



# MX Performance Toolkit for BigFix

---

**Document version 2**

*Mark Leitch*  
*BigFix Performance & Secure Engineering*



**HCL**

© Copyright 2018, 2019, 2020 HCL Technologies Ltd. HCL Technologies Ltd., and the HCL Technologies Ltd. logo are trademarks of HCL Technologies Ltd., registered in many jurisdictions worldwide.

# CONTENTS

---

<b>CONTENTS .....</b>	<b>3</b>
<b>LIST OF FIGURES .....</b>	<b>4</b>
<b>REVISION HISTORY .....</b>	<b>5</b>
<b>1 INTRODUCTION.....</b>	<b>6</b>
<b>2 MXCAPACITY .....</b>	<b>7</b>
2.1 PURPOSE .....	7
2.2 COMMAND LINE OPTIONS .....	7
2.3 SAMPLE OUTPUT .....	8
2.4 SAMPLE INVOCATION SCENARIOS .....	8
<b>3 MXFILLDBPERF .....</b>	<b>9</b>
3.1 PURPOSE .....	9
3.2 COMMAND LINE OPTIONS .....	9
3.3 SAMPLE OUTPUT .....	10
3.4 SAMPLE INVOCATION SCENARIOS .....	10
<b>4 MXPERFMON .....</b>	<b>11</b>
4.1 PURPOSE .....	11
4.2 LINUX COMMAND LINE OPTIONS .....	11
4.3 WINDOWS COMMAND LINE OPTIONS .....	12
4.4 SAMPLE OUTPUT .....	12
4.5 SAMPLE INVOCATION SCENARIOS .....	12
<b>APPENDIX: HOW TO OBTAIN THE DISTRIBUTION .....</b>	<b>13</b>
LINUX.....	13
WINDOWS .....	13
<b>REFERENCES .....</b>	<b>14</b>
<b>NOTICES .....</b>	<b>15</b>
<b>TRADEMARKS .....</b>	<b>16</b>

# LIST OF FIGURES

---

FIGURE 1: REVISION HISTORY ..... 5

FIGURE 2: MXCAPACITY – COMMAND LINE OPTIONS..... 7

FIGURE 3: MXCAPACITY - SAMPLE OUTPUT ..... 8

FIGURE 4: MXFILLDBPERF - COMMAND LINE OPTIONS ..... 9

FIGURE 5: MXFILLDBPERF - SAMPLE OUTPUT ..... 10

FIGURE 6: MXPERFMON - LINUX COMMAND LINE OPTIONS ..... 11

FIGURE 7: MXPERFMON - WINDOWS COMMAND LINE OPTIONS ..... 12

# REVISION HISTORY

---

Date	Version	Revised By	Comments
December 1 <sup>st</sup> , 2018	1	MDL	Initial distribution.
January 8 <sup>th</sup> , 2020	2	MDL	Tool and WebUI scale improvements.

*Figure 1: Revision History*

# 1 Introduction

This document provides the distribution for the MX performance toolkit for BigFix. The toolkit is a collection of tools intended to simplify performance and capacity planning management for BigFix. We will provide a description of each tool in turn. An appendix describes in detail how to obtain the distribution.

## 2 MXCapacity

### 2.1 Purpose

The MXCapacity utility provides capacity planning recommendations for a BigFix installation. It takes as input the scale and component requirements of the solution, and provides standard capacity planning metrics (CPU, memory, storage). The utility is based on the BigFix capacity planning reference (see the Reference section).

