Core Services Plug-in for MQ Managed File Transfer (MFT)

Installation and User's Guide

Version 11

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Chapter 1: Introduction

Welcome to the meshIQ Platform *Core Services IBM Managed File Transfer (MFT) Expert Installation and User's Guide*. The expert is compatible with Managed File Transfer and File Transfer Edition (FTE). This guide describes installation and use of the MFT expert. This plug-in is designed to work with the meshIQ Platform Core Services, its components, and other plug-ins, and run simultaneously without interference or performance degradation.

1.1 How This Guide is Organized

Chapter 1: Identifies the users and history of the document. System requirements for this plug-in are outlined. All other system and platform information is listed in the Core Services installation and administrator's guides.

Chapter 2: Contains a brief description of Core Services/MFT Expert.

Chapter 3: Provides instruction for new installations of the Core Services/MFT Expert.

Chapter 4: Provides instruction for using the Core Services/MFT Expert.

Chapter 5: Provides metrics.

Appendix A: Provides a detailed list of all reference information required for the installation of Core Services.

Appendix B: Contains conventions used in Core Services and documents typographical conventions.

1.2 History of This Document

Table 1-1. Document History

Release Date:	Document Number	Product Version	Summary
May 2022	AP/MFT 613.002.1	AP 6.0 or higher	Changed title to *AutoPilot M6 Plug-in for MQ Managed File Transfer (MFT) Installation and User's Guide*
August	CSMFT11.000	11.x.x	Updated document to reflect meshIQ Platform.

1.2.1 User Feedback

meshIQ encourages all Users and Administrators of the meshIQ Platform to submit comments, suggestions, corrections and recommendations for improvement for all platform documentation. Please send your comments via email. Send messages to: *support@meshiq.com*. You will receive a written response, along with the status of any proposed change, update, or correction.

1.3 Related Documents

The complete listing of related and referenced documents is listed in *Appendix A* of this guide.

1.4 Intended Audience

This guide is intended for use by installers and administrators of meshIQ's Core Services and MFT Expert.

1.5 System Requirements

This section defines system and platform prerequisite support requirements for Core Services/MFT.

1.5.1 Platforms

Core Services/MFT expert is compatible with the following platforms:

- Windows 11 or later
- Unix (AIX, Linux)

1.5.2 Other Requirements

Core Services/MFT requires the following conditions:

- Core Services 11.0.1 or later
- Java Run Time Environment 11 (JRE 11) or higher
- IBM Managed File Transfer
- Target operating system environment
- Installer may need administrative privileges for the target platform
- Since communication between MFT and Core Services is done via IBM Managed File Transfer it is necessary to have Managed File Transfer properly installed on the CEP server that is hosting the expert.

1.6 Technical Support

If you need additional technical support, you can contact meshIQ by telephone or by email. To contact technical support by telephone, call **(800) 963-9822 ext. 1**, if you are calling from outside the United States, dial **001-516-801-2100**. To contact mySupport by email, send a message to *mysupport@meshiq.com*. To access the meshIQ automated mySupport system (user id and password required), go to: *http://mysupport.meshiq.com/*. Contact your local meshIQ Platform Administrator for further information.

1.7 Conventions

Refer to *Appendix B* for conventions used in this guide.

Chapter 2: About Core Services/MFT Expert

2.1 Introduction

Core Services/MFT Expert was designed to monitor and manage your MFT or FTE environment. MFT manages file transfers in IBM MQ environments across a range of platforms and networks. This information is processed by the Core Services/MFT Expert and integrated into the meshIQ Platform infrastructure. Communication from the MFT Expert to Core Services is through an IBM MQ queue via an IBM MQ server connection.

Information includes:

- coordinator
- agent status
- schedules.

This information can be combined with information provided by Core Services for MQ to further get insight into the operation of the MFT environment.

Chapter 3: Installation & Configuration

3.1 Installation Preparation

This section contains general information related to preparing for and installing the Core Services/MFT Expert software.

3.1.1 Installation Materials

Installation can be performed from installation media or by downloading through files from the meshIQ Resource Center.

Prior to installation, review all text files and installation procedures provided on the meshIQ Resource Center. We recommend that you print all installation related materials to allow the installer to review them prior to installation and better follow the detailed instructions within.

