BigFix
Explorer Guide

Special notice

Before using this information and the product it supports, read the information in Notices (on page 22).

Edition notice

This edition applies to BigFix version 11 and to all subsequent releases and modifications until otherwise indicated in new editions.

Chapter 1. Introduction

Learn how the BigFix Explorer feature extends the power of BigFix.

BigFix Explorer is a new BigFix Platform component, part of the BigFix Platform offering, based on the datastore engine technology implementing it as a stand-alone service.

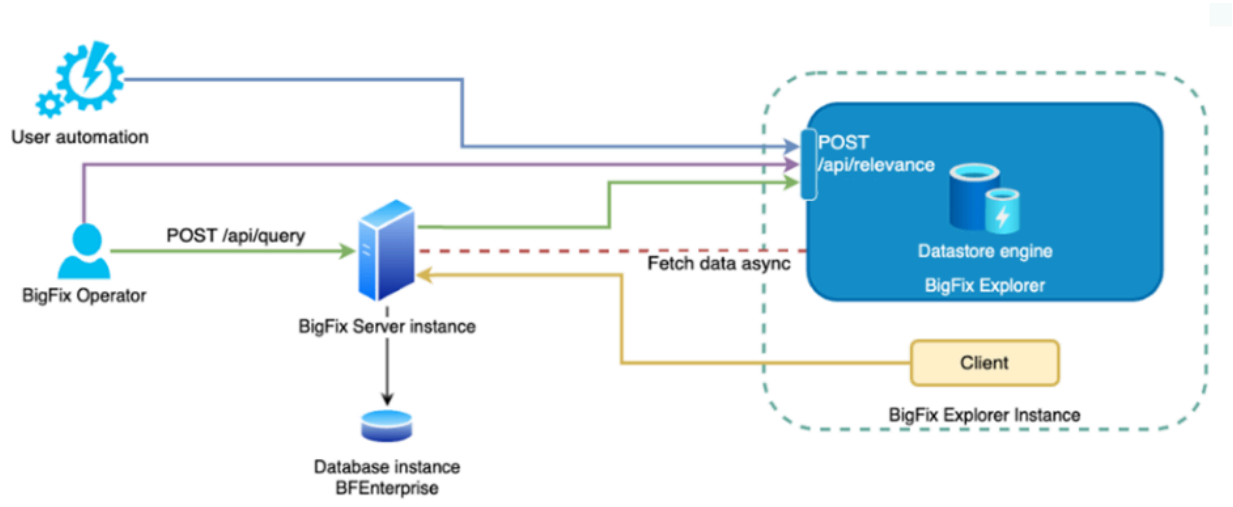
BigFix Explorer has two main components: datastore engine and the REST APIs.

The datastore engine acts like an in-memory cache that contains the data stored in the BigFix Root Server database. Together with the datastore engine BigFix Explorer offers a REST API interface designed to query the collected data using session relevance. BigFix Explorer must register to a BigFix Root Server and offers near real time data of the BigFix environment any time a BigFix Operator and/or a BigFix Application needs it.

BigFix Explorer can be connected to one BigFix Root Server only.

Multiple instances of BigFix Explorer will be able to connect to the same BigFix Root Server instance. Having more instances helps in failover cases, and when users directly query the BigFix Explorer instead of the BigFix Root Server, different instances might be placed closer to different users instead of having all users query the BigFix Root Server.

In the following figure, you can see the logical architecture of the new component.



The BigFix Client installed is a pre-requisite to install the BigFix Explorer on a machine. A BigFix Explorer instance will connect to the same BigFix Root Server to which the Client is registered.

- BigFix Explorer is available starting from BigFix Platform Version 11.0.2 as a new Platform component.
- For a list of BigFix Explorer requirements, see Requirements and assumptions *(on page 6)*.
- BigFix Explorer can be installed using a Fixlet targeting a computer where the BigFix Client is available. For more details on installing BigFix Explorer, see Installing the BigFix Explorer *(on page 8)*.
- BigFix Explorer exposes REST API interface to evaluate Session Relevance. For more details on using BigFix Explorer APIs, see Using the BigFix Explorer *(on page 11)*.
- BigFix Explorer can be customized using specific configuration options. For more details on configuring BigFix Explorer, see Administering the BigFix Explorer *(on page 14)*.
- BigFix Explorer is equipped also with uninstallation tools. For more details, see Uninstalling the BigFix Explorer *(on page 20)*.
- The authentication to BigFix Explorer is performed using BigFix Operators credentials that are valid for the BigFix Root Server. Both BigFix Master and Non-Master Operators are allowed. For more details about authentication, see BigFix Explorer APIs. The **can use REST API** privilege is required for BigFix Non-Master Operators to authenticate to the BigFix Explorer.

Chapter 2. Requirements and assumptions

Before installing BigFix Explorer, consider the following BigFix Explorer requirements.

