



FastX System Configuration

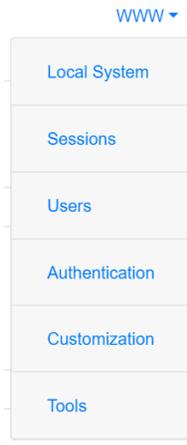
For FastX 3.2

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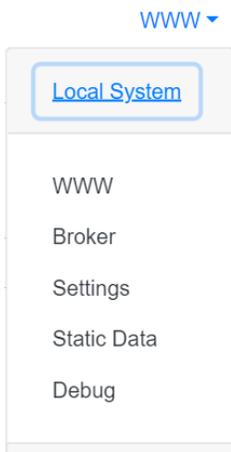
Introduction

FastX is highly configurable allowing system administrators to fine tune their FastX installations to better integrate with their existing infrastructure. Users with the administrator permission are allowed to access the system configuration in the web server. Access the system configuration by clicking on the gear icon . Use this document as a reference for the system configuration.



Local System

All local configuration data is contained in this section. Configuration is stored in files on the system in */etc/fastx*



WWW

WWW
Https

[Require web server](#)

Host

Port

Certificate File

Private Key File

Certificate Authority File

Pfx File

* Changes take effect when server restarts

[Save](#)

WWW (Tab) - This section provides for the basic operation and configuration of the web server.

File: /etc/fastx/www.json

- **Require web server** - Check the box to prevent SSH connections to FastX when the web server is down.
- **Host** - Host to bind to. Leave blank to bind to all addresses
- **Port** - Port used to access FastX through a web browser. (Default 3300)
- **Certificate File** - Path to the certificate file. Relative paths are searched in the following order:
 - /var/fastx/local/certs
 - /var/fastx/certs

* More information on security, please go to: <https://www.starnet.com/xwin32kb/fastx-31-security/>.

- **Private Key File** - Path to the private key file. Relative paths are searched in the following order:
 - /var/fastx/local/certs
 - /var/fastx/certs
- **Certificate Authority File** - Path to certificate authority file. Relative paths are searched in the following order:
 - /var/fastx/local/certs
 - /var/fastx/certs
- **Pfx File** - Path to the pfx file. Relative paths are searched in the following order:
 - /var/fastx/local/certs
 - /var/fastx/certs

Note: Changes take effect when server restarts

Https (Tab) - Customize using JSON object

Broker

This section provides information for the broker. Typically, this should not be configured from the UI, but instead the file should be copied from the cluster manager.

File: /etc/fastx/broker.json

Broker

Transporter

Namespace

Hostname

Port

Password

* Changes take effect when server restarts
** For advanced setups, create a broker.config.js file

- **Transporter** - Change this transporter to enable clustering
- **Namespace** - Multiple clusters can exist on a network. Give each cluster a unique name.

Note:

**Changes take effect when server restarts*

***For advanced setups, create a broker.config.js file*

Settings

This section provides basic settings for the system

File: /etc/fastx/settings.json

Settings

Enable logins on this server

Start new sessions on this server

Log Stats to local file every N seconds

seconds

Stats Log Directory

Enable Server Reservations

Sudo user options

Disable Direct Cluster Connections

Require Valid Cluster Certificates

Override Hostname

SSH Port

- **Enable logins on this server** - Check the box to allow users to login directly to this FastX host
- **Start new sessions on this server** - Check the box to allow users to start new sessions on this FastX host. Unchecked, users can only reconnect to existing running sessions.
- **Log Stats to local file every N seconds** - Enter the number of seconds the log stat will send to the local file.
- **Stats Log Directory** - Location of the stats log file.
- **Enable Server Reservations** - Check the box to enable a one user per server policy
- **Sudo user options**
 - Enable
 - Disable
 - Advertise
- **Disable Direct Cluster Connections** - Check the box to route connections through the gateway url
- **Require Valid Cluster Certificates** - Check the box make sure server certificates are valid when connecting in a cluster
- **Override Hostname** - Change the hostname that the server sends to other cluster members.

- **SSH Port** - Port used by SSH (Default 22)

Static Data

File: /etc/fastx/static.json

JSON object of static data to send to the cluster members on server updates. This can be used for example to tag the server in a group, or notify cluster members that this system contains specific applications or a GPU.

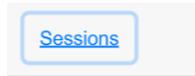
Debug

Print Debug statements to the server log. Debugging prints out a lot of information so it is best to disable them once finished debugging.

- **API**
 - **Api Requests** - Logs Api requests
 - **Api Process** - Results from the api request
- **Websocket**
 - **WebSocket Connections** - Logs websockets connections
 - **WebSocket Messages** - Logs messages between the web browser and destination
- **Cluster**
 - **Cluster Communication** - Logs communication between cluster nodes
 - **Cluster External Connections** - Logs communications for external nodes
 - **Cluster Database** - Logs database communication between cluster members
- **Link**
 - **Link Authentication** - Logs authentication phase of link connections
 - **Link Messages** - Logs communications between link or session process and the web server
 - **Link Netstring** - Logs low level communication between link or session process and the web server
- **Misc**
 - **Web Requests** - Logs all requests to the server
 - **Log** - Log general non essential messages
 - **Errors** - Log general non essential errors
 - **OpenID Connect** - Logs OpenID Connect communication
 - **SSH** - Logs SSH Verbose Connection information
 - **SAML** - SAML SSO Authentication