3.1.2 Licensing Information

A copy of the standard Licensing Agreement is imbedded in the installation software and is provided in the resource center. The formal licensing agreement has been furnished in the purchase agreement package.

3.2 Installation

This section provides instructions for installing Core Services/MFT Expert on compatible platforms. Review all installation related materials prior to commencing installation procedures. Reviewing materials will allow installers to determine installation options and familiarize themselves with associated requirements.

3.2.1 Before Installing Core Services/MFT

This procedure outlines the typical procedures for installing the Core Services/MFT Expert for all supported platforms.

1. IBM MQ FTE 7.0 or MFT 7.5 or later.
2. Connection to the coordination queue manager using a client server channel.
3. If the com.ibm.mq.allclient library version is earlier than version 9.3.3, set up the following system property in node.properties on the CEP: property com.ibm.mq.cfg.useIBMCipherMappings=false
4. Using the IBM MQ iKeyman tool, create a client JKS key store that includes the queue manager certificate.
    - The IBM MQ server certificate must have alias “ibmwebspheremq“ + queue manager name (in lowercase).
    - The client certificate must have alias “ibmwebspheremq“ + user name (in lowercase) that will be used to connect to the channel.

3.2.2 Installing the MFT Expert from the meshIQ Delivery Center

1. Download the Core Services/MFT Expert Plug-in from the meshIQ software repository (*https://data.meshiq.com/*). A user name and password are required.
2. Save your work and log off Core Services.

> NOTE
> There are no specific logoff procedures required to exit the User Console.

3. Stop the Nodes and/or Domain Servers that will be updated as specified in the *Core Services Administrator's Guide*.
4. Copy AP_FTE_MFT-*version*.pkg into the [AUTOPILOT_HOME]\updates directory.

> NOTE
> Core Services can be installed on a Windows or a Unix machine. For Unix, substitute forward slash '/' in all directory paths.

5. At the command prompt run:

   `[AUTOPILOT_HOME]\bin\pkgman ..\updates\AP_FTE_MFT-version`

6. Verify plug-in installation: `[AUTOPILOT_HOME]\bin\pkgman -info`. You should see **FTE-Plugin** in the installed library list.

> NOTE
> Make sure there are no errors posted at the bottom of the screen. Note that the internal name is FTE-Plugin for compatibility with earlier versions.

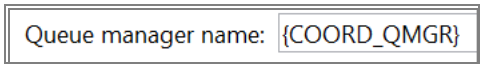
```
AutoPilot M6 Package Manager  Version 6.0
Copyright (C) 1998-2015 Nastel  All rights reserved.

Loaded 5 packages from "packages.xml"

Package                                 Version    Size(KB)   Time
--------------------------------------- ---------- ---------- ------------------
AutoPilot M6(NA)                        6.0        NA         2016-01-28 08:54:13
JRE(NA)                                 1.7.0_60   NA         2015-10-27 14:21:07
AIM-Plugin(NA)                          6.0.31     2548       2015-09-01 16:56:29
ServiceUpdate(AP60_SU22_b4.pkg)         6.0.22     13259      2015-12-16 21:15:08
FTE-Plugin(AP_MFT-6.1.3.pkg)            6.1.3      11         2016-01-28 08:54:08
```

Figure 3-1. Detail of Installed Library List

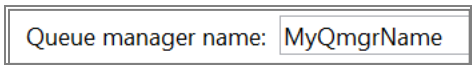
3.2.3 Configuration

In order to connect the expert to the MFT Coordinator, you must create a set of properties as described in *Chapter 4*. As delivered, the expert defines a set of environment properties which can be used to centralize this configuration.

For example, to define the queue manager to use, you could define a property in the global or node properties files such as `property COORD_QMGR=MyQmgrName` and use the default configuration:



Or you can simply provide the queue manager name in the **Coordinator** property tab of the Create FTE Monitor screen *(Figure 4-4)*:



The expert subscribes to topics produced by the Coordinator to collect information. The topic defined determines what data is collected. Using **SYSTEM.FTE/#** provides all data or you can use a more specific string to get a subset of the data.

The expert connects to a queue manager using a client connection channel. It can provide a user and password as required by your queue manager.

Chapter 4: Core Services Integration

To enable Core Services to receive facts generated by MFT, the **General** *(Figure 4-2)* and **Coordinator** *(Figure 4-4)* tabs must be completed. All others are optional and not covered in this document. See the *Core Services Administrator's Guide* for other property usage.