### 2.2 Command Line Options

```
usage: MXCapacity [-h] [--endpoints ENDPOINTS] [--concusers CONCUSERS]
                [--service {root,dbms,relays,webui,webreports}
                [{root,dbms,relays,webui,webreports} ...]]
                [--platform {linux,windows}] [--relayscale {normal,high}]
                [--mle] [--dump] [--format {table,csv,json}]

BigFix Capacity Planning

optional arguments:
  -h, --help                show this help message and exit
  --endpoints ENDPOINTS, -e ENDPOINTS
                          The number of endpoints to provide the sizing for
                          (default=10000).
  --concusers CONCUSERS, -c CONCUSERS
                          The number of *concurrent* users expected for user
                          interface services (default=10).
  --service {root,dbms,relays,webui,webreports}
  [{root,dbms,relays,webui,webreports} ...], -s
  {root,dbms,relays,webui,webreports} [{root,dbms,relays,webui,webreports} ...]
                          The service to provide the capacity results for
                          (default=root).
  --platform {linux,windows}, -p {linux,windows}
                          The platform to provide the capacity results for
                          (default=environment where this program is running).
  --relayscale {normal,high}, -r {normal,high}
                          Deploy a normal scale or a high scale relay
                          (default=high).
  --mle, -m                 Have the relay sizing account for Message Level
                          Encryption (MLE) (default=false).
  --dump, -d               Dump the capacity planning tables used by the utility.
                          This overrides all other options.
  --format {table,csv,json}, -f {table,csv,json}
                          The format to use to display the results
                          (default=table).
```

Figure 2: MXCapacity – Command Line Options

## 2.3 Sample Output

Service	CPUs	Memory (GB)	Storage (GB)	Comments
Root Server	5	17	152	Sizing is for the root...
Database Server	11	35	352	Sizing is for the database...
WebUI	+2	+2	+36	Resources may be added...
Leaf Relays	[2:4]	[4:8]	See comments.	Note: Storage should be... Resources are...
Top Level Relays	[2:4]	[4:8]	See comments.	Storage in GB = OS + 3GB... For 60000 endpoints the... Resources are... Storage in GB = OS + 3GB... For 60000 endpoints the...

Figure 3: MXCapacity - Sample Output

Important note: The comments in the sample output have been truncated for display purposes. They provide guidance on deployment specifics. Simply run the utility to see the full comments.

## 2.4 Sample Invocation Scenarios

1. Invoke MXCapacity with no parameters. This will provide capacity planning recommendation for a combined root and DBMS server for a 10,000 endpoint deployment.  
MXCapacity
2. Invoke MXCapacity for a 60,000 endpoint deployment with 10 concurrent WebUI users. A full set of services are requested, including an anti-collocated DBMS.  
MXCapacity --endpoints 60000 --concusers 10 --service root dbms webui webreports relays
3. Invoke MXCapacity for a 250,000 endpoint deployment with an anti-collocated DBMS.  
MXCapacity --endpoints 250000 --service root dbms



## 3 MXFillDBPerf

### 3.1 Purpose

The MXFillDBPerf utility is able to parse the output of the BigFix FillDB performance log, and generate metrics. These metrics may be used to assess the overall capability of FillDB, and thereby the health of the BigFix installation. Some comments on the utility:

- It has a common invocation across Linux and Windows.
- It offers a statistics option that generates statistics on the utility itself (rows processed, throughput rate, time span of the records processed).

### 3.2 Command Line Options

```
usage: MXFillDBPerf [-h] --input FILE [--format {table,csv,json}] [--stats]
```

BigFix FillDB Performance Analyzer

optional arguments:

-h, --help	show this help message and exit
--input FILE, -i FILE	The FillDB performance log to be processed.
--format {table,csv,json}, -f {table,csv,json}	The format to use to display the results.
--stats, -s	Generate statistics for the results?

*Figure 4: MXFillDBPerf - Command Line Options*

### 3.3 Sample Output

FillDB Object	Count	Time (ms)	Rate/s
-----	-----	-----	-----
Fixlet results:	36204204	2177866	16624
action results:	247782	120095	2063
short property results:	3080911	296564	10389
long property results:	40935	94549	433
computer administrators:	39359	1732965	23
computer roles:	39359	124716	316
computer sequences:	138947	105576	1316
computer properties:	138947	545383	255
computer sites subscription:	245610	285136	861
Parallel DB Update (Short Batch):	146401	2445576	60
Parallel DB Update:	18576	168672	110
Batch Rate:	164977	2614248	63
Parallel Parsing:	164977	86602	1905
Statistic	Value		
-----	-----		
Lines processed:	285361		
Duration (s):	4.94		
Throughput (lines/s):	57765.38		
FillDB start time:	2017-05-09 09:53:40+02:00		
FillDB end time:	2017-05-09 10:52:39+02:00		
FillDB duration (hh:mm:ss):	0:58:59		
FillDB parsing threads:	3		
FillDB database threads:	3		