OS Requirements

BigFix Explorer can be installed on the following operating systems:

- **Linux**: On Red Hat Enterprise 8.0 and 9.0.
- **Windows**: On Windows Server 2019 and 2022.

Notes:

- Only the 64-bit architecture is supported for installing the BigFix Explorer component.
- The firewall can be either turned off or configured to open the port 9383.

Notes about Linux operating systems:

- In BigFix Version 11.0.2, the BigFix Explorer component installed on Linux requires the unixODBC RPM package unixODBC.x86_64. If Yum is not configured on the Linux system, you must manually install the unixODBC RPM package prior to running the installation, otherwise you can use the Fixlet **Install and configure unixODBC** of BES Support Site.

  Starting from BigFix Version 11.0.3, installing the unixODBC RPM package is no longer required, nor running the Fixlet named **Install and configure unixODBC**, to be able to successfully install the BigFix Explorer component.

Hardware Requirements

The BigFix Explorer must be installed on a server machine. The number of computers and content that you are managing with the server impact the resource needs of the BigFix Explorer.

The BigFix Explorer also requires a high bandwidth connection (LAN speeds work best) to the server due to the amount of data that needs to be transferred to the BigFix Explorer.

Minimum disk space requirements to install BigFix Explorer on Windows:

400MB

Minimum disk space requirements to install BigFix Explorer on Linux:

200MB

This is the disk space used in each file system for installing the BigFix Explorer component:

- 170 MB in /opt/BESExplorer.
- 30 MB in /var/opt/BESExplorer.

Network configuration requirements

BigFix Explorer should have high speed connections to the BigFix server (100 mbps or higher).

Chapter 3. Installing the BigFix Explorer

BigFix Master Operators can deploy BigFix Explorer on their BigFix environment to evaluate Session Relevances using REST APIs.

BigFix Explorer application must be installed on a machine where the Client is already installed and running, in this way the Client can be used to manage the BigFix Explorer instance. The installation will be provided only via Fixlet.

BigFix Explorer requires a certificate to register to the root server. The certificate will be provided automatically by the installation Fixlet during its execution. For more details about certificates management, see Administering the BigFix Explorer (on page 14).

The BigFix Explorer service can be installed as an administrative and non-administrative user. Uninstallation is supported through the BES Remover and a dedicated Fixlet described in Uninstalling the BigFix Explorer (on page 20) in order to clean up everything related to the BigFix Explorer instance.

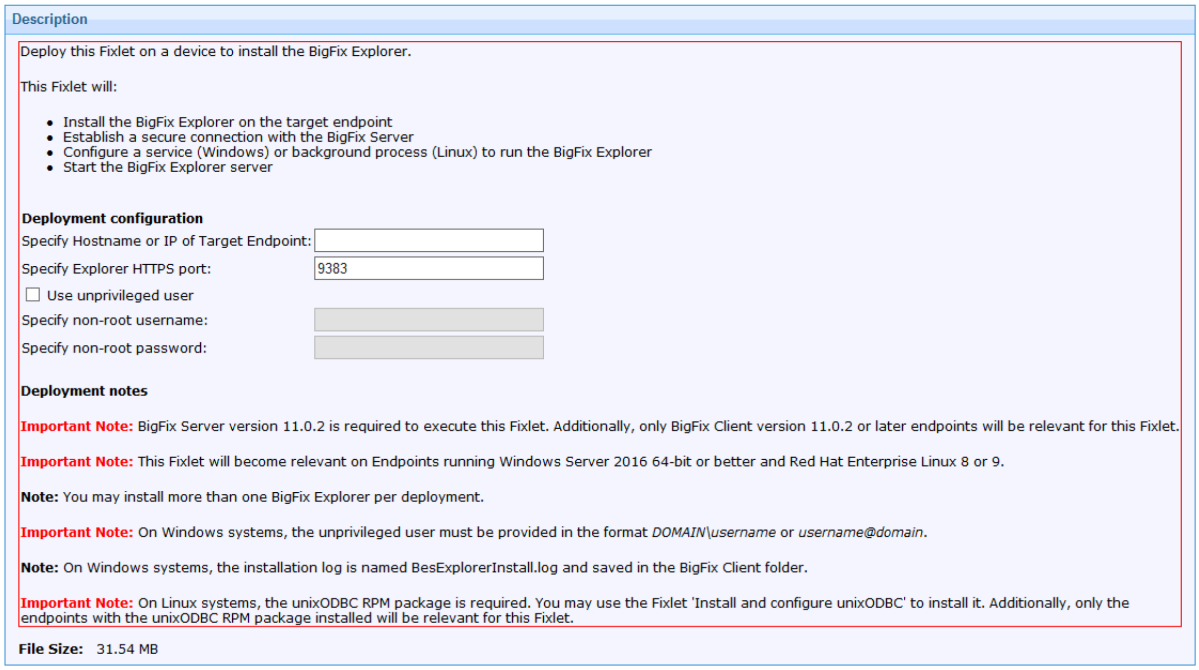
Logged on as a BigFix Master Operator (MO), you will be able to deploy a BigFix Explorer instance in your environment by deploying the Installation Fixlet of the BigFix Explorer, named **Install BigFix Explorer (Version 11.0.x)**, on a target client machine.