Sessions

This section contains information for creating and starting sessions



Bookmarks

Profiles

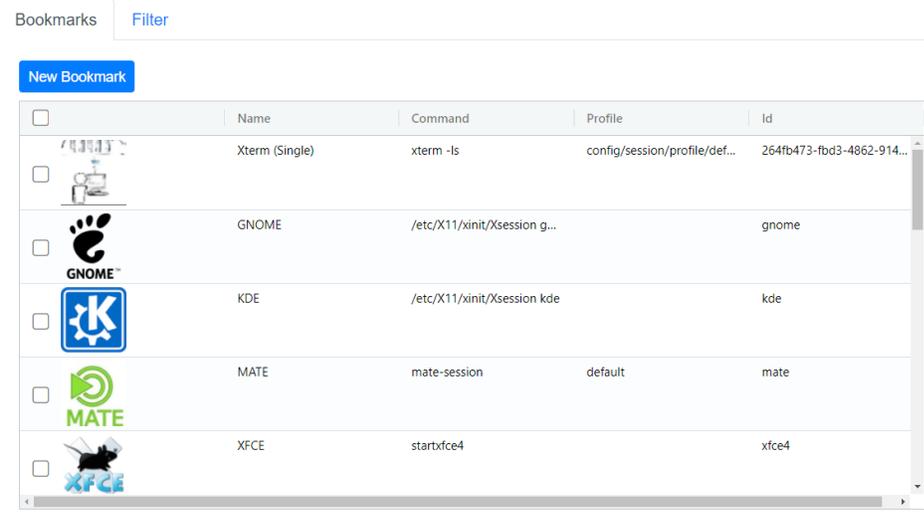
Forms

Events

Clustering &
Scheduling

Bookmarks

Bookmarks are configured sessions that can be launched by users. There is a listing of existing Bookmarks which can be edited or deleted by clicking on the desired bookmark and then .



The screenshot shows the "Bookmarks" tab in a web interface. At the top left, there is a "Bookmarks" label and a "Filter" button. Below this is a "New Bookmark" button. The main content is a table with the following columns: Name, Command, Profile, and Id. Each row represents a bookmark and includes a checkbox on the left and a small icon representing the desktop environment.

<input type="checkbox"/>	Name	Command	Profile	Id
<input type="checkbox"/>	Xterm (Single)	xterm -ls	config/session/profile/def...	264fb473-fbd3-4862-914...
<input type="checkbox"/>	GNOME	/etc/X11/xinit/Xsession g...		gnome
<input type="checkbox"/>	KDE	/etc/X11/xinit/Xsession kde		kde
<input type="checkbox"/>	MATE	mate-session	default	mate
<input type="checkbox"/>	XFCE	starxfce4		xfce4

Bookmarks (Tab) - Create and configure sessions that can be started by users on the FastX server.

- **New Bookmark** - Click the "New Bookmark" button to create a new bookmark.

General **Icon** Custom Parameters Static Data

Command: *

xterm -ls

Name:

Display Name

Run As User:

Window Mode:

Single 1024 x 768

Override Default Forms List

Custom Forms:

+ Add and press Enter

Profile:

Default Profile

Tags:

+ Add and press Enter

Id:

Cancel Submit

- **General (Tab)**

- **Command** - Command used by the bookmark
- **Name** - Name of the bookmark
- **Run As User** - Start the session using the desired username. User's will be prompted for their credentials at launch.
- **Window Mode**
 - **Single** - The entire session environment is rendered in a single window with desired resolution.
 - **Multiple** - The session is managed by multiple windows.
- **Override Default Forms List** - Check box to use custom forms instead of defaults
- **Custom Form** - Ordered List of Custom Forms to attach to the bookmark. The server will determine which forms and in which order the user will access the form.
- **Profile** - Choose the desired Profile which the bookmark will configure to.
- **Tags** - Used to group bookmarks. Enter the name of the tag and hit enter to create.
- **Id** - Id of the Bookmark. Autogenerated if not entered.
- **Icon (Tab)** - Drag and drop or click to add an icon to add to the bookmark.

- **Custom Parameters (Tab)** - JSON object of custom parameters to add to the bookmark. These can be overridden by the user.
- **Static Data (Tab)** - JSON object attached to the bookmark for use in filtering bookmarks

Filter (Tab) - Javascript function that can be used to filter out system bookmarks on a per user basis. This function returns a limited set of bookmarks based on your filtering criteria.

```
function (input) {  
  
    return input.bookmarks;  
  
}
```

Input Object

JSON object passed to the function

```
{  
  
    "user": USER OBJECT,  
  
    "isAdmin": false, /* Is the user an admin */  
  
    "isManager": false, /* Is the user a manager */  
  
    "userGroups": ["group1", "group2" ..., "groupN"], /* Array of user's Linux User  
Groups */  
  
    "bookmarks": [ BOOKMARK1, BOOKMARK2, ... BOOKMARKN ], /* Array of  
Bookmark Objects */  
  
}
```

Return

Filtered Array of bookmarks

Profiles

Profiles define the abilities and limitations of the session.

There is a listing of existing Profiles which can be edited or deleted by clicking on the desired profile and then . The Default Profile cannot be deleted.

Profiles

[New Profile](#) ⋮

<input type="checkbox"/> Name	Description	Disconnect Timeout	Id
<input type="checkbox"/> Default Profile	This is the default profile that will b...	0	default
<input type="checkbox"/> no-multi		0	e0f380e7-7b33-4e02-9126-cfcb369...
<input type="checkbox"/> Test Profile	Test Profiles	30	400bb7be-182e-49b7-8372-ce4e4e...

- **New Profile** - Click the “New Profile” button and create a new profile.

General [Session Settings](#) [Extensions](#) [Event Scripts](#) [Static Data](#) [Debug](#)

Name *

Description

Id

[Cancel](#) [Submit](#)

- **General (Tab)**
 - **Name** - Name of Profile
 - **Description** - Description of Profile
 - **Id** - Id of the Profile. Autogenerated if not entered.
- **Session Settings (Tab)**

General | Session Settings | Extensions

Event Scripts | Static Data | Debug

Admin	▼
Clipboard	▼
OpenGL	▼
Compatibility	▼
Advanced	▼

Cancel Submit

Admin

Admin ^

Update the web server every N minutes regardless of status change

minutes

Terminate session after it has been disconnected for a period of time

minutes

- **Update the web server every N minutes regardless of status change** - Updates the web server even if nothing has changed.
- **Terminate session after it has been disconnected for a period of time** - When all users have disconnected, terminate the session after x minutes. Set to 0 to disable.

