Informatica® Managed File Transfer
10.4.0

Managed File Transfer Performance Tuning Guide

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Preface

The *Informatica Managed File Transfer Performance Tuning Guide* provides general recommendations for improving throughput and scalability of the hardware and software that you use to run Informatica Managed File Transfer. The guide is written for users that want to install or upgrade Informatica Managed File Transfer, and includes detailed benchmark test information. The guide assumes that you have a working knowledge of Informatica Managed File Transfer, as well as the required throughput and event processing load in your organization.

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CHAPTER 1

Performance Tuning

This chapter includes the following topics:

Performance Tuning Overview

The goal of performance tuning is to optimize throughput, which is the number of files and events that Informatica Managed File Transfer processes every second.

Performance tuning involves adjustments to the hardware and software configuration in your environment, which assist you to accommodate the different throughput requirements in the organization. The hardware and software adjustments also help to improve the production environment scalability, which is the ability to manage the environment resources in a way that maintains the desired performance when the data volume increases.

This chapter contains recommendations for adjustments to your hardware and software configurations. The recommendations are based on benchmark tests that measure the performance and scalability of Informatica Managed File Transfer on different operating systems, hardware configurations, and software configurations.

Hardware Configuration

You can tune performance and optimize throughput by setting up and configuring your hardware to maximize throughput. Throughput is the number of events that Informatica Managed File Transfer process every second.

You can modify various hardware aspects to accommodate the required throughput. For example, you can install additional CPU cores, replace slower hard disks with faster and more reliable hard disks, or cluster multiple computers to handle the different product installations instead of a single computer.

CPU Cores

To improve the performance of the machines on which Informatica Managed File Transfer runs, you can incorporate additional CPU cores based on the required throughput. You determine how many CPU cores to use based on the throughput requirements in your organization.

The recommendations in this section address throughput for Informatica Managed File Transfer.

You can add CPU cores to a single machine, or you can use multiple machines in a cluster configuration. If you add CPU cores to a single machine, each CPU core adds full processing power to the machine overall processing power.

Computer Environment

To improve the performance of the machines on which Informatica Managed File Transfer runs, install the Informatica Managed File Transfer server on a computer cluster instead of on a single machine.

Software Configuration

You can configure settings in B2B Data Exchange and Informatica Managed File Transfer to tune performance and optimize throughput.

The following section describes the software modifications you can make to tune performance and increase throughput. The recommendations are based on performance benchmark tests in B2B Data Exchange and Informatica Managed File Transfer.

Informatica Managed FIle Transfer Configuration Tuning

To improve performance, the following table describes the B2B Data Exchange property settings to be tuned:

Properties	Settings
dx.infamft.httpclient.maxConnPerRoute	Define the maximum number of HTTP requests to Informatica Managed File Transfer for the same project.
	For example, if Informatica Managed File Transfer is concurrently running five jobs from B2B Data Exchange for the same project, then the setting should be greater than five.
dx.infamft.httpclient.maxconnectionTotal	Define the maximum number of total HTTP requests to Informatica Managed File Transfer.
	The value should equal or exceed the total number of concurrent jobs launched from B2B Data Exchange that will run in Informatica Managed File Transfer.
dx.queue.pool.outbound.threads.max	The setting should have a higher value than the value for the property `dx.infamft.httpclient.maxConnTotal`.
dx.queue.pool.inbound.threads.max	Maximum number of Receive Jobs to trigger at a time.

The following connection and project timeout tuning is suggested:

- Increase project timeout in B2B Data Exchange system properties.
- Increase number of retry attempts for Informatica Managed File Transfer resource.
- Zlib compression is preferred for the SFTP resource, if the remote server supports this compression option.
- Increase the number of retry attempts for Informatica Managed File Transfer resources.
- Increase the client timeouts for remote servers and server timeouts for Informatica Managed File Transfer resources.

The Admin Server configuration in Tomcat for Informatica Managed File Transfer should be tuned to increase the maximum number of threads and the connection timeout for Informatica Managed File Transfer.

For Informatica Managed File Transfer, the following database tuning is suggested:

- Increase the maximum database connection to at least 200.
- Increase the maximum idle connection to the maximum to at least 30 seconds.
- Increase the maximum wait time to at least 10,000 msec.