Note: You can deploy this Fixlet only from the BigFix Console, not using the WebUI.

In the **Deployment configuration** section of the Fixlet pane, you must configure the following fields before running the Fixlet:

- (Mandatory) In **Specify Hostname or IP of Target Endpoint**, enter the hostname or the IP address of the target client computer on which you intend to install BigFix Explorer.
- (Mandatory) In **Specify Explorer HTTPS port**, enter the HTTPS port that the BigFix Explorer should use to expose its REST APIs. By default, this port is 9383.
- (Optional) Check the box named **Use unprivileged user** if you want to install BigFix Explorer using a non-administrative user.
- (Optional) If you have checked the box described above, enter the non administrative user ID and password in the fields named **Specify non-root username** and **Specify non-root password** respectively.



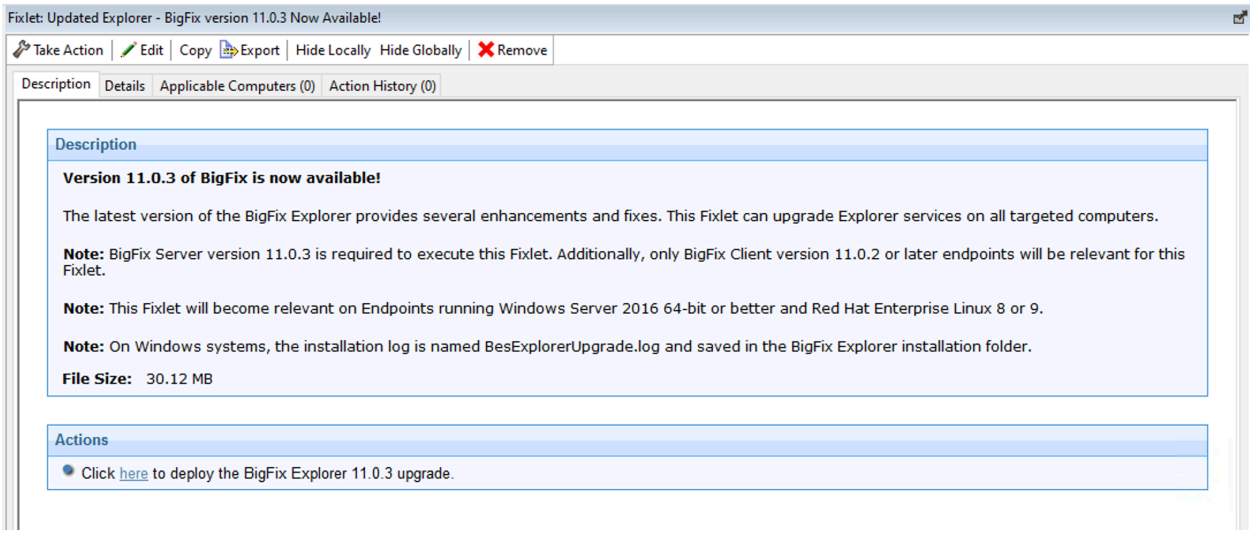
Note:

When BigFix Explorer is installed, ensure that the port used to communicate with the server is allowed. The port value is calculated during the installation as follows: Server port number increased by 4. The Server port number can be configured by the BigFix Administrator during the installation and, as default, its value is 52311. It means that by default BigFix Explorer will communicate with the BigFix Server on port 52315.

For more information about the Server port number, see Requesting a license certificate and creating the masthead and Customizing the masthead parameters.

Upgrading BigFix Explorer

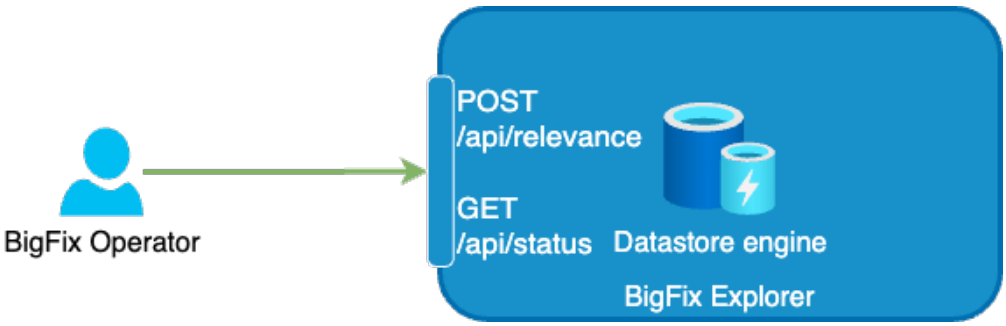
Logged on as a BigFix Master Operator (MO), you will be able to upgrade a BigFix Explorer instance in your environment by deploying the Upgrade Fixlet of the BigFix Explorer, named **Updated Explorer**, on a target client machine.