Clipboard

Clipboard ^

Enable Client Clipboard

Enable Server Clipboard

Server Clipboard Max Bytes

bytes

- **Enable Client Clipboard** - Allow clipboard data to be sent from client to server
- **Enable Server Clipboard** - Allow clipboard data to be sent from server to client
- **Server Clipboard Max Bytes** - Maximum number of bytes that can be sent from server to client per clipboard operation.

OpenGL

OpenGL 

- Enable VirtualGL Detection
- Disable GPU Detection for VirtualGL

VirtualGL Options

-c proxy

- **Enable VirtualGL Detection** - By default, attempt to run sessions through VirtualGL. Disabling this option will explicitly turn off running the application through the shipped VirtualGL.
- **Disable GPU Detection for VirtualGL** - Uncheck box to enable this option. The host must have a GPU to utilize this option.
- **VirtualGL Options** - Vglrun command line options.

Compatibility

Compatibility 

Save Xauthority cookies to the \$HOME/.Xauthority file

- Enable iglx Support
- Enable X11 TCP Support

- **Save Xauthority cookies to the \$HOME/.Xauthority file** - By default Xauthority cookies are stored in their own private location. This is to avoid polluting the \$HOME/.Xauthority file with old session cookies. However, some misbehaving applications only look in the \$HOME/.Xauthority file for authorization. Enabling this option puts the cookie in the \$HOME/.Xauthority file to enable these applications to function properly
- **Enable iglx Support** - Older OpenGL applications may use different libraries and fail to run properly. Enable this option if your OpenGL application is failing.
- **Enable X11 TCP Support** - Certain applications require systems to listen for incoming connections to function properly. Enable this option if your application needs to connect to its X11 DISPLAY.

Advanced

Advanced ^

Multisurface Support

Autodetect

CPU Percentage

Autodetect

- **Multisurface Support** - Multisurface speeds up rendering in multiple window mode and optimizes certain operations in single window mode. However, it may also make a different set of operations slower. Most users should leave this as Autodetect (Single window mode: false, Multiple window mode: true).
- **CPU Percentage** - Maximum % of CPU FastX will use for compressing images. Systems with fewer cores should have a lower CPU percentage. Systems with 8 or more cores should use 100%. Autodetect will determine the number of cores on the system and will adjust accordingly.

Extensions (Tab) - Enable Specific ClientComm Extensions on the session. ClientComm extensions are protocol extensions that interact with the client system adding extra functionality. However they effectively "break out" of the sandboxed session environment adding potential security concerns.

General Session Settings Extensions

Event Scripts Static Data Debug

- Enable All FastX Extensions
- Enable Notification Extension
- Enable Url Extension
- Enable Sharing Extension
- Enable Start Menu Extension

Custom Extensions:

Empty text area for custom extensions.

Cancel Submit

- **Enable All FastX Extensions** - Check the box to enable. Enables all default extensions.

- **Enable Notification Extension** - Check the box to enable. This extension allows a script on the linux system to send a notification to a running session to be displayed to the user (and possibly receive a response)
- **Enable Url Extension** - Check the box to enable. This extension allows a script on the linux system to fire off a URL that will be opened on the client system
- **Enable Sharing Extension** - Check the box to enable session sharing
- **Custom Extensions** - Integrators can add their own extensions to be used. Provide a list of extensions that are enabled.

Event Scripts (Tab) - Event Scripts are custom scripts that are fired off when a session event occurs. These scripts are different from Events in that they are executed as the owner of the session process. (Events are executed as the owner of the web server process)

- **Event Name** - Choose created Event to be used with Profile.

Except for 'terminate', the scripts that are triggered run in the background. This means that if the script is long-running, the session may terminate while the script is still running. In the case of 'terminate', the session monitor will not exit, and thus the session directory will not be removed, until the terminate script exits.

- **Script** - Script that will be executed as the owner of the session.

If the script specified is a single line (after removing blank lines at the start and end), it will be run under the shell. This means that special characters, such as file pattern matching, environment variable expansion, and file redirection, will all work.

If the script is multiple lines, then the entire script is put into a script file, which is executed when the trigger happens. This means that any multiple line event script should start with an interpreter, e.g. `#!/bin/bash`.

The following environment variables will be set for an event script:

`$DISPLAY`, `$XAUTHORITY`, `$FASTX_SESSION_ID`, `$FASTX_SESSION_DIR`, as well as the usual ones (`HOME`, `USER`, etc.)

This means that the event script could run an X11 application, such as `xmessage` or `xwininfo`.

Static Data (Tab) - User defined JSON Object used for setting static data on the profile. This can be used as a way to filter profiles.

Debug (Tab)

- **License Diagnostics** - Logs licensing communications.
- **Clipboard** - Logs clipboard communication.

Forms

Custom forms can be created and displayed to users when starting a session. Custom forms allow administrators to collect extra information from the user. This information is typically used in conjunction with load balancing and job scheduling to determine how and where to start the session. The form data collected is added to the *params* field when starting the session.

There is a listing of existing Forms, which can be edited, deleted, or set as default by clicking on the desired form and then .

New Form - Click the “New Form” button to create a new form.

- **General (Tab)**
 - **Name** - Name of Form
 - **HTML Form** - The HTML form that will be displayed to the user. FastX uses [Bootstrap 4 styling](#) which can be added to keep the look and feel consistent through the form. Valid input will be added to the **params** object of the start data.
 - **Allow unsafe HTML tags in the form** - Explicitly allow unsafe HTML in the form
 - **Id** - Id of Form. Autogenerated if not entered.
- **Static Data (Tab)** - User Defined JSON Object of static data. This can be used when filtering forms.