CHAPTER 2

Benchmark Tests

This chapter includes the following topic:

Benchmark Test Overview

The performance benchmark test examined the optimal hardware configuration and cluster configuration to use when you want B2B Data Exchange to process a specific throughput of file per day with Informatica Managed File Transfer. The test was performed on a single machine with an 8 CPU core processing power, and in a cluster configuration with a combined 8 CPU core processing power. B2B Data Exchange sent and receives documents with different file sizes to and from Informatica Managed File Transfer.

The test results help determine which hardware configuration adjustments you can make to tune the performance and optimize throughput in Informatica Managed File Transfer. The benchmark test measured the performance and scalability of Informatica Managed File Transfer.

This chapter includes the following benchmark test types:

- Performance benchmark. Tests a single PowerCenter workflow that uses B2B Data Exchange MFT endpoints, resources and web users on single and multiple machines.

Informatica Managed File Transfer Benchmark Test Machine and Configuration Specifications

The following table lists the test machine specifications for the Informatica Managed File Transfer and B2B Data Exchange test server:

Category	Specification
Operating System, Virtual Machine	Windows Server 2012 R2 Standard
RAM	32 GB
CPU Cores	8 Core 2.40 GHz Processor
Kernel Version	9.3.9600.18821

The following table lists the test machine specifications for the remote test server:

Category	Specification
Operating System, Virtual Machine	Windows Server 2008 R2 Standard
RAM	16 GB
CPU Cores	8 Core 2.40 GHz Processor
Kernel Version	9.1.7601.23915

The following table describes the B2B Data Exchange configuration:

Category	Description
Number of partners	20 partners with one account
PowerCenter batch workflow	One workflow
Profiles	20 profiles

The following table describes the Informatica Managed File Transfer configuration:

Category	Description
Number of web users	Four web users
Resources	Eight resources were tested with the following details: - One FTP resource - One FTPS resource using password - One FTPS resource using certificate - Three SFTP resources using passwords - Three SFTP resources using certificates - Two SFTP resources using public/private key
Endpoints	Twenty Informatica MFT Receive and Send endpoints were tested with the following details: - Two FTP Remote Receive and Send endpoints - Two FTPS Remote Receive and Send endpoints using password - Two FTPS Remote Receive and Send endpoints using certificate - Six SFTP Remote Receive and Send endpoints using passwords - Four SFTP Remote Receive and Send endpoints public/private key - Four Hosted Receive and Send endpoints All the endpoints use the same workflow.

Informatica Managed File Transfer Sizing Benchmark

The Informatica Managed File Transfer sizing benchmark test helps to assess the optimal setup when you use Informatica Managed File Transfer with B2B Data Exchange.

The following table shows the configurations for the sizing tests:

Configuration									
Servers	1	1	2	2	2	4	4	8	16
CPU cores	4	8	8	16	16	8	16	16	16
Memory (GB)	8	16	16	32	64	16	64	64	32

The following table shows the throughput rate in MBs for the sizing tests for both inbound and outbound files:

Files/hour	Average MBs / file									
	0.01	0.1	1	5	10	25	50	100	500	1,000
10	0.1	1	10	50	100	250	500	1,000	5,000	10,000
100	1	10	100	500	1,000	2,500	5,000	10,000	50,000	100,000
500	5	50	500	2,500	5,000	12,500	25,000	50,000	250,000	500,000
1,000	10	100	1,000	5,000	10,000	25,000	50,000	100,000	500,000	
2,500	25	250	2,500	12,500	25,000	62,500	125,000	250,000	1,250,000	
5,000	50	500	5,000	25,000	50,000	125,000	250,000	500,000		
10,000	100	1,000	10,000	50,000	100,000	250,000	500,000			
25,000	250	2,500	25,000	125,000	250,000	625,000				
50,000	500	5,000	50,000	250,000	500,000	1,250,000				
100,000	1,000	10,000	100,000	500,000	1,000,000					

For example, for the test where an average of 10 files/hour were transferred, with an average file size of 0.01 MB, the equivalent of approximately 0.1 MB of files transferred per hour.

For the test where an average of 25,000 files/hour were transferred, with an average file size of 500 MB, the equivalent of approximately 1.25 TB of files transferred per hour.

Informatica Managed File Transfer Recieve and Send Benchmark

The Informatica Managed File Transfer Send and Receive benchmark test helps to determine the throughput of files for Informatica Managed File Transfer Receive with B2B Data Exchange.