Fixlet: Updated Explorer - BigFix version 11.0.3 Now Available!
Take Action
Edit
Copy
Export
Hide Locally
Hide Globally
Remove
Description
Details
Applicable Computers (0)
Action History (0)
Description
Version 11.0.3 of BigFix is now available!
The latest version of the BigFix Explorer provides several enhancements and fixes. This Fixlet can upgrade Explorer services on all targeted computers.
Note: BigFix Server version 11.0.3 is required to execute this Fixlet. Additionally, only BigFix Client version 11.0.2 or later endpoints will be relevant for this Fixlet.
Note: This Fixlet will become relevant on Endpoints running Windows Server 2016 64-bit or better and Red Hat Enterprise Linux 8 or 9.
Note: On Windows systems, the installation log is named BesExplorerUpgrade.log and saved in the BigFix Explorer installation folder.
File Size: 30.12 MB
Actions
Click here to deploy the BigFix Explorer 11.0.3 upgrade.

Chapter 4. Using the BigFix Explorer

Together with the datastore engine BigFix Explorer offers a REST API interface designed to query the collected data using session relevance. Also a set of APIs is available to monitor and manage Explorer instances.

BigFix Explorer REST APIs



BigFix Explorer REST API /api/relevance to evaluate a Session Relevance

This API, provided by the BES Explorer will evaluate the input Session Relevance.

You can use in the request the following optional fields:

keys

To evaluate the Session Relevance renaming and restructuring the fields of the response that is returned.

filters

To evaluate the Session Relevance filtering the different BigFix object types which satisfy the condition you specified. This option is available starting from BigFix Version 11.0.3.

For more details about the usage of this API, refer to Session Relevance.

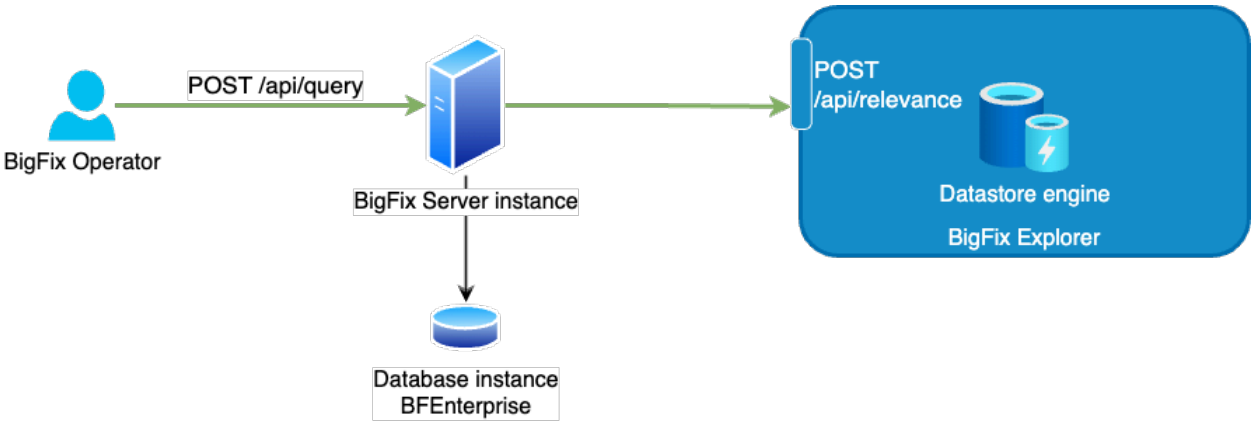
BigFix Explorer REST API /api/status to retrieve the current status of a BES Explorer instance

This API, provided by the BES Explorer will return the current status of a BES Explorer instance. For more details about the usage of this API, refer to Status.

BigFix Server REST APIs

/api/query API for Session Relevance

The REST API /api/query of the BigFix Root Server will be able to forward the input Session Relevance request to a BigFix Explorer instance if available. If no Explorer instance is available the BigFix Root Server will forward the request to a Web Reports instance.



A user can query the BigFix explorer using the existing REST API /api/query/. The api/query, described in Query, will support new input parameters for evaluating a Session relevance, maintaining the compatibility with the current specifications.

The BigFix Root Server will try forwarding first to the BigFix Explorer available with the highest priority, then will try with any Web Reports Server, according to their priority.

The new parameters allow the /api/query to exploit the /api/relevance features in order to submit requests in JSON format and to retrieve data from BigFix Explorer as customized structured JSON objects. For more details, refer to Query.