1. Open the User Console.
2. Click the **Deployment Tool** to display Directory Viewer (if not already displayed).
3. Right-click on the CEP server and select **Deploy Expert > MFT Monitor > MFT Monitor**.

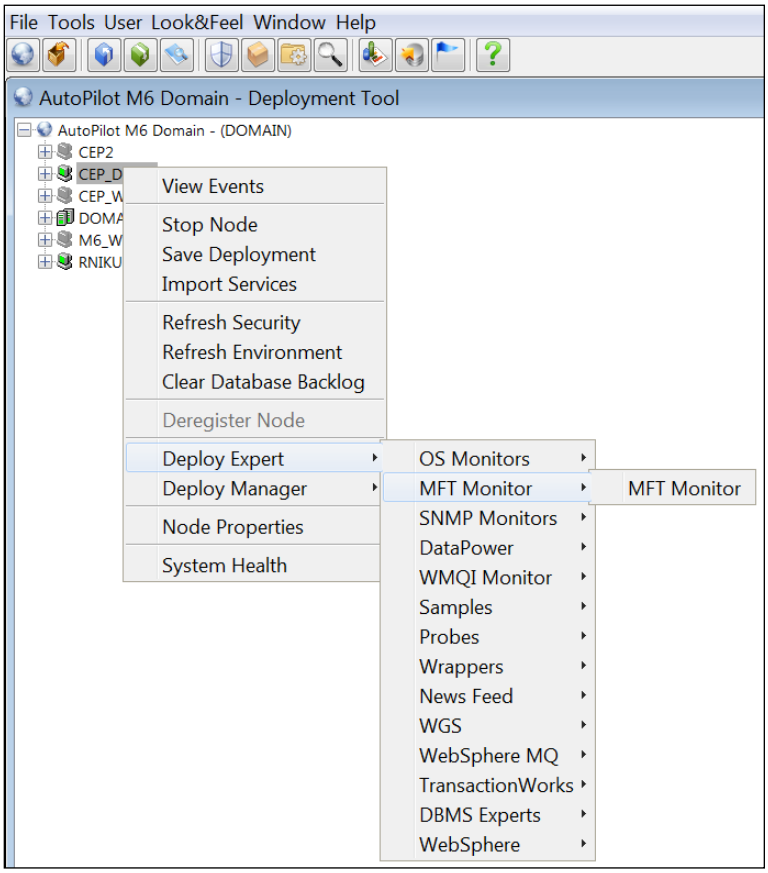


Figure 4-1. Deploy MFT Monitor

4. The *Create FMT Monitor* configuration dialog box is displayed.

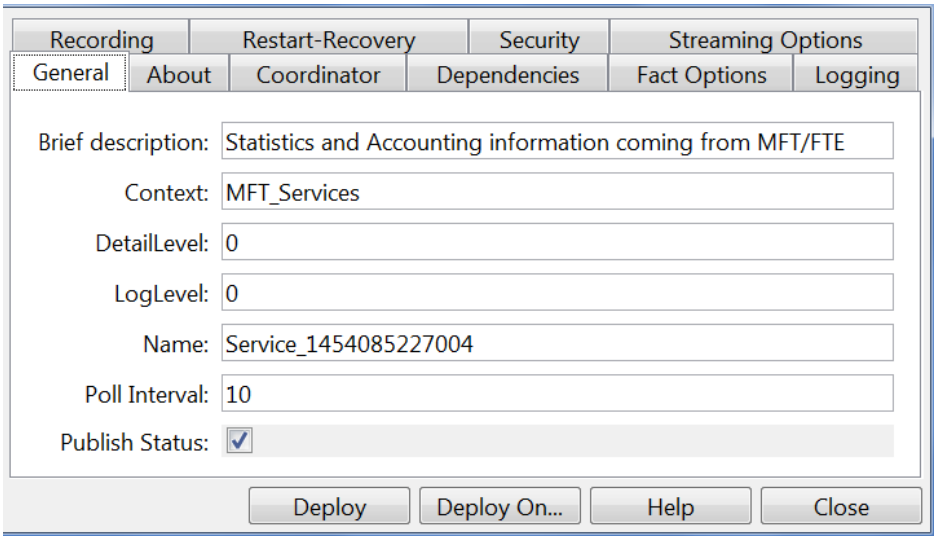


Figure 4-2. Create MFT Monitor – General Tab

5. On the **General** tab, change the **Brief description** and **Name** to reflect the MFT Expert functionality. Update the other fields as described below.