Figure 5: MXFillDBPerf - Sample Output

### 3.4 Sample Invocation Scenarios

1. Invoke MXFillDBPerf specifying a FillDB performance log called "filldb.log".  
MXFillDBPerf --input filldb.log
2. Invoke MXFillDBPerf and generate the statistics for the utility.  
MXFillDBPerf --input filldb.log --stats
3. Invoke MXFillDBPerf and generate the results in csv format so they may be easily imported into a spreadsheet.  
MXFillDBPerf --input filldb.log --format csv

## 4 MXPerfmon

### 4.1 Purpose

The MXPerfmon utility is a command line wrapper to the base operating system monitoring utilities on Windows and Linux. It is intended to be a convenience utility as the invocation of these utilities can be very fussy. Some comments on the utility:

- On Windows, the utility must be run from an elevated (Administrator) shell.
- The Windows and Linux options differ, based on the underlying utility features.

### 4.2 Linux Command Line Options

```
usage: MXPerfmon [-h] [--monitor MONITOR] [--interval INTERVAL]
               [--count ITERATIONS] [--override OVERRIDE]
               [--norun]

BigFix Performance Monitor

optional arguments:
  -h, --help                show this help message and exit
  --monitor MONITOR, -m MONITOR
                           The name of the performance monitor to generate.
  --interval INTERVAL, -i INTERVAL
                           The collection interval for each monitor sample.
  --count ITERATIONS, -c ITERATIONS
                           The number of samples to collect.
  --override OVERRIDE, -o OVERRIDE
                           Override the name of the nmon program.
  --norun, -n               Do not run the monitor (just echo the commands).
```

*Figure 6: MXPerfmon - Linux Command Line Options*

## 4.3 Windows Command Line Options

```
usage: MXPerfmon [-h] [--monitor MONITOR] [--interval INTERVAL]
                [--count ITERATIONS] [--sql] [--tcpudp] [--override OVERRIDE]
                [--norun]
```

BigFix Performance Monitor

optional arguments:

-h, --help	show this help message and exit
--monitor MONITOR, -m MONITOR	The name of the performance monitor to generate.
--interval INTERVAL, -i INTERVAL	The collection interval for each monitor sample.
--count ITERATIONS, -c ITERATIONS	The number of samples to collect.
--sql, -s	Include SQL Server counters?
--tcpudp, -t	Include TCP and UDP based counters?
--override OVERRIDE, -o OVERRIDE	Override the name of the SQL server monitor.
--norun, -n	Do not run the monitor (just echo the commands).

*Figure 7: MXPerfmon - Windows Command Line Options*

## 4.4 Sample Output

The utility generates a standalone file that includes all requested performance counters for the specified period of time. Processing and understanding the output typically requires performance expertise.

## 4.5 Sample Invocation Scenarios

1. Invoke MXPerfmon with no parameters. This will create a default counter named "BFperf" that will collect a sample every 5 seconds, with 720 iterations, for a total 1 hour monitor period.  
MXPerfmon
2. Invoke MXPerfmon, but name the monitor output "mymonitor". Collect a sample every minute, with a total of 1440 samples, constituting a 24 hour monitor.  
MXPerfmon --monitor mymonitor --interval 60 --count 1440
3. Invoke MXPerfmon and override the name of the SQL Server counters to be "MySQL" (note this is Windows specific).  
MXPerfmon --override MySQL
4. Invoke MXPerfmon and override the name the nmon utility to be nmonv35 (note this is Linux specific).  
MXPerfmon --override nmonv35

# **APPENDIX:**

## **HOW TO OBTAIN THE DISTRIBUTION**

---

Distributions for Linux and Windows are attached to this PDF file. The following steps describe how to deploy each distribution.

### **Linux**

1. From the PDF reader application, navigate to the attachments provided with this document.
2. Select the “MXToolkit.tar.gzap” attachment and download to the local file system.
3. Rename the “.gzap” file to “.gz”.
4. Decompress the file using the standard decompression utilities.
5. Place the resulting Linux utilities in the executable path of your environment (or, alternatively, run them by specifying the relative path name for the distribution.