BigFix Explorer instances are targeted by priority and first connection time to the BigFix Root Server. Priority is assigned by the BigFix Root Server at registration time; the user can change the priority of an instance through API. If more than one explorer instance is available with same priority, the BigFix Root Server will forward to the one that registered first. Both Master operators and Non Master operators can issue a request to this rest API and the response content will be based on the visibility they have on the environment. The **can use REST API** privilege is required for BigFix Non-Master Operators.

New BigFix Server REST APIs to retrieve details and manage BES Explorer instances

This group of REST APIs, provided by the BigFix Root Server, lets the user retrieve data about BES Explorer instances registered to the BigFix Root Server, and interact with it to set the priority of each instance.

For more details about the usage of this group of APIs, refer to Explorer.

Chapter 5. Administering the BigFix Explorer

This section describes the configuration scenarios for the BigFix Explorer component.

HTTPS certificate configuration

At installation time, the BigFix Explorer is configured to use HTTPS by default, and it creates its own certificate. If you want to customize HTTPS on the BigFix Explorer, for more details see Customizing HTTPS on BigFix Explorer.

Revoking the authentication certificate

After the installation of the BigFix Explorer instance, you can revoke the certificate of a BigFix Explorer instance needed for authenticating to the BigFix Root Server, if you have any reason to doubt its validity.

When you revoke the certificate, BigFix Explorer is no longer authenticated for trusted communication, and the certificate of the BigFix Explorer can no longer be used to communicate with the BigFix Root Server.

To revoke a BigFix Explorer certificate, you can use the revokeexplorercredentials BigFix Administration Tool command. For Windows installation see revokeexplorercredentials, for Linux installation see revokeexplorercredentials.

To rotate a BigFix Explorer certificate, you can use the rotateexplorercredentials BigFix Administration Tool command. For Windows installation see rotateexplorercredentials, for Linux installation seerotateexplorercredentials.

Rotating the authentication certificates chain

After the installation of one or more BigFix Explorer instances, you can revoke their certificates needed for authenticating to the BigFix Root Server and rotate the certificate authority used by the BigFix Root Server to generate each authentication certificate, if you have any reason to doubt their validity.

To rotate the certificate authority of the authentication certificate of the BigFix Explorer and to rotate each of the existing certificates, you can use the rotateexplorercredentials BigFix

Administration Tool command. For Windows installation see rotateexplorercredentials, for Linux installation see rotateexplorercredentials.

Setting a different port number

It is possible to set a different port for the BigFix Explorer using the `_BESExplorer_HTTPServer_PortNumber` setting.

The default port number used by BigFix Explorer is 9383.

From the Edit Computer Settings menu of the BigFix Console, you can set the value for this setting.

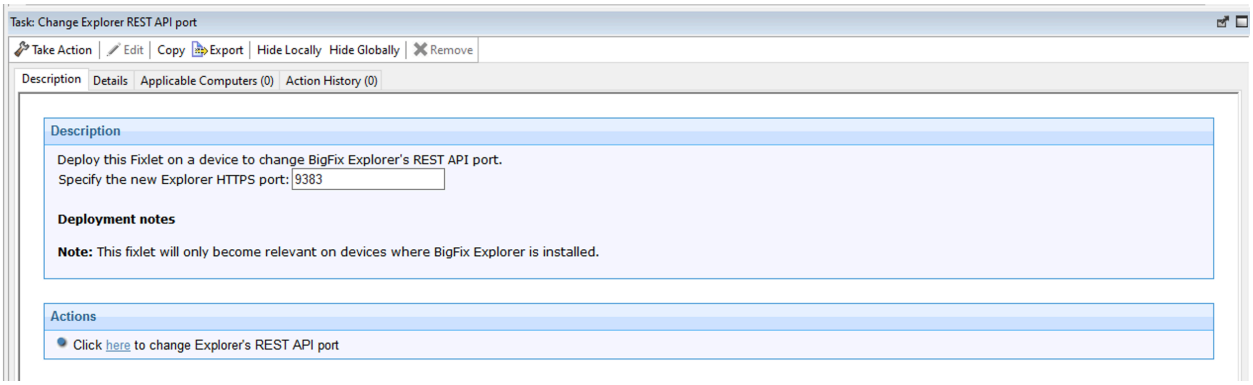
Table 1. Setting values

Default Value	9383
Setting Type	Numeric
Component Affected	Explorer

As an alternative, to modify the port for the BigFix Explorer, you can also run the **Change Explorer REST API port** Fixlet.

In the Description pane of the Fixlet, you can define the new port value to be used by the BigFix Explorer. The accepted values range from 1 to 65534.

The actionscript present in the Fixlet checks at runtime, through the BigFix Agent, that the defined port is not already in use on the machine. If this is the case, the Fixlet fails.



Running this Fixlet performs the following activities:

- Changes the `_BESExplorer_HTTPServer_PortNumber` setting.
- Alters the firewall rule (both on Linux and Windows) replacing the port number with the new one.
- Restarts the BigFix Explorer service.

