

BigFix Capacity Planning

BigFix Inventory Supplement

an HCL Product



HCL SOFTWARE

Document version 10.x.2

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REVISION HISTORY

Date	Version	Revised By	Comments
July, 14 th 2023	10.x.1	ARZE	Initial distribution based on BigFix Capacity Planning v10.pdf (bigfix-mark.github.io) and BigFix 10 Inventory Documentation (hcltechsw.com)
August, 24 th 2023	10.x.2	ARZE	Addressed review feedback provided by Mark Leitch.

Figure 1: Revision History

1 Introduction

This document is supplement to BigFix Capacity Planning document available here:
<https://bigfix-mark.github.io/Docs/BigFix%20Capacity%20Planning%20v10.pdf>

This document covers extending BigFix deployment with Inventory.

Note: This document supersedes all previous BigFix capacity planning documentation including:
[Hardware requirements \(hcltechsw.com\)](#)
[Infrastructure \(hcltechsw.com\)](#)

Note: This document is considered a work in progress. Capacity planning recommendations will be refined and updated as new BigFix releases are available.

2 BigFix Inventory Overview

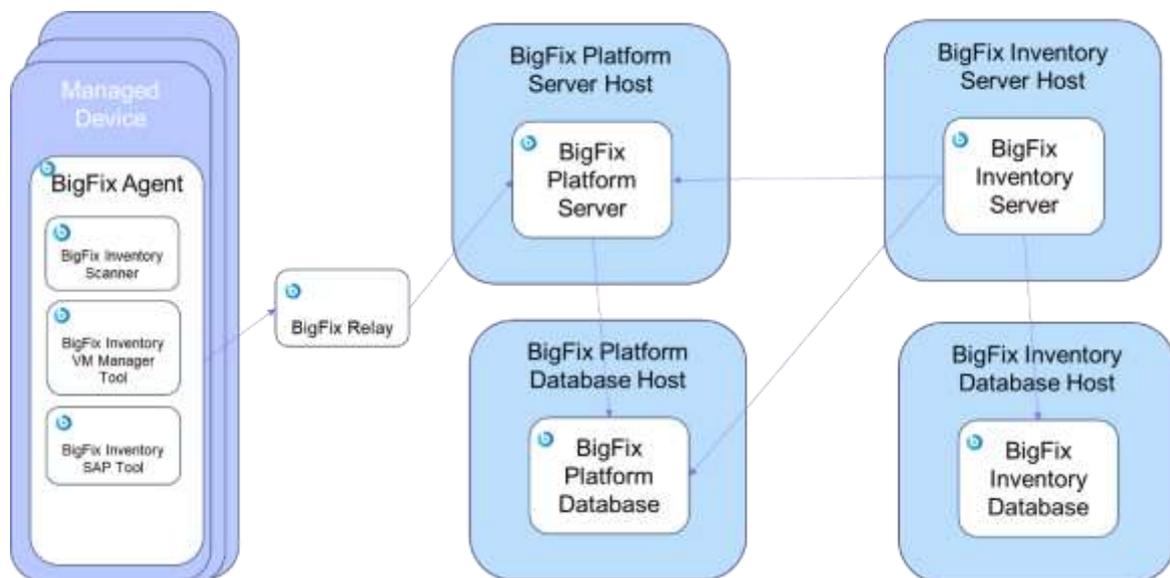
An overview of BigFix will be provided from the following perspectives:

1. Functional.
2. Architectural.

2.1 Functional Overview

The BigFix Inventory extends BigFix portfolio with Software and Hardware Inventory and Software License management capabilities using BigFix Platform to interact with managed devices.

2.2 Architectural Overview



BigFix Inventory extend BigFix deployment with:

- BigFix Inventory Server – processing data collected from the endpoints and providing reporting and management functions.
- Dedicated BigFix Inventory database that can be collocated with other BigFix databases or deployed separately.
- Components deployed on managed devices:
 - BigFix Scanner
- Components deployed on selected devices to manage/collect additional information:
 - BigFix Inventory VM Manager Tool
 - BigFix Inventory SAP Tool

3 Capacity Planning

The capacity planning recommendations will be broken down across the following components.

- Impact on the BigFix Platform Server (root server, including the database server)
- Impact on the managed device
- BigFix Inventory Server
- BigFix Inventory Database

Some considerations should be kept in mind for the recommendations.