### **Windows**

1. From the PDF reader application, navigate to the attachments provided with this document.
2. Select the “MXToolkit.zap” attachment and download to the local file system.
3. Rename the “.zap” file to “.zip”.
4. Decompress the file using the standard decompression utilities.
5. Place the resulting Windows utilities in the executable path of your environment (or, alternatively, run them by specifying the relative path name for the distribution.

# REFERENCES

---

[BigFix Capacity Planning Guide](#)

## Notices

This information was developed for products and services offered in the U.S.A.

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 TECHNOLOGIES LIMITED email: [products-info@hcl.com](mailto:products-info@hcl.com)

The following paragraph does not apply to the United Kingdom or any other country where such provisions are inconsistent with local law: HCL TECHNOLOGIES LIMITED 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 states 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 Web sites are provided for convenience only and do not in any manner serve as an endorsement of those Web sites. The materials at those Web sites are not part of the materials for this HCL product and use of those Web sites is at your own risk.

HCL may use or distribute any of the information you supply 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 TECHNOLOGIES LIMITED email: [products-info@hcl.com](mailto:products-info@hcl.com)

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 License Agreement or any equivalent agreement between us.

Any performance data contained herein was determined in a controlled environment. Therefore, the results obtained in other operating environments may vary significantly. Some measurements may have been made on development-level systems and there is no guarantee that these measurements will be the same on generally available systems. Furthermore, some measurements may have been estimated through extrapolation. Actual results may vary. Users of this document should verify the applicable data for their specific environment.

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.

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

All HCL prices shown are HCL's suggested retail prices, are current and are subject to change without notice. Dealer prices may vary.

This information is for planning purposes only. The information herein is subject to change before the products described become available.

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 the names and addresses used by an actual business enterprise is entirely coincidental.

If you are viewing this information softcopy, the photographs and color illustrations may not appear.

## Trademarks

HCL, and other HCL graphics, logos, and service names including "hcltech.com" are trademarks of HCL. Except as specifically permitted herein, these Trademarks may not be used without the prior written permission from HCL. All other trademarks not owned by HCL that appear on this website are the property of their respective owners, who may or may not be affiliated with, connected to, or sponsored by HCL.

IBM and other IBM graphics, logos, products and services are trademarks or registered trademarks of International Business Machines Corporation in the United States, other countries, or both. A current list of IBM trademarks is available on the Web at "Copyright and trademark information" at <http://www.ibm.com/legal/copytrade.shtml>.

Intel, Intel logo, Intel Inside, Intel Inside logo, Intel Centrino, Intel Centrino logo, Celeron, Intel Xeon, Intel SpeedStep, Itanium, and Pentium are trademarks or registered trademarks of Intel Corporation or its subsidiaries in the United States and other countries.

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

VMware's and all VMWare trademarks and logos are trademarks or registered trademarks in the United States and certain other countries.

Dell, EMC, DellEMC and other trademarks are trademarks of Dell Inc. or its subsidiaries in the United States and certain other countries.

Red Hat, Red Hat Enterprise Linux, the Shadowman logo and JBoss are registered trademarks of Red Hat, Inc. in the U.S. and other countries. Linux is a registered trademark of Linus Torvalds. All other trademarks are the property of their respective owners.

Mozilla and all Mozilla trademarks and logos are trademarks or registered trademarks in the United States and certain other countries.

Google LLC All rights reserved. Google and the Google Logo are registered trademarks of Google LLC.

NETAPP, the NETAPP logo, and the marks listed at [www.netapp.com/TM](http://www.netapp.com/TM) are trademarks of NetApp, Inc.



**hello there! I am an Ideapreneur.** i believe that sustainable business outcomes are driven by relationships nurtured through values like trust, transparency and flexibility. i respect the contract, but believe in going beyond through collaboration, applied innovation and new generation partnership models that put your interest above everything else. Right now 119,000 ideapreneurs are in a relationship Beyond the Contract™ with 500 customers in 32 countries. **how can I help you?**

*Relationship*™  
BEYOND THE CONTRACT

**HCL**