Table 4-1. MFT Monitor – General Properties

Property	Description
Brief description	Short description of the service.
Context	User defined category that will be registered in the Domain Server. Context is displayed as folder icon under each Managed Node.
DetailLevel	Specifies level of detail analysis: 0 = basic 1 = advanced
LogLevel	Specifies logging level: 0 = no log 1 = log processed 2 = log skipped 3 = log message body
Name	Name that uniquely identifies the service in the Domain Server. Enter or modify the Service Name as required, or in accordance with local guidelines. Variations of names are used when deploying services on multiple Nodes. No spaces or blanks are recommended in Service Name formats. For example, MFT_Monitor.
Poll Interval	Interval in seconds to poll the message queue.
Publish Status	Include status data in published metrics (requires IBM JVM)

6. The following properties are available for the MFT expert. Review (if updating existing expert) or configure data elements as follows.

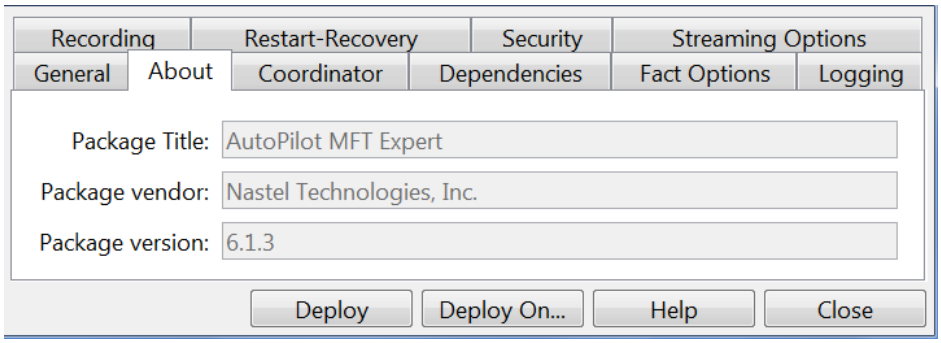


Figure 4-3. Create MFT Monitor – About Tab

Table 4-2. MFT Monitor – About Properties	
Property	**Description**
Package Title	Implementation title of source package.
Package vendor	Name of implementation vendor.
Package version	Package version as assigned by the vendor.