Specifying the BigFix Explorer hostname

It is possible to specify the BigFix Explorer hostname, IP Address or FQDN using the `_BESExplorer_HTTPServer_HostName` setting.

Once the client settings `_BESExplorer_HTTPServer_HostName` and `_BESExplorer_HTTPServer_PortNumber` are configured, their values will be used by the root server to contact the same instance of the Explorer for various interactions between them. If this setting is not indicated or is an empty string, the computer name of the BigFix Explorer host is used.

Table 2. Setting values

Default Value	None
Setting Type	String
Component Affected	Explorer

Enabling and managing the logging

It is possible to enable the logging for the BigFix Explorer using the `_BESExplorer_Logging_EnableLogging` setting.

It is also possible to specify the log path to be used by the BigFix Explorer using the `_BESExplorer_Logging_LogPath` setting.

It is also possible to specify which log levels are enabled for the BigFix Explorer using the `_BESExplorer_Logging_EnabledLogs` setting.

From the Edit Computer Settings menu of the BigFix Console, you can set the values for these settings.

Table 3. Setting values for _BESExplorer_Logging_EnableLogging

Default Value	1 (Enabled)
Setting Type	Boolean
Value range	0 (Disabled) - 1 (Enabled)
Component Affected	Explorer

Table 4. Setting values for _BESExplorer_Logging_LogPath

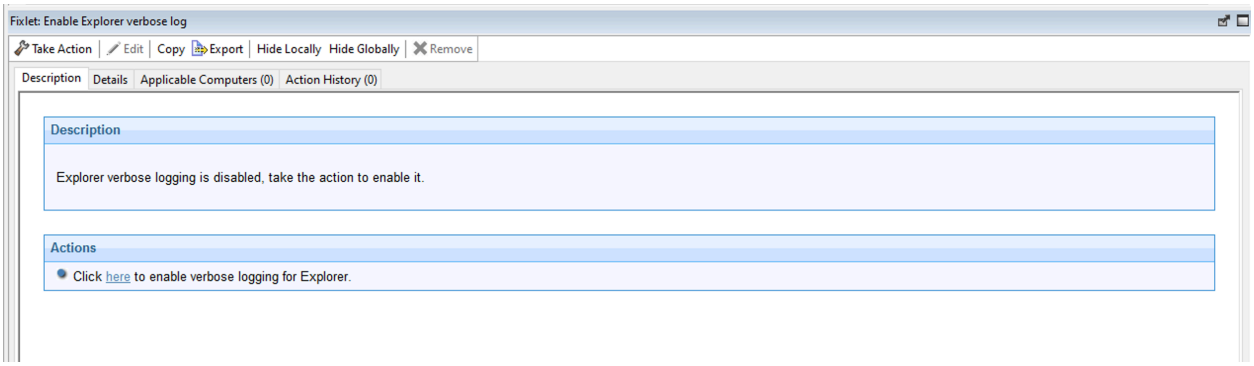
Default Value	• <BigFix_Explorer_installation_-dir/BESExplorer.log> on Windows • < /var/log/BESExplorer.log> on Linux
Setting Type	String
Component Affected	Explorer

Table 5. Setting values for _BESExplorer_Logging_EnabledLogs

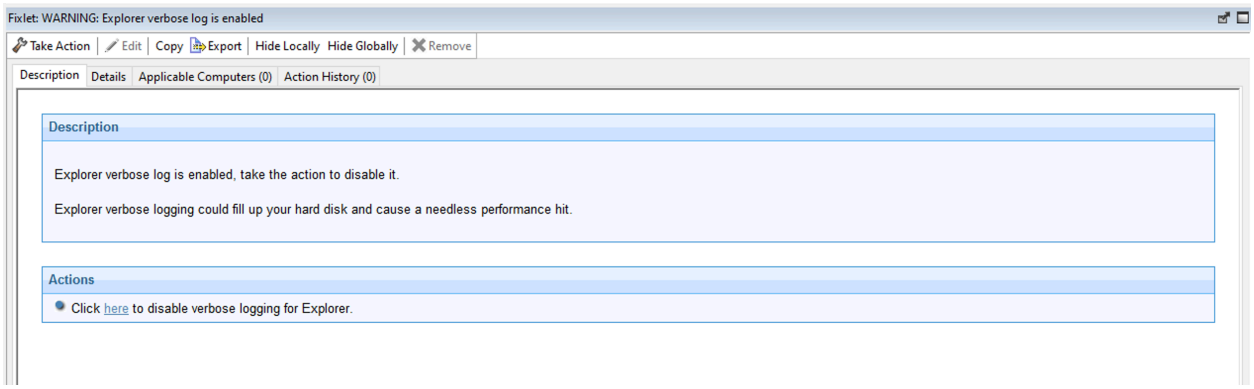
Default Value	critical
Setting Type	String
Value range	critical - debug
Component Affected	Explorer

Use the **Enable Explorer verbose log** Fixlet to enable the verbose logging on the BigFix Explorer.

