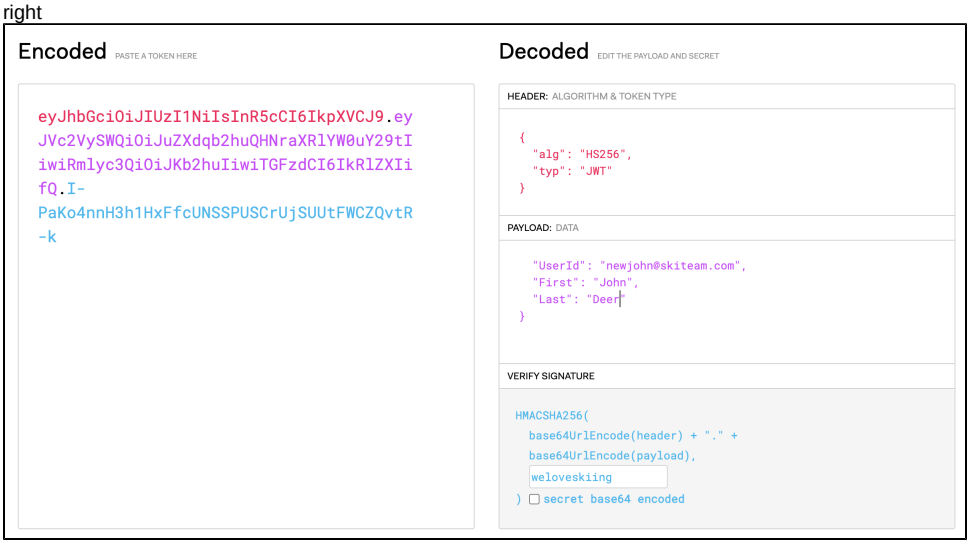
1. Visit your preferred JWT token creator (in this example, we've used https://jwt.io/)
2. At a minimum, add a username, first name, and last name to the **Payload** section on the right



These should match whatever you've included in the respective fields of Yellowfin:



3. If you've used a secret key in the Yellowfin field **JWT Validation Key**, type the same key into the text field in the signature section in the bottom right



For info, the colour coding on the left indicates how the JWT token is formulated.

4. Copy the encoded token on the left
5. At the end of your Yellowfin URL, add the JWT token login and query string:
   JWTLogin.i4?jwtToken=
6. At the end of the query string, paste the encoded token

The new user you specified in the JWT payload will now be automatically logged in. If there's more than one client org, they will first be prompted to select which org(s) they belong to.

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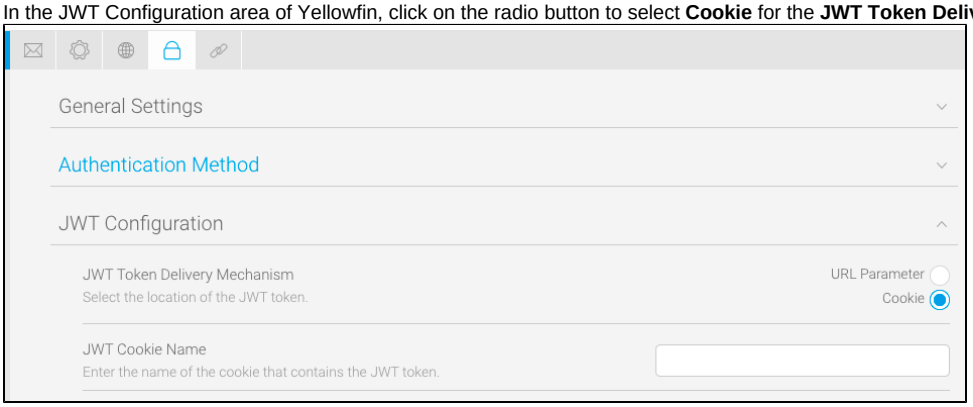
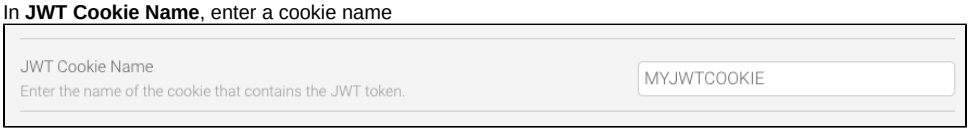
Create a cookie containing a JWT token

For additional security, you also have the option to store your JWT token in a cookie. This further reduces the risk of cross-site request forgery.