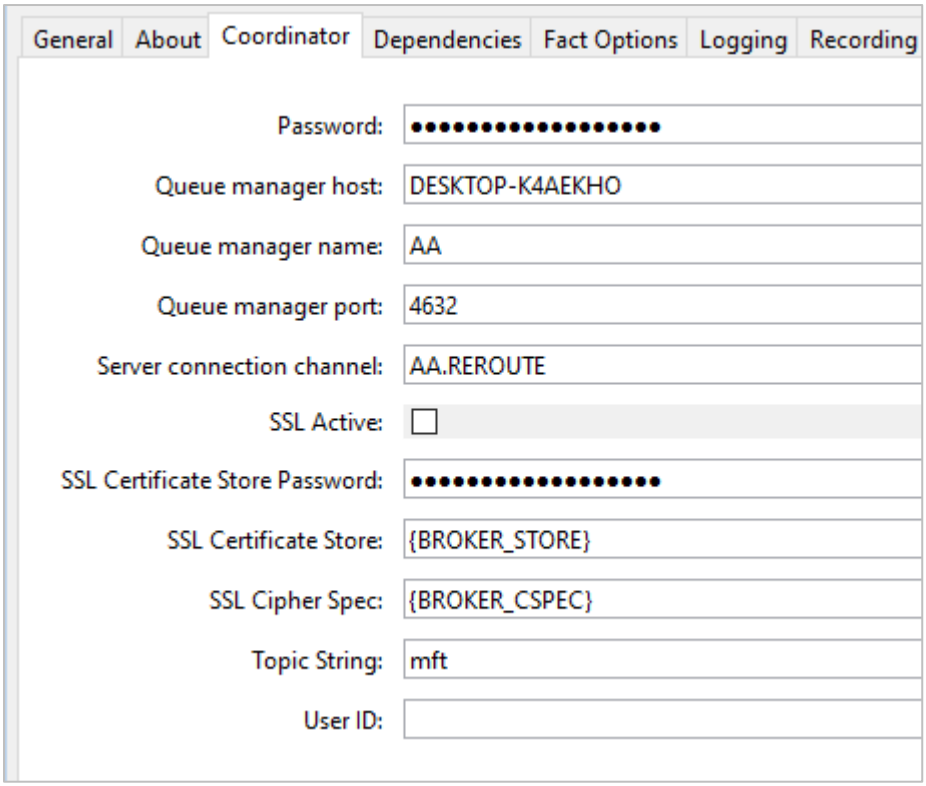


Figure 4-4. Create MFT Monitor – Coordinator Tab

Table 4-3. MFT Monitor – Coordinator Properties	
Property	**Description**
Password	Password used to connect to queue manager (if required)

Table 4-3. MFT Monitor – Coordinator Properties	
Property	**Description**
Queue manager host	Host name of your coordination queue manager
Queue manager name	Name of your coordination queue manager
Queue manager port	Port number of your coordination queue manager
Server connection channel	Connection channel of your coordination queue manager
SSL Active	Select this checkbox to enable the SSL Internet security protocol.
SSL Certificate Store Password	Password for access to the certificate store database file.
SSL Certificate Store	Full path to the certificate store database file. Example: `C:/ProgramData/IBM/MQ/qmgrs/QM_SMA_SSL/ssl/client/client.jks`
SSL Cipher Spec	The cipher to use for the SSL connection. (Example: TLS_RSA_WITH_AES_128_CBC_SHA256)
Topic String	Topic to subscribe to (SYSTEM.FTE/#)
User ID	User ID used to connect to queue manager

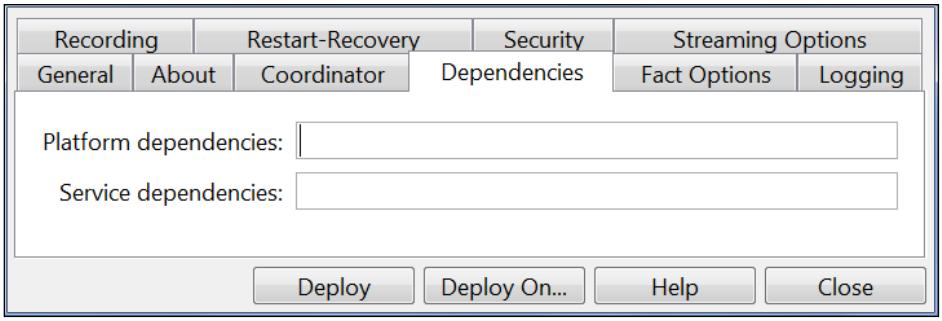


Figure 4-5. Create MFT Monitor – Dependencies Tab

NOTE

Dependencies are reserved. Leave blank unless required. Dependencies are comma delimited lists of services within a Managed Node. The lists must be available to the specified service prior to loading. The sequence of service loading is determined by the list.

Table 4-4. MFT Monitor – Dependencies Properties	
Property	**Description**
Platform dependencies	Comma separated list of operating system platforms this expert is dependent on.
Service Dependencies	Comma separated list of services this expert is dependent on.

