



MX Performance Toolkit for BigFix

an HCL Product



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Mark Leitch
BigFix Platform, Performance & Secure Engineering

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REVISION HISTORY

Date	Version	Revised By	Comments
December 1 st , 2018	1	MDL	Initial distribution.
January 8 th , 2020	2	MDL	Tool and WebUI scale improvements.
September 30 th , 2021	10.x.3	MDL	MXPerfmon and MXCapacity updates.
January 27 th , 2022	10.x.4	MDL	Added new MXFillDBPerf counters.
October 1 st , 2023	11.x.1	MDL	BigFix 11 revision.

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.

The tool distributions themselves may be downloaded from: <https://bigfix-mark.github.io>

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.py [-h] [--endpoints ENDPOINTS] [--concusers CONCUSERS]
                    [--service {root,dbms,relays,webui,webreports,pluginportal}
                    [{root,dbms,relays,webui,webreports,pluginportal} ...]]
                    [--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,pluginportal}
[{root,dbms,relays,webui,webreports,pluginportal} ...], -s
{root,dbms,relays,webui,webreports,pluginportal}
[{root,dbms,relays,webui,webreports,pluginportal} ...]
                        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...
Top Level Relays	[2:4]	[4:8]	See comments.	Resources are...
				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 pluginportal
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 can 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 health check option that evaluates individual statistics against reference values for a high performance system. Values are assessed on a range (e.g., poor, good, great). It is possible for some values to be evaluated as “poor” even on a healthy system, typically due to low transaction counts that skew results. The key overall indicator is the aggregate “Batch Rate” counter. If this is ranked “poor” the system typically has a problem.
- 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}]
      [--healthcheck] [--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.
  --healthcheck, -c         Generate a health check analysis.
  --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
computer relay statuses:	40935	64298	637
dynamic computer groups:	81870	73220	1118
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 a health check for the results and the statistics for the utility.
MXFillDBPerf --input filldb.log --healthcheck --stats
4. 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.exe [-h] [--monitor MONITOR] [--interval INTERVAL]
                  [--count ITERATIONS] [--max MAX] [--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.
--max MAX, -x MAX	The maximum amount of data to collect in MB.
--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 of 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

REFERENCES

[BigFix Capacity Planning Guide](#)

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