- Capacity planning recommendations are general purpose for a “typical” workload. We model the “typical” workload in our performance labs and consolidate field results.
- Capacity planning recommendations are provided in terms of the number of managed endpoints. This is a simplification to make the recommendations consumable, but there are many more dimensions that may apply for a specific installation.
- In the event you are within a range of capacity planning recommendations (e.g. somewhere between 50,000 and 100,000 managed endpoints for the BigFix root server), you may start at the low end of the range and grow, assuming your workload and system behavior is well understood. This applies to the CPU, memory, and storage allocations. The IO subsystem and network requirements are universal.
- Monitoring over time is always recommended. This guide includes specific references for how to monitor at the operating system, application, and database levels.
- Capacity planning is seldom static. Systems grow over time. Entropy increases. Maintenance operations are typically required, especially at the database level, to manage this and ensure performance stability. References for this are provided in this guide.

3.1 The Evolution of BigFix Capacity Planning

Historically, BigFix has supported a 250k agent deployment on a single BigFix Inventory Server with one or more BigFix root servers.

MCM objects are not imported / managed by BigFix Inventory.

3.2 Impact on BigFix Platform components

The following table describes additional resources needed to handle traffic for BigFix Inventory on each of BigFix Platform Components:

Agent Deployment Size	Component	Additional CPU	Additional Memory (GB)	Additional Storage (GB)
Any	Relay	N/A	N/A	+ 1 GB to store Scan Results during transfer
< 5,000	Root Server	N/A	N/A	7 ¹

¹ This is calculated based on data from next table with some extra space to store additional data collected.

	Platform Database	N/A	N/A	2
< 50,000	Root Server	N/A	N/A	15
	Platform Database	N/A	+ 4GB	20
< 150,000	Root Server	N/A	N/A	30
	Platform Database	+ 1 CPU	+ 8 GB	50
< 250,000	Root Server	N/A	N/A	50
	Platform Database	+ 2 CPU	+ 16 GB	100

Figure 2: BFI impact on Root Server.

Additional Storage in table above has been calculated to store following data:

Data to store	Impact On	Additional Storage (GB)	Comment
BFI Analysis Results	Platform Database	300 kB per computer	
BFI Actions	Platform Database	+ 0.5 GB	
BFI Scan Results ²	Platform Server Disk	100 KB per computer, 9+ files per computer	Add few GB more to store VM Manager Data, logs etc.
BFI Installers	Platform Server Disk	+ 3GB	
BFI Downloads for Fixlets	Platform Server Disk	+ 2 GB	Additional tools to be deployed. Space needed at the time of deployment.

Figure 3: BFI elements to store on BigFix Platform – items contributing to the disk storage requirements.

² This uses [Archiving Client files on the BigFix Server \(hcltechsw.com\)](http://hcltechsw.com) capability.

3.2.1 BigFix Agent

Review important information about hardware requirements for the BigFix client and the software and capacity scans that are embedded in it.

3.2.1.1 Processor and RAM

An BigFix client alone can consume up to 2% of the processing power of one processor core on an endpoint. However, the client is complemented with software and capacity scans that collect necessary software and hardware information from your endpoints. Although the capacity scan reports very low CPU usage, the software scan can consume substantial CPU resources while a scan is in progress. To decrease the impact of a software scan on production system, it can be scheduled to run on the weekends or in the evenings. You can also run the software scan with the CPU threshold option that limits the consumption of your CPU resources.

Component	CPU	RAM	Comment
BigFix Agent	< 2% (default)	< 20MB	For more information, see: Configuring Client CPU Utilization (hcltechsw.com)
BFI Software Scan	Single core, up to 100 %	< 80 MB	Initiating software scans (hcltechsw.com) with CPU threshold. The software scan runs on demand, and can be monitored by checking the following processes: <code>wscansw</code> , <code>wscanfs</code> .
BFI Capacity Scan	< 1 %	< 20 MB	The capacity scan runs every 30 minutes, and can be monitored by checking the following process: <code>wscanhw</code> .

Figure 4: BFI impact on BigFix Agent – CPU and RAM

3.2.1.2 Disk space

Data stored	Space required	Directory	Comment
BFI Scan Results	250 MB	<ul style="list-style-type: none"> Linux: /var/opt/BESClient/LMT/ Windows: C:\Program Files (x86)\BigFix Enterprise\BES Client\LMT\ 	
BFI VM Manager Tool with Data	200 MB	<ul style="list-style-type: none"> Linux: /var/opt/BESClient/VMMAN/ Windows: C:\Program Files (x86)\BigFix Enterprise\BES Client\VMMAN\ 	
BFI Scanner: Binaries	20 MB	<ul style="list-style-type: none"> Linux: /opt/tivoli/cit Windows: C:\Program Files\tivoli\cit 	
BFI Scanner: Cache	~100 MB	<ul style="list-style-type: none"> Linux: /opt/tivoli/cit/cache_data Windows: C:\Program Files\tivoli\cit\cache_data 	The required disk space depends on the number of files, directories, and subdirectories to be scanned. It can be estimated by multiplying the number of files to be scanned by 60 bytes
BFI Scanner: Global Configuration	< 1 MB	<ul style="list-style-type: none"> Linux: /etc/cit Windows: %WINDIR% 	
BFI Scanner: Temporary files	100 MB on average	<ul style="list-style-type: none"> Linux: /tmp Windows: %TEMP% 	The required disk space depends on the scanner options that are used (for example, sorting) as well as the number of files, directories, and subdirectories to be scanned. It can be estimated by multiplying the number of files to be scanned by 100 bytes.
BFI Scanner: Logs	10 MB+ (100 MB)	<ul style="list-style-type: none"> Linux: /usr/ibm/tivoli/common/CIT Windows: C:\Program Files\tivoli\ibm\tivoli\common\CIT\logs 	Default configuration is 10 logs, 1 MB each. For debug purposes there might be needed to collect more data.