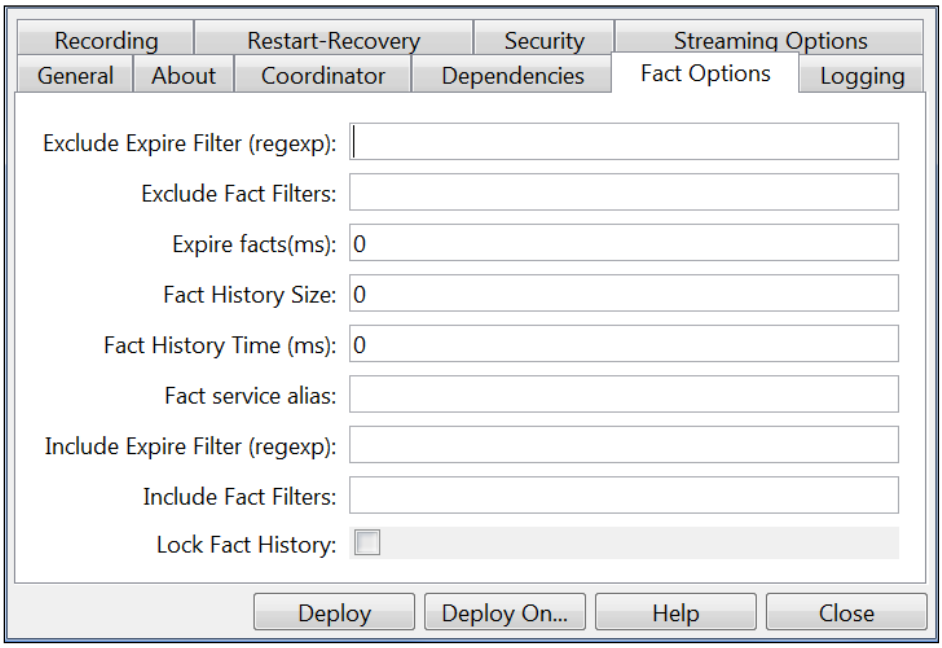


Figure 4-6. Create MFT Monitor – Fact Options Tab

Table 4-5. MFT Monitor – Fact Options Properties	
Property	**Description**
Exclude Expire Filter (regexp)	Facts that match the specified regular expression are not expired.
Exclude Fact Filters	Comma separated list of fact paths to exclude during publishing. For example: *SYSTEM*, *FactName*
Expire facts(ms)	User-defined time in which facts that have not been updated within a specific time automatically expire (in milliseconds). The default is 0, which means never expire. However, in most applications, 0 should not be used. In cases where certain data is no longer published, if 0 is used, these facts will never expire. It is recommended that this value be 50% larger than the sample rate.
Fact History Size	Automatically maintains the specified number of samples for each published fact in memory.
Fact History Time	Automatically maintain fact history not exceeding specified time in milliseconds.
Include Fact Filters	Comma separated list of fact paths to include during publishing. For example: *SYSTEM*, *FactName*
Fact service alias	If supported by the expert, specifies the alternative service name that the expert will publish its facts under.
Include Expire Filter (regexp)	Facts that match the specified regular expression are expired.

Table 4-5. MFT Monitor – Fact Options Properties	
Property	**Description**
Lock Fact History	Enables/disables history collection after accumulating the first history batch up to **Fact History Time** or **Fact History Size** which ever limit is reached first. If disabled newer history samples replace older on a rolling basis.

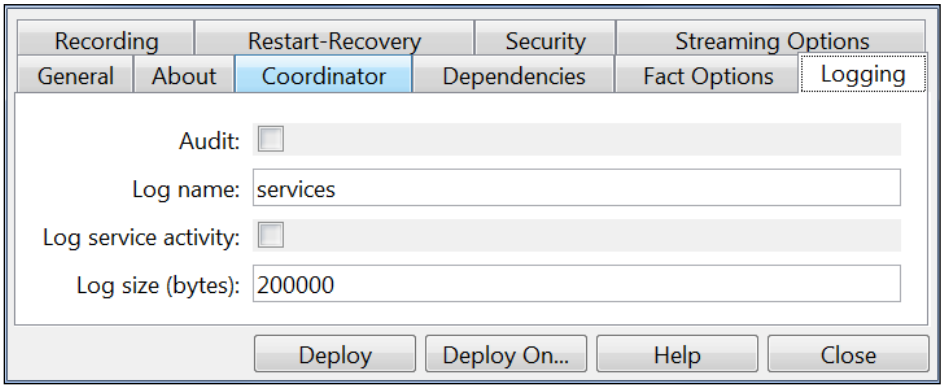


Figure 4-7. Create MFT Monitor – Logging Tab

Table 4-6. MFT Monitor – Logging Properties	
Property	**Description**
Audit	Enable/Disable service audit trace. Default is disabled.
Log name	Log name associated with the service. The default name is "Services," but you can change it as required.
Log service activity	Enable/Disable service activity trace. Default is disabled.
Log size (bytes)	Log size in bytes. Real log size is the maximum value of the server.log.size and logsize.