Events

Events are fired off when some action happens in a session. Use Events to integrate FastX into your current workflow

Api Events (Tab) - A listing of existing Session Events, which can be edited or deleted by clicking on the desired Session Event and then .

- **New Session Event** - Click the “New Session Event” button to create a new event.
 - **Api** - The API call that will fire the event.
 - **Script** - Javascript function that will be executed. The script is executed immediately before the event is fired. Throwing an error in the script will make the api call fail with an error. You can use this to prevent users/actions from occurring.

```
function(input) {  
  
    return input;  
  
}
```

Input Object

```
{
  "action": "API ACTION",
  "token": WEB_TOKEN,
  "login": "username",
  "data": POST_DATA_FROM_API_REQUEST,
  "session": SESSION OBJECT /* if there is an
  associated session */
}
```

Return

Return the Input Object. The input object can be modified in the javascript function. (for example, changing the command in a start script)

Execute on Web Server Update (Tab) - Javascript function that will be executed when the session updates the web server.

```
function(oldSession,newSession) {
  if(!oldSession) {
    //Session Started
  } else if(newSession.terminated) {
    //session has terminated
  } else if(newSession.clientCount > oldSession.clientCount) {
    //client connected
  } else if(newSession.clientCount < oldSession.clientCount) {
    //client disconnected
  }
  if(newSession.clientCount === 0) {
```

```
//all users disconnected
}
}
}
```

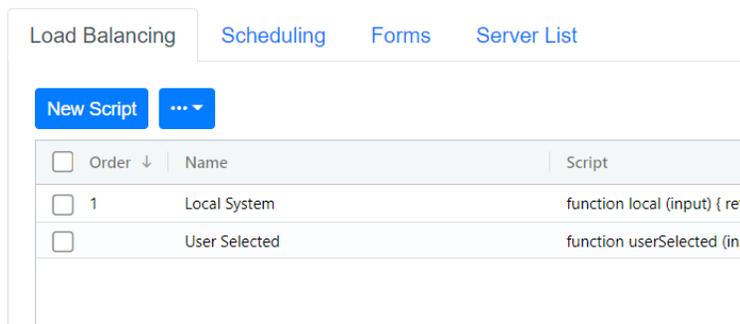
oldSession

Current [Session Object](#) in the Database

newSession

New [Session Object](#) to be updated

Clustering & Scheduling



Load Balancing (Tab) - Set of Load Balancing Scripts that will be executed when starting a new session. Load balancing is used to determine on which server in a cluster the session will start.

There is a listing of existing Scripts, which can be edited, deleted, or set start script by clicking on the desired form and then .

New Script - Click the “New Script” button to create a new script.

- **Script Name** - Name of script
- **Javascript Function** - Script written in javascript. Templates are provided for:
 - Allow users on a system
 - Blacklist user
 - Maximum Sessions

[See Load Balancing for more information](#)

Scheduling (Tab) - The Javascript function that will be executed to determine if the start command should be launched immediately or started at a later time. If the function returns a falsy value it will start immediately. If the function returns a string, it will interpolate the template string and execute that instead. [See Job Scheduling for more information.](#)

- **Templates** provided for the following job schedulers.
 - MOAB
 - LSF
 - SLURM
 - Docker
 - Run a random command
- **Allow HTML in output** - By default HTML is escaped. Check this box to allow output to be interrupted by the client as HTML.
- **Allow HTML in output** - Run Scheduler as Web Server user.

Forms (Tab) - Javascript function used to determine which form to send to the user when starting a session.

```
async function(input) {  
  
  // input.data -- input sent from the api call  
  
  // input.forms -- array of form object  
  
  
  //return a falsy value to continue  
  
  //return a form object to pop up a form  
  
  //return the string 'SERVERLIST' to allow the user to choose from the available servers  
  (dynamically generated form from the serverList function)  
  
  return;  
  
}
```

Input Object

```
{
  user: USER_LOGIN,
  isAdmin: false, /* Is user an admin */
  isManager: false, /* Is user a manager */
  userGroups: ["g1", "g2", ... "gN"], /* Array of User's Linux User Groups */
  data: START_DATA,
  forms: [FORM1, FORM2 ...] /* Array of Form Objects */
}
```

input.user

[See Login Object](#)

input.data

[See API Start](#)

Form Object

[See Form Object](#)

Return

If the value is Falsy, forms have been completed, and continue

If the value is JSON Object, this is the form object that will be returned

If the value is the special string "SERVERLIST", return a form of the filtered server list

Server List (Tab) - Javascript function used to filter out serverIds based on user input. This allows a partial list of all cluster members to be sent to the user for selection.

```
async function(input) {  
  
  // input.data -- input sent from the api call  
  
  // input.servers -- array of server objects  
  
  //return a filtered list of servers for the user specified by username, or none to disable  
  server selection  
  
  return input.servers;  
  
}
```

Input Object

```
{  
  
  user: USER_LOGIN,  
  
  isAdmin: false, /* Is user an admin */  
  
  isManager: false, /* Is user a manager */  
  
  userGroups: ["g1", "g2", ... "gN"], /* Array of User's Linux User Groups */  
  
  data: START_DATA,  
  
  servers: [SERVER1, SERVER2 ...] /* Array of Server Objects */  
  
}
```

input.user

[See Login Object](#)

input.data

[See API Start](#)

Note* If there is a password field, it is changed to *****

Server Object

[See Server Object](#)

Return

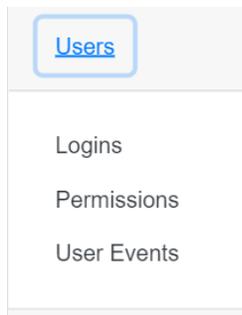
If the value is Falsy, disable Server Selection

Return an array of server objects that you want the user to select from

- **Enable Automatic Option** - Checking this box will add automatic as an option to the server list. This has the effect of allowing the user to set the serverid to an empty string.