The **Enable Explorer verbose log** Fixlet sets the `_BESExplorer_Logging_EnabledLogs` setting to enable all logs.



Use the **WARNING: Explorer verbose log is enabled** Fixlet to disable the verbose logging on the BigFix Explorer.



The **WARNING: Explorer verbose log is enabled** Fixlet sets the `_BESExplorer_Logging_EnabledLogs` setting to "critical".

Setting the authentication session timeout

It is possible to set a dedicated authentication session timeout for the BigFix Explorer. After this timeout expires, if no interaction occurs between the logged on user and BigFix Explorer, the user will have to reauthenticate in HTTPS mode using BigFix Explorer. To customize this timeout, use the `_BESDataServer_ExplorerLoginTimeoutMinutes` setting on the BigFix Server.

The default value is 5 minutes.

From the Edit Computer Settings menu of the BigFix Console, you can set the value for this setting.

Table 6. Setting values

Default Value	5 Minutes
Value range	0 - 4,294,967,295
Setting Type	Numeric (minutes)
Component Affected	Server

Authenticating using Tokens

Starting with BigFix Platform Version 11.0.6, BigFix Explorer REST APIs support token-based authentication in addition to Basic Authentication.

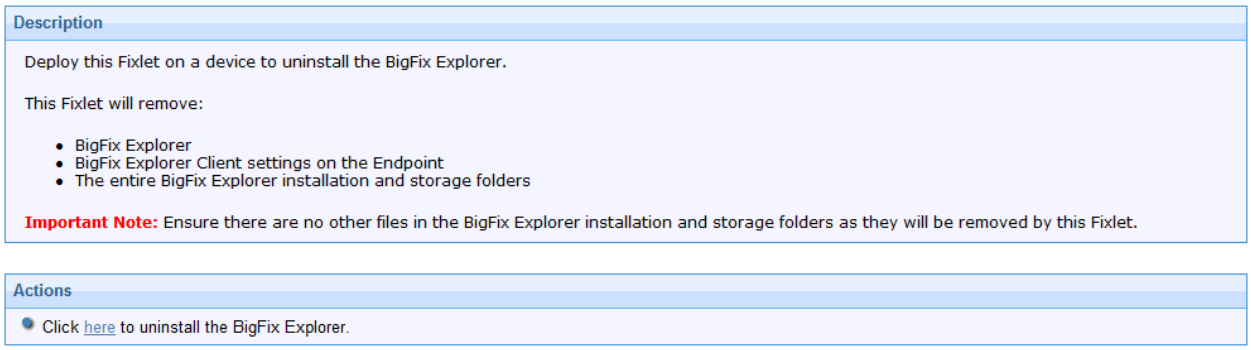
You can manage these tokens via the BigFix Console or the BigFix Server REST API.

To learn more about bearer token authentication, see Configuring bearer token authentication.

Chapter 6. Uninstalling the BigFix Explorer

Both automatic and manual uninstallation are supported.

The automatic uninstallation is performed by running, both on Windows and Red Hat, a dedicated Fixlet named **5624- BigFix_TROUBLESHOOTING Uninstall BigFix Explorer**.



The manual uninstallation is supported using the following native methods:

- On **Windows** using the BES Remover tool. After selecting the BigFix Explorer entry, click **Uninstall**. The tool removes each file and setting related to the BigFix Explorer installation.
- On **Red Hat** using the command `rpm -e BESExplorer`. The uninstallation does not remove the installation folders that need to be removed manually: `/opt/BESExplorer` and `/var/opt/BESExplorer` directories.

Appendix A. Support

For more information about this product, see the following resources:

- BigFix Support Portal
- BigFix Developer
- BigFix Playlist on YouTube
- BigFix Tech Advisors channel on YouTube
- BigFix Forum

Notices

This information was developed for products and services offered in the US.

HCL may not offer the products, services, or features discussed in this document in other countries. Consult your local HCL representative for information on the products and services currently available in your area. Any reference to an HCL product, program, or service is not intended to state or imply that only that HCL product, program, or service may be used. Any functionally equivalent product, program, or service that does not infringe any HCL intellectual property right may be used instead. However, it is the user's responsibility to evaluate and verify the operation of any non-HCL product, program, or service.

HCL may have patents or pending patent applications covering subject matter described in this document. The furnishing of this document does not grant you any license to these patents. You can send license inquiries, in writing, to:

HCL
330 Potrero Ave.
Sunnyvale, CA 94085
USA
Attention: Office of the General Counsel

For license inquiries regarding double-byte character set (DBCS) information, contact the HCL Intellectual Property Department in your country or send inquiries, in writing, to:

HCL
330 Potrero Ave.
Sunnyvale, CA 94085
USA
Attention: Office of the General Counsel

HCL TECHNOLOGIES LTD. PROVIDES THIS PUBLICATION "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF NON-INFRINGEMENT, MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. Some jurisdictions do not allow disclaimer of express or implied warranties in certain transactions, therefore, this statement may not apply to you.