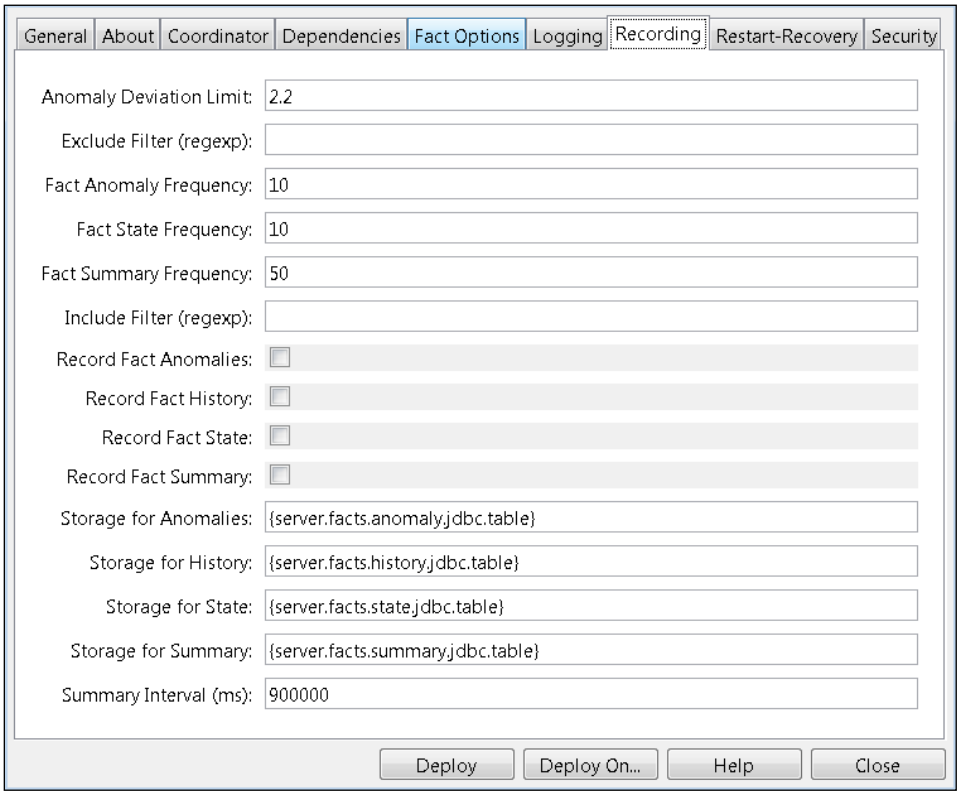


Figure 4-8. Create MFT Monitor – Recording Tab

Table 4-7. MFT Monitor – Recording Properties	
Property	**Description**
Anomaly Deviation Limit	The number of standard deviations from the mean at which the value is considered an anomaly. For example, a value of 2.2 is 2.2 standard deviations. Requires fact recording to be configured (although not actually recording).
Exclude Filter (regexp)	A regular expression filter to exclude certain facts from being written to the database. Facts have the format `expert\class\instance\leaf=value` such as in the example `Servers\Linux\Serv7\processes=40`.
Fact Anomaly Frequency	The frequency of fact updates at which anomaly calculation is done. A value of 10 indicates every 10th sample. A value of 1 would analyze every fact update to determine if it was an anomaly.
Fact State Frequency	If **Record Fact State** is enabled, the value entered here specifies how often the Fact State is updated.
Fact Summary Frequency	If **Record Fact Summary** is enabled, used to write an intermediate summary record every Xth update to the fact during the Summary Interval. In this example, every 50th update to the fact an intermediate summary record is recorded. This is done to avoid waiting 15 minutes for a summary record to appear in the summary table.
Include Filter (regexp)	A regular expression filter to include certain facts being written to the database. Same format as described for the exclude filter.