The following table describes the File Receive action benchmark test results for Informatica Managed File Transfer:

Type	50 KB File (Receive)	250 KB File (Receive, Decrypt)	1 MB File (Receive)
Number of Peak Hours	7	7	7
Number of Normal Hours	3	3	3
Total Nmber of Files	249600	321789	99996
Files/Normal Hours	19200	24753	7692
Files/Peak Hour	38400	49506	15384
Missed Files	0	0	0
% CPU (Normal Hour)	60	78	75
% CPU (Peak Hour)	60	78	80
Network - Normal Hour	1 MB	6 MB	6 MB
Network - Peak Hour	1.25 MB	6 MB	6 MB
Disk I/O (Normal Hour)	1.25 MB	6 MB	6 MB
Disk I/O (Peak Hour)	-	40 MB	32 MB

The following table describes the File Send action benchmark test results for Informatica Managed File Transfer:

Type	50 KB File (Send)	1 MB File (Send)	1 MB File (Send)	1 MB File (Send)	1 MB File (Send, Encrypt)
NuMBer of Peak Hours	7	7	7	7	7
NuMBer of Normal Hours	3	3	3	3	3
Total NuMBer of Files	59995	59995	249600	399997	299990
Files/Normal Hours	4615	4615	19200	30769	23000
Files/Peak Hour	9230	9230	38400	61538	46000
Missed Files	0	0	0	0	0
% CPU (Normal Hour)	30	30	60	70	80
% CPU (Peak Hour)	40	40	90	95	100
Network - Normal Hour	200 KB	1 MB	2 MB	2 MB	2.5 MB
Network - Peak Hour	300 KB	1 MB	4 MB	8 MB	4 MB
Disk I/O (Normal Hour)	6 MB	50 MB	40 MB	52 MB	200 MB
Disk I/O Peak Hour)	12 MB	60 MB	80 MB	70 MB	300 MB

Informatica Managed File Transfer Longevity Benchmark

The Informatica Managed File Transfer benchmark test helps to assess action longevity when you use Informatica Managed File Transfer with B2B Data Exchange.

The following table describes the longevity benchmark test conditions:

Description	Amount
Total Duration in Hours	8
Number of Normal Hours	6
Number of Peak Hours	2

The following tables describes the longevity benchmark test hardware configuration for Informatica Managed File Transfer and B2B Data Exchange servers:

Informatica Managed File Transfer and B2B Data Exchange Servers	Specifications
OS	Windows Server 2012 R2 Standard
RAM	32 GB

Informatica Managed File Transfer and B2B Data Exchange Servers	Specifications
CPU	8 Core 2.40GHz Processor
Machine Type	Virtual Machine
Kernal Version	9.3.9600.18821

The following tables describes the longevity benchmark test hardware configuration for the remote:

Remote Server	Specification
OS	Windows Server 2008 R2 Standard
RAM	16 GB
CPU	2.10GHz (4 Core)
Machine Type	Virtual Machine
Kernal Version	9.1.7601.23915

The following table describes the longevity benchmark test results for Informatica Managed File Transfer. The test included 414 GB of files, with a test duration of 8 hours, repeated over 4 day.

File Size	Receiving Files During Normal Hours	Receiving Files During Peak Hours	Sending Files During Normal Hours	Sending Files During Peak Hours
50 KB	1000	2000	1000	2000
1 MB	500	1000	500	1000
10 MB	500	1000	500	1000
100 MB	50	100	50	100
500 MB	10	20	10	20
1 GB	4	7	4	7
5 GB	3	6	3	6

The following table describes the longevity benchmark test total results:

Description	Normal Hours	Peak Hours
Total Files/Hour	2067	4133
Total Size Inbound/Hour	35 GB	51 GB
Total Size outbound/Hour	35 GB	51 GB

Description	Normal Hours	Peak Hours
Total Processed Files	12402	8266
Total Size (GB)	210	102

The following table describes the timeline of completed events:

File Size	7:00 AM	8:00 AM	9:00 AM	10:00 AM	11:00 AM	12:00 PM	1:00 PM	2:00 PM	Subtotal
50 KB	1000	1000	2000	2000	1000	1000	1000	1000	10000
1 MB	500	500	1000	1000	500	500	500	500	5000
10 MB	500	500	1000	1000	500	500	500	500	5000
100 MB	50	50	100	100	50	50	50	50	500
500 MB	10	10	20	20	10	10	10	10	100
1 GB	4	4	7	7	4	4	4	4	38
5 GB	3	3	6	6	3	3	3	3	30
Total	2067	2067	4133	4133	2067	2067	2067	2067	20668

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