Users

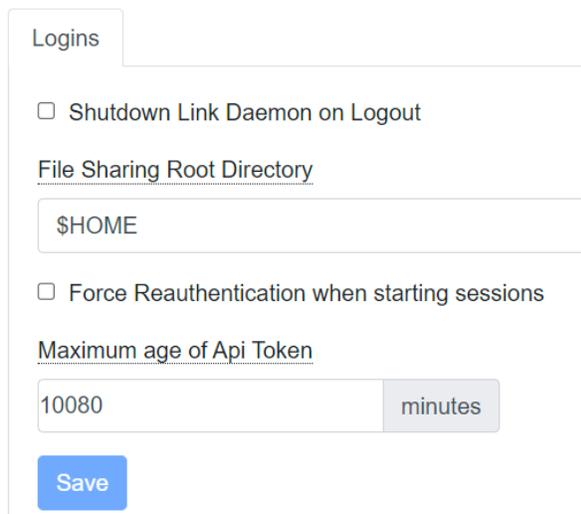
Configuration for users



A screenshot of a configuration menu. At the top, there is a tab labeled 'Users' with a blue border. Below the tab, there are three menu items: 'Logins', 'Permissions', and 'User Events', each on a separate line.

Logins

For detailed information about Logins, [click here](#).



A screenshot of a configuration form for 'Logins'. The form has a title 'Logins' at the top left. Below the title, there is a checkbox labeled 'Shutdown Link Daemon on Logout'. Underneath, there is a section titled 'File Sharing Root Directory' with a text input field containing '\$HOME'. Below that, there is another checkbox labeled 'Force Reauthentication when starting sessions'. Underneath, there is a section titled 'Maximum age of Api Token' with a text input field containing '10080' and a dropdown menu set to 'minutes'. At the bottom left of the form, there is a blue 'Save' button.

- **Shutdown Link Daemon on Logout** - Logging out shuts down link daemon
- **File Sharing Root Directory** - Root directory for file sharing

- **Force Reauthentication when starting sessions** - Check box to reauthenticate when starting a sessions
- **Maximum age of Api Token** - Number of maximum minutes for the age of the api token

Permissions

Set the permissions that a limited user can do on himself and his sessions. If a user is in the Full User Group, all permissions will be set to true.

[See FastX Permissions Guide for more information](#)

- **Admins (Tab)**
 - **Admin Groups** - Linux user groups that will be admins. Input admin group name and hit enter to add to group.
 - **Admin Users** - Users that will be admins. Input username and hit enter to add as admin.
- **Managers (Tab)**
 - **Enable Manager** - Enables Manager permissions. If this is disabled, there are no managers.
 - **Manager Groups** - Input group name and hit enter. Click “x” to delete the group. Input manager group name and hit enter to add the manager group.
 - **Manager Users** - Input user name and hit enter. Click “x” to delete the group. Input username and hit enter to add as manager.
 - **Manager Permissions** - Set the permissions that a manager can do on a different user.

[Click here for information](#)

- **Session Actions** - Unchecking any of the following options will disable the action(s) for managers.
 - Session Info
 - Sharing
 - Connect
 - Disconnect
 - Parameters
 - Exec
 - Log
 - Purge
 - Terminate
- **User Actions**
 - User
- **Server**
 - Server
- **Full Users (Tab)**

- **Full User Groups** - Linux user groups that will be full users. Input group name and hit enter to add the full user group.
- **Full User Users** - Users that will be full users. Input username and hit enter to add as full user.
- **Limited Users (Tab)**

Set the permissions that a limited user can do on himself and his sessions. If a user is in the Full User Group, all permissions will be set to true.

[Click here for more information](#)

- **Enable Limited Users** - Check the box to enable limited users.
- **Start Actions** - Uncheck the box to disable action(s) for limited users.
 - Start Session from Bookmark
 - Start Session with Custom Command
- **Session Actions** - Uncheck the box to disable action(s) for limited users.
 - Session Info
 - Shortcuts
 - Sharing
 - Connect
 - Disconnect
 - Parameters
 - Exec
 - Log
 - Purge
 - Terminate
- **Bookmarks**
 - System Bookmarks
 - User Bookmarks
- **User Actions**
 - User
- **Utils**
 - File Download
 - File Upload
- **Disabled Users (Tab)**
 - **Disabled Groups** - Linux user groups that will be disabled. Input group name and hit enter to add disabled user group.
 - **Disabled Users** - Users that will be disabled. Input username and hit enter to add disabled users.

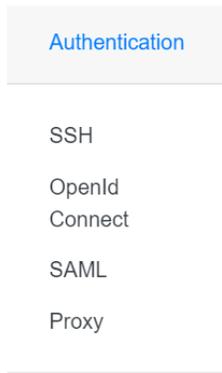
User Events

Events for users. Click the “New User Event” button to create a new event.

- User Event - Select a user vent from the following:
 - Login
 - Keepalive
 - Logout

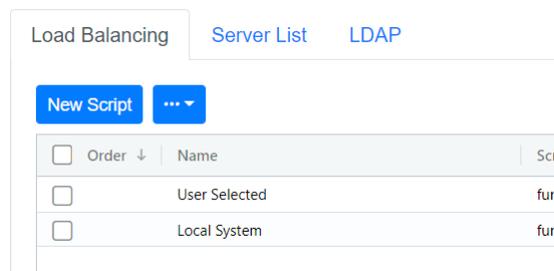
Authentication

This section provides configuration for the authentication methods available in FastX.



SSH

SSH is the default authentication method for FastX.