Figure 5: BFI impact on BigFix Agent disk space

3.2.2 BigFix Relay

In BigFix Inventory scenario BigFix Relays need to handle additional load caused by pushing scan results from endpoint to the Root Server using Archive Manager capability.

There is needed to secure additional 1 GB of disk space for that purpose.

3.3 BigFix Inventory Server

Deployment Size	CPU	Memory (GB)
< 5,000	4	8 -Xmx3g
< 50,000	4	12 -Xmx6g
< 150,000	8-16	16 -Xmx8g
< 250,000	16	16 -Xmx8g

Figure 6: BFI Server CPU and Memory requirements

BigFix Inventory Server for small deployments below 5 000 endpoints can be collocated with BigFix Platform Server. In such case add 2 CPU and 4 GB of RAM to BigFix Platform Server.

3.3.1 BigFix Inventory Server - Disk Space

Directory	Space required	Comments
C:\Program Files (x86)\BigFix Enterprise\BES Installers\BFI_installer \$HOME/BFI_installer	1 GB	Compressed installer that is downloaded to the selected endpoint from BigFix. It can be deleted after extracting.
C:\Program Files (x86)\BigFix Enterprise\BES Installers\BFI_installer \$HOME/<extracted BFI installer>	2 GB	Extracted installer
C:\Program Files\BigFix Enterprise\BFI /opt/BFI	> 5 GB	Installation directory. The amount includes space required for future upgrades. Note: Disconnected Scanners will need additional disk space.
%TEMP% /tmp	350 MB	Temporary files used during the installation
%USERPROFILE% \$HOME	5 MB	The home directory of the user running the installation

/etc (Linux Only)	1 MB	Directory that stores scripts that start the server
/var	1 MB	Directory that stores the installation registry.

Figure 7: BFI Server disk space requirements

3.4 BigFix Inventory Database

In terms of IOPS, the general DBMS server standard of **5,000 IOPS with < 1ms latency is recommended.**

Deployment Size	CPU	Memory (GB)	Storage: Data (GB)	Storage: Transaction Log (GB)	Storage: Temp DB (GB)
< 5,000	4	8	25 GB	30 GB	2.5 GB
< 50,000	4	12 – 24	70 GB	84 GB	25 GB
< 150,000	8-16	32 - 64	170 GB	204 GB	75 GB
< 250,000	8-16	64 -96	320 GB	384 GB ³	125 GB

Figure 8: BFI Server Database disk space requirements

Storage requirements listed in table above highly depend on the number of computers in your environment and the average size of scan files and analyses. The main contributor to the requirements is the number of file facts collected per computer. Above requirements should be valid for computers with about 1000 file facts per computer in average. In case of higher average number of file facts increase Storage for Data.

BigFix Inventory without computers requires 20GB of data storage on database side. For each computer there should assumed at least 1 MB of data storage and 0.5 MB of temporary disk space.

There is highly recommended to set following [Advanced server settings \(hcltechsw.com\)](http://hcltechsw.com):

1. `maximum_data_lifetime` – is enabled and set to desired historical data lifetime
2. `raw_data_api_history_keep_days` – is set to 7 or lower including 0.
See: [Shortening the retention period gradually to avoid problems with growing database size when set to -1 \(disabled\)](#).
3. `pruning_days_to_keep` – is set to 0, unless requested by support.

For more information, see: [Tuning performance in medium and large environments](#).

³ Newer version of BigFix Inventory might require less transaction log space.

REFERENCES

[BigFix Maintenance Guide](#)

BigFix Non-Functional Requirements: Inventory and Compliance (To be published)

BigFix Inventory Documentation: [Tuning performance \(hcltechsw.com\)](#)

BigFix Inventory Documentation: [Detailed System requirements \(hcltechsw.com\)](#)

BigFix Inventory Documentation: [Best practices for configuring VM managers \(hcltechsw.com\)](#)

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