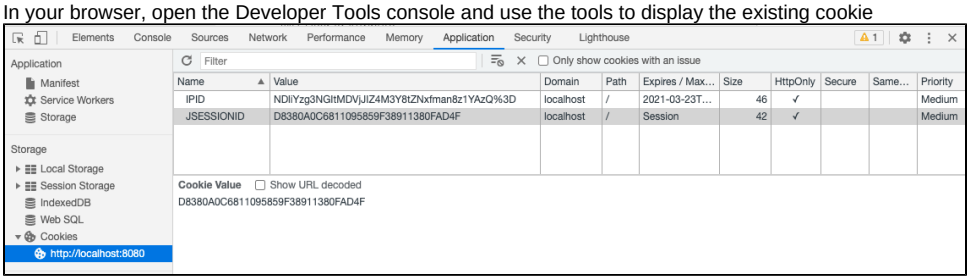
1. In the JWT Configuration area of Yellowfin, click on the radio button to select **Cookie** for the **JWT Token Delivery Mechanism** field



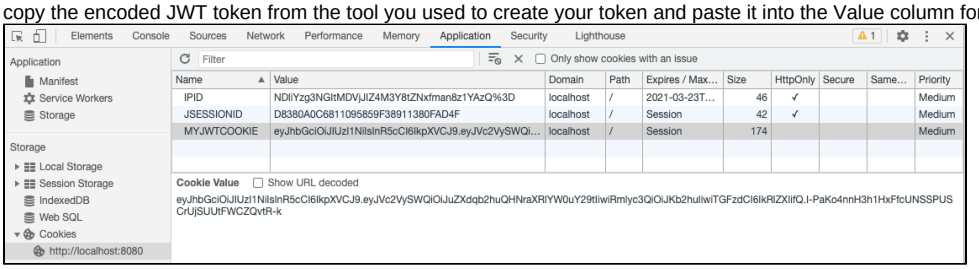
   Notice that there's a new field for JWT Cookie Name
2. In **JWT Cookie Name**, enter a cookie name



3. In your browser, open the Developer Tools console and use the tools to display the existing cookie



4. Use the Developer Tools of your browser to add a new cookie, making sure you:
   - match the name to the **JWT Cookie Name** field in Yellowfin
   - copy the encoded JWT token from the tool you used to create your token and paste it into the Value column for your new cookie



5. Enter the JWT login URL to access your instance of Yellowfin (for example, http://localhost:8080/JWTLogin.i4).

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Customize data with CustomParameters and Parameters

If you already take advantage of the CustomParameters and Parameters options on an SSO web services call, these can also be added to your JWT token by using the fields SSO Entry Options and SSO Custom Session Variable Attribute.

SSO Entry Options

The SSO Entry Options field allows custom data that can be passed via the CustomParameters option on an SSO web service to be passed to a session created by the JWT SSO process. This is not attribute-based, so it applies to all users.

For example, if you want all your users to see their favourite reports, dashboards, stories etc. when they login, you could use the TIMELINE and DISABLEH EADER parameters (or any others listed on the Defining Login Session Options wiki page). We'll use these for our example below.

1. In the JWT Configuration area of Yellowfin, locate the SSO Entry Options field

2. Enter any parameters, separated by commas, that you wish to use
   In our example below, we've used ENTRY=TIMELINE,DISABLEHEADER=TRUE

3. Click on the **Save** button to save your changes

You can test that your changes worked by logging in using your JWT token and checking that the login options you've specified are displayed.

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SSO Custom Session Variable Attribute

The SSO Custom Session Variable Attribute field allows options that can be passed via the Parameters option on an SSO web service call to be passed to the session created by the JWT SSO process. This is attribute based, so it can be applied to individual users.

To use this field, you will need to write your own Java plugin. Any number of variables can be passed to the Yellowfin session, so this can provide additional flexibility for custom requirements.

For example, if you wish to implement a custom header to replace the generic Yellowfin header, you could put a JSON array in this field that the header could extract information from to display at the top of the page. This could include user-specific details, such as their role, their photo or even links to the three most recent reports they've worked on.

In Yellowfin, the only requirement is to add those details to the SSO Custom Session Variable Attribute field.

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