- **Load Balancing (Tab)** - There is a listing of existing Scripts, which can be edited, deleted, or set as login scripts by clicking on the desired form and then .
 - **New Script** - Click the “New Script” button to create a new script.
 - **Script Name** - Name of the script.
 - **Javascript Function** - Script written in javascript. Templates are provided for:
 - Allow users on a system
 - Blacklist user
 - Maximum Sessions
 - User Selected

- Local System
- Random Server
- Fewest Sessions
- User's Logged In Server
- Most Free Memory
- Disable

[See Load Balancing for more information](#)

- **Server List (Tab)** - Javascript function used to filter out available server ids when authenticating via SSH

```
async function(input) {  
  
  // input.data -- input sent from the api call  
  
  // input.servers -- array of server objects  
  
  //return a filtered list of servers for the user specified by username, or none to disable  
  server selection  
  
  return input.servers;  
  
}
```

Input Object

```
{  
  
  data: LOGIN_DATA,  
  
  servers: [SERVER1, SERVER2 ...] /* Array of Server Objects */  
  
}
```

input.data

[See SSH Login](#)

Note* Password is changed to *****

Server Object

[See Server Object](#)

- **LDAP (Tab)** - Set up LDAP to get extra profile information from users using the SSH login.

The screenshot shows a configuration page with three tabs: 'Load Balancing', 'Server List', and 'LDAP'. The 'LDAP' tab is active. Below the tabs are four input fields: 'LDAP Url *:' with the value 'ldap://127.0.0.1:389', 'Bind DN:' with the value 'cn=root', 'Bind Password:' with a masked password '*****', and 'Search Base:' with the value 'dc=example,dc=com'. A blue 'Save' button is located below the fields. At the bottom, a note states '* Changes take effect when server restarts'.

- **LDAP Url** - Url to the LDAP Server.
- **Bind DN** - Bind DN of the LDAP Server
- **Bind Password** - Bind Password of the LDAP Server
- **Search Base** - Search Base of the LDAP when searching for users

Note: Changes take effect when server restarts

OpenID Connect

OpenID Connect setup

OpenId Connect

Enable:

Redirect URI:

Issuer:

Client Id:

Client Secret:

Logout Redirect URI:

Find Username

- **Enable** - Enables OpenID Connect
- **Redirect URL** - URL to redirect to. `https://server.example.com:3300/auth/oidc/callback`
- **Issuer** - OpenID Connect Issuer. Refer to your OpenId Connect Provider for more information.
- **Client Id** - OpenId Connect Client Id. Refer to your OpenId Connect Provider for more information.
- **Client Secret** - OpenId Connect Client Secret. Refer to your OpenId Connect Provider for more information.
- **Logout Redirect URL** - URL to redirect when user logs out. This should be on the approval list in your provider's configuration. `https://server.example.com:3300/auth/oidc/`

Note: Changes take effect when server restarts

SAML

Security Assertion Markup Language setup

SAML

Enable:

Entry Point:

Issuer:

Logout Endpoint:

Certificate:

Logout Redirect URI:

Find Username

- **Enable** - Enables SAML
- **Entry Point** - Entry point for users
- **Issuer** - SAML Issuer
- **Logout Endpoint** - Implemented logout for users
- **Certificate** - SAML verification certificate
- **Logout Redirect URI** - URL to redirect when user logs out. This should be on the approved list in your provider configuration.
- **Find Username**

*Changes take effect when server restarts

Proxy

Proxy Authentication. This allows admins to create JWTs without having to log in. [See Logins](#)

- **Secret Key** - Secret key used to sign the proxy JWT

Customization

[Themes](#)[Login Page](#)[Session Browser](#)[Metrics](#)[Web Client](#)[Performance](#)[HTTP Headers](#)[Website](#)

Themes

Themes allow you to customize the look and feel of the website to add your own colors, images and taglines. There is a listing of existing Themes, which can be edited, deleted, or used by clicking on the desired form and then .

Themes

[New Theme](#)

<input type="checkbox"/>	Logo	Name	Description
<input type="checkbox"/>		test2	
<input type="checkbox"/>		Default Theme	This is the def
<input type="checkbox"/>		Big Test	I say stuff
<input type="checkbox"/>		Testing Themes	This is test
<input type="checkbox"/>		Testing New eme	Them

New Theme - Click the “New Theme” button to create a new theme.

General Branding Background Login Colors Custom

Name *

Description

General (Tab)

- **Name** - Name of Theme.
- **Description** - Description of Theme

Branding (Tab)

- **Logo** - Drag and drop logo image or click on current logo to replace.
- **Tagline** - Tagline that will be displayed at the browser login screen

Background (Tab)

- **Background Image** - Admins can upload, select no background image, or use the default background image.
- **Color** - Choose background color. Options include:
 - Color
 - Transparent
 - Initial
 - inherit
- **Repeat** - Choose background image repeat options:
 - initial
 - repeat
 - repeat-x
 - repeat-y
 - no-repeat
 - space
 - round
 - inherit
- **Position** - Background image position value.
- **Size** - Size of background image.
- **Origin** - Choose origin of background image:
 - initial
 - padding-box
 - border-box
 - content-box
 - inherit
- **Clip** - Choose clip of background image.

- initial
- padding-box
- order-box
- content-box
- inherit
- **Attachment** - Choose attachment of background image.
 - initial
 - scroll
 - fixed
 - inherit

Login (Tab) - Changes the background for user's logging into FastX via a browser. Admins can upload, select no login background image, or use the default login background image.

- **Background Image** - Admins can upload, select no login background image, or use the default login background image.
- **Color** - Choose background color. Options include:
 - Color
 - Transparent
 - Initial
 - inherit
- **Repeat** - Choose background image repeat options:
 - initial
 - repeat
 - repeat-x
 - repeat-y
 - no-repeat
 - space
 - round
 - inherit
- **Position** - Background image position value.
- **Size** - Size of background image.
- **Origin** - Choose origin of background image:
 - initial
 - padding-box
 - border-box
 - content-box
 - inherit
- **Clip** - Choose clip of background image.
 - initial
 - padding-box
 - order-box
 - content-box
 - inherit
- **Attachment** - Choose attachment of background image.