This information could include technical inaccuracies or typographical errors. Changes are periodically made to the information herein; these changes will be incorporated in new editions of the publication. HCL may make improvements and/or changes in the product(s) and/or the program(s) described in this publication at any time without notice.

Any references in this information to non-HCL websites are provided for convenience only and do not in any manner serve as an endorsement of those websites. The materials at those websites are not part of the materials for this HCL product and use of those websites is at your own risk.

HCL may use or distribute any of the information you provide in any way it believes appropriate without incurring any obligation to you.

Licensees of this program who wish to have information about it for the purpose of enabling: (i) the exchange of information between independently created programs and other programs (including this one) and (ii) the mutual use of the information which has been exchanged, should contact:

HCL
330 Potrero Ave.
Sunnyvale, CA 94085
USA
Attention: Office of the General Counsel

Such information may be available, subject to appropriate terms and conditions, including in some cases, payment of a fee.

The licensed program described in this document and all licensed material available for it are provided by HCL under terms of the HCL Customer Agreement, HCL International Program License Agreement or any equivalent agreement between us.

The performance data discussed herein is presented as derived under specific operating conditions. Actual results may vary.

Information concerning non-HCL products was obtained from the suppliers of those products, their published announcements or other publicly available sources. HCL has not tested those products and cannot confirm the accuracy of performance, compatibility or

any other claims related to non-HCL products. Questions on the capabilities of non-HCL products should be addressed to the suppliers of those products.

Statements regarding HCL's future direction or intent are subject to change or withdrawal without notice, and represent goals and objectives only.

This information contains examples of data and reports used in daily business operations. To illustrate them as completely as possible, the examples include the names of individuals, companies, brands, and products. All of these names are fictitious and any similarity to actual people or business enterprises is entirely coincidental.

COPYRIGHT LICENSE:

This information contains sample application programs in source language, which illustrate programming techniques on various operating platforms. You may copy, modify, and distribute these sample programs in any form without payment to HCL, for the purposes of developing, using, marketing or distributing application programs conforming to the application programming interface for the operating platform for which the sample programs are written. These examples have not been thoroughly tested under all conditions. HCL, therefore, cannot guarantee or imply reliability, serviceability, or function of these programs. The sample programs are provided "AS IS," without warranty of any kind. HCL shall not be liable for any damages arising out of your use of the sample programs.

Each copy or any portion of these sample programs or any derivative work must include a copyright notice as follows:
© (your company name) (year).
Portions of this code are derived from HCL Ltd. Sample Programs.

Trademarks

HCL Technologies Ltd. and HCL Technologies Ltd. logo, and hcl.com are trademarks or registered trademarks of HCL Technologies Ltd., registered in many jurisdictions worldwide.

Adobe, the Adobe logo, PostScript, and the PostScript logo are either registered trademarks or trademarks of Adobe Systems Incorporated in the United States, and/or other countries.

Java and all Java-based trademarks and logos are trademarks or registered trademarks of Oracle and/or its affiliates.

Microsoft, Windows, Windows NT, and the Windows logo are trademarks of Microsoft Corporation in the United States, other countries, or both.

Linux is a registered trademark of Linus Torvalds in the United States, other countries, or both.

UNIX is a registered trademark of The Open Group in the United States and other countries.

Other product and service names might be trademarks of HCL or other companies.

Terms and conditions for product documentation

Permissions for the use of these publications are granted subject to the following terms and conditions.

Applicability

These terms and conditions are in addition to any terms of use for the HCL website.

Personal use

You may reproduce these publications for your personal, noncommercial use provided that all proprietary notices are preserved. You may not distribute, display or make derivative work of these publications, or any portion thereof, without the express consent of HCL.

Commercial use

You may reproduce, distribute and display these publications solely within your enterprise provided that all proprietary notices are preserved. You may not make derivative works of these publications, or reproduce, distribute or display these publications or any portion thereof outside your enterprise, without the express consent of HCL.

Rights

Except as expressly granted in this permission, no other permissions, licenses or rights are granted, either express or implied, to the publications or any information, data, software or other intellectual property contained therein.

HCL reserves the right to withdraw the permissions granted herein whenever, in its discretion, the use of the publications is detrimental to its interest or, as determined by HCL, the above instructions are not being properly followed.

You may not download, export or re-export this information except in full compliance with all applicable laws and regulations, including all United States export laws and regulations.

HCL MAKES NO GUARANTEE ABOUT THE CONTENT OF THESE PUBLICATIONS. THE PUBLICATIONS ARE PROVIDED "AS-IS" AND WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING BUT NOT LIMITED TO IMPLIED WARRANTIES OF MERCHANTABILITY, NON-INFRINGEMENT, AND FITNESS FOR A PARTICULAR PURPOSE.