- initial
- scroll
- fixed
- inherit

Colors (Tab) - Choose to customize the colors for:

- Primary
- Secondary
- Success
- Danger
- Warning
- Info
- Light
- Dark

Custom (Tab) - Custom SASS configuration to include in the theme

Login Page

Edits the User Login Page.

Login Page

- Use Transparent Background
- Hide Password Field
- Hide Manage Private Keys
- Hide Admin Login Button (not recommended)

Background Image

Logo Theme

Dark

Logo Theme Position

Left

Disclaimer

1 This is a disclaimer. Please see our [Privacy policy](#).

- **Use Transparent Background** - Check the box to use a transparent background for user's login page.
- **Hide Password Field** - Check the box to hide the password field box on user's login page.
- **Hide Manage Private Keys** - Check the box to hide private keys on login page.
- **Hide Admin Login Button (not recommended)** - Check the box to hide the admin login option on the user's login page.
- **Logo Theme** - Background for the logo on the login page.

- Dark
- Light
- Transparent
- None
- **Logo Theme Position** - Position of the logo with relations to the login.
 - Left
 - Right
 - Top
 - Bottom
- **Disclaimer** - Add a disclaimer on the user's login page.

Session Browser

Set the user interface after login. Users can overwrite certain interfaces by going to the user's preferences settings.

Session Browser

Home Page:

-- Default --

Autoconnect to Bookmark:

Default Session View Mode:

Default Bookmark View Mode:

Hide Bookmark System Tag

Hide Bookmark All Tag

Show Timed Out Sessions

[Save](#)

- **Home Page**- Sets the home page for users after login.
 - Default
 - Sessions - Sets user's home page to /session
 - Shortcuts - Sets user's home page to /shortcut
- **Autoconnect to Bookmark** - After users login, the bookmark is launched. Select the blank (first) option to disable.
- **Default Session View Mode** - Sets the user's interface for their session manager page. Choose from:
 - Grid
 - List

- **Default Session View Mode** - Sets the user's interface when launching a new bookmark. Choose from:
 - Grid
 - List
- **Hide Bookmark System Tag** - Check the box to hide the "System" bookmark group from users when launching a new bookmark.
- **Hide Bookmark All Tag** - Check the box to hide the "All Bookmarks" group from users when launching a new bookmark.
- **Show Timed Out Sessions** - Check the box to show sessions that are in the database regardless whether the web server can communicate with them.

Metrics

Shows a list of the Metrics that will be sent on the server update. A metric is a Javascript function that will be executed on every server update. The return value of the Javascript function is the value of the metric. [See Metrics for more information.](#)

There is a listing of existing metrics, which can be edited or deleted by clicking on the desired metric and then

New Metric

- **Metric** - Enter name of the metric
- **Javascript Function** - Add the desired metric in javascript

```
function() {  
    return true  
}
```

The return value of the function will be the value of the metric

Web Client

Client

Default Keyboard Layout

US

Hide Client Menu

Hide All Dialogs

Stop Message Propagation to iframe parent window

Hide Home button in menu

Home button opens in the same window

Url of the home button

../

STUN Servers

+ Add and press Enter

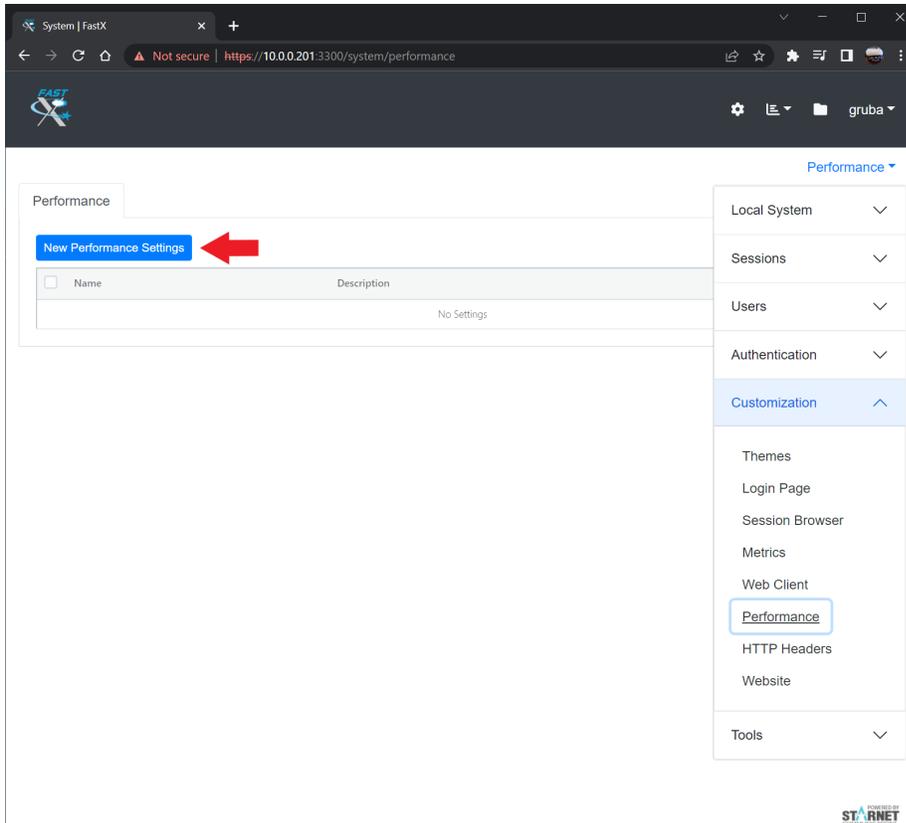
Save

- **Default Keyboard Layout** - Language of keyboard.
- **Hide Client Menu** - Hides the settings menu. This is useful for integrators who wish to implement their own UI elements.
- **Hide All Dialogs** - Hides any dialogs that may appear (usually on disconnect or error). This is useful for integrators who wish to implement their own UI elements.
- **Stop Message Propagation to iframe parent window** - Disables messages from propagating to parent windows when client is in an iframe.
- **Hide Home button in menu** - Hides the home button in the menu.
- **Home button opens in the same window** - When clicking the home button, open the url in the same window. This will disconnect the session.
- **Url of the home button** - URL location of home button.
- **STUN Servers** - One STUN Server per line

Performance

Performance settings are used to preset the user's image and scaling settings for the best session experience based upon broadband.

New Performance Setting - Click the New Performance Settings to create a new setting.



General (Tab)

- **Name** (Required) - Enter name of performance setting
- **Description** - Description of performance setting
- **Id** - Id of performance setting. Autogenerated if nothing is entered

General [Image](#) [Advanced](#)

Name *

Description

Id

Image (Tab)

- **Compression** - Adjust the compression with a slider. The slider toward left will use less bandwidth however image quality will decrease. The slider to the right will increase the image quality of the session but will use more bandwidth.

- **Image Format** is the image format that FastX will render.
 - **PNG** - Lossless Image Quality at any level, High BW requirements, Medium Server Work -- **Best for LAN and High Speed Networks**
 - **WebP** - Lowest Bandwidth Requirements, Highest Server Work, Artifacts if lower than level 5 - **Best for low bandwidth needs with powerful server**
 - **JPEG** - Lowest Server Work, Medium Bandwidth, Artifacts if Lower than level 5 - **Best Balance, Can often be the fastest because of the speed to compress**
 - **RFX** - Server work comparable to JPEG, Medium Bandwidth, Artifacts if lower than level 4 - **Offers better image quality than JPEG for the same amount of work. However, RFX requires images be divided up into 64x64 pixel tiles. At very large screen updates, the amount of tiles needed to render an image slows down the update**
- **Draw window updates immediately** - Immediately updates the image when changed.
- **Enable high quality image upgrades** - Will update with a high image when bandwidth is available. May slow down session performance.
- **Scaling** - Scaling can be adjusted with the slider. Moving the slider to the right increases the zoom. (1.5 = 150% zoom)

General Image **Advanced**

Compression
1 5

Image Format
JPEG

DPI
Automatic

Draw window updates immediately
 Enable high quality upgrades
 Smart Scaling

Scaling
0.1 1 3

Cancel Submit

Advanced (Tab)

- **Hi Res image format** - High resolution image that is sent to the render session. Choose from image format RFX7, JPEG, PNG, WEBP.
- **Hi Res maximum Size** - Size of image being sent with high resolution image for big block codecs. Choose from 64x64, 128x128, 192x192, 256x256, 512x512.
- **Automatically adjust network settings** - Adjust the FastX network settings automatically. Provides a more snapper session experience.
- **Frame Rates** - Sets the maximum frames per second

General Image **Advanced**

Hi Res Format
RFX

Hi Res Maximum Size
1024x1024

Automatically Adjust Network Settings

Frame Rate
1 60 120

Frame Window
1 60 120

Cancel Submit

HTTP Headers

Allows you to send custom HTTP Headers on responses. There is a listing of existing HTTP Headers, which can be edited or deleted by clicking on the desired HTTP Headers.

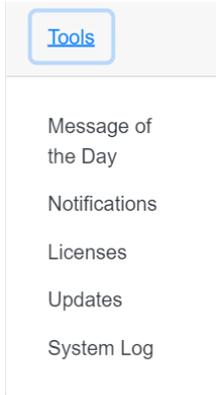
New Http Header - Click the “New Http Header” button to create a new http header.

- **Http Header** - Name of http header
- **Value** - Value of http header
- **Routes** - Choose route of http header
 - All Routes
 - Authentication
 - Running Sessions
 - Custom

Website

- **Welcome Page (Tab)** - Custom web page that will appear when a user first connects. You can use this to add special messages/warnings etc
- **Not Found (404) (Tab)** - Custom 404 Error Page
- **Permission Denied (403)** - Custom 403 Error Page
- **Internal Error (500)** - Custom 500 Error Page

Tools



Message of the Day

Message of the Day (MOTD) is a message users receive after logging into FastX. Written in html.

Notifications

Create notifications that will be seen by the users. This allows admins to pass information to users like server downtime etc.

There is a listing of existing notifications, which can be edited or deleted by clicking on the desired notifications and then

New Notification

Click the “New Notification” button to create a new notification that will be sent to all users.

- **Title** - Title of the Notification.
- **Summary** - Summary of the notification. This will appear in the dropdown menu of the notification list. Limited HTML is allowed.
- **Content** - Long form content of the notification. This will appear when a user clicks on the notification. Limited HTML is allowed. This will also appear if a user goes to the notification feed
- **This notice is public. Logins not required** - Check the box to allow the notification to be public. Users who are not logged in can see this notification in the feed.

Licenses

There is a listing of existing license files, which can be reread or deleted by clicking on the desired license files and then

Files (Tab)

New License - Click the “New License” button to register a new license.

- **Activation Key (Tab)** - Enter Activation Key to register
- **License Server (Tab)** - (Centralized License Server) Enter in the Hostname or IP of the FastX license server and Port number (Default port: 5053). Hit Submit.
- **License File (Tab)** - Choose a license file on the local system to register. For instructions on generating a license file, please [click here](#).

Usage (Tab)

Displays the licenses that are in use. The list is sorted by license file.

Updates

Edit the update configuration.

Disable Update Check

Check the box to disable updates.

Channel

Beta or stable channel to check for updates.

Base Update Url

Url to query for updates. This should not be changed unless you know what you are doing as it can break the ui

System Log

Displays system logs

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