Table 4-7. MFT Monitor – Recording Properties	
Property	**Description**
Record Fact Anomalies	If enabled, records every fact anomaly into the Anomaly database. The exclude/include filters are respected. Requires fact recording to be configured (although not actually recording).
Record Fact History	If enabled, records every fact change into the History database. The exclude/include filters are respected. To define database tables and set Core Services options, refer to the *Core Services Administrator's Guide* section 4.5.4.1.
Record Fact State	If enabled, records the last value published (current state) into the state database and restores that value when the CEP Server is stopped and restarted. The exclude/include filters are respected. To define database tables and set Core Services options, refer to the *Core Services Administrator's Guide*, section 4.5.4.1.
Record Fact Summary	If enabled, records summary record at the interval designated in the **Summary Interval (ms)** field into the Summary database. The exclude/include filters are respected. To define database tables and set Core Services options, refer to the *Core Services Administrator's Guide,* section 4.5.4.1.
Storage for Anomalies	Database table where the Fact Anomalies data is stored.
Storage for History	Database table where the Fact History data is stored.
Storage for State	Database table where the Fact State data is stored.
Storage for Summary	Database table where the Fact Summary data is stored.
Summary Interval (ms)	If **Record Fact Summary** is enabled, designates the interval of time in ms for which baseline numbers for each numeric fact are computed. Summary Interval is only in effect when CEP instance is running in record mode (ATPNODE –record). Default 900000 is 15 minutes, which means maintain a baseline of statistics for each numeric fact for a period of 15 minutes and write a record to the database. At the end of interval fact statistics is reset and the baseline collection starts again.

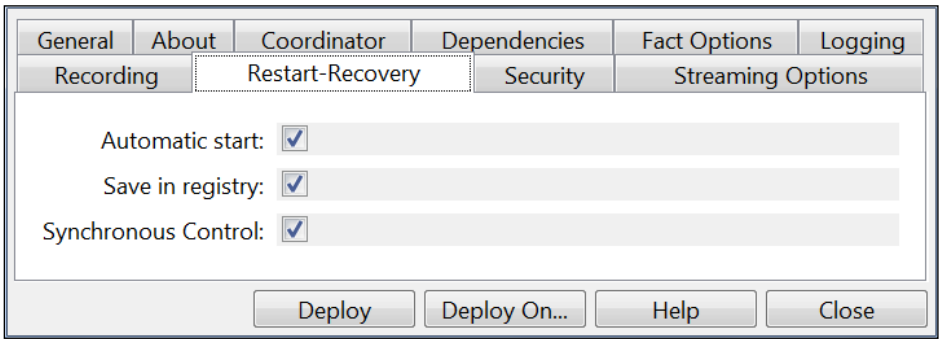


Figure 4-9. Create MFT Monitor – Restart-Recovery Tab

Table 4-8. MFT Monitor – Restart-Recovery Properties	
Property	**Description**
Automatic start	Enable/disable automatic start.
Save in registry	Persistent services are saved in `Registry.xml` file. Default is enabled.
Synchronous Control	Enable/Disable synchronous service initiation.

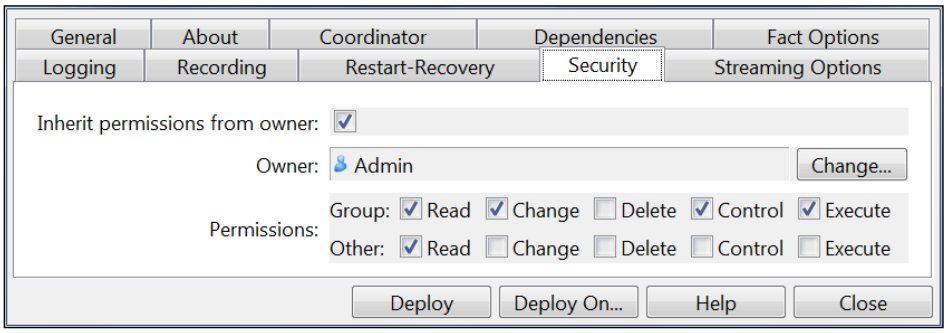


Figure 4-10. Create MFT Monitor – Security Tab

Table 4-9. MFT Monitor – Security Properties		
Property	**Description**	
Inherit permissions from owner	Enable/disable inherit permission from owner's permission masks. Default is enabled.	
Owner	User that owns the object.	
Permissions	Permissions for users in the same group and users in other groups. Enable/disable as required.	
	Group:	**Others:**
Read	Group members may read/view attributes of an object.	Other users may read/view attributes of an object.
Change	Group members may change the attributes of an object.	Other users may change the attributes of an object.
Delete	Group members may delete the object.	Other users may delete the object.
Control	Group members may execute control actions such as start, stop, and disable.	Other users may execute control actions such as start, stop, and disable.
Execute	Group members may execute operational commands on the object.	Other users may execute operational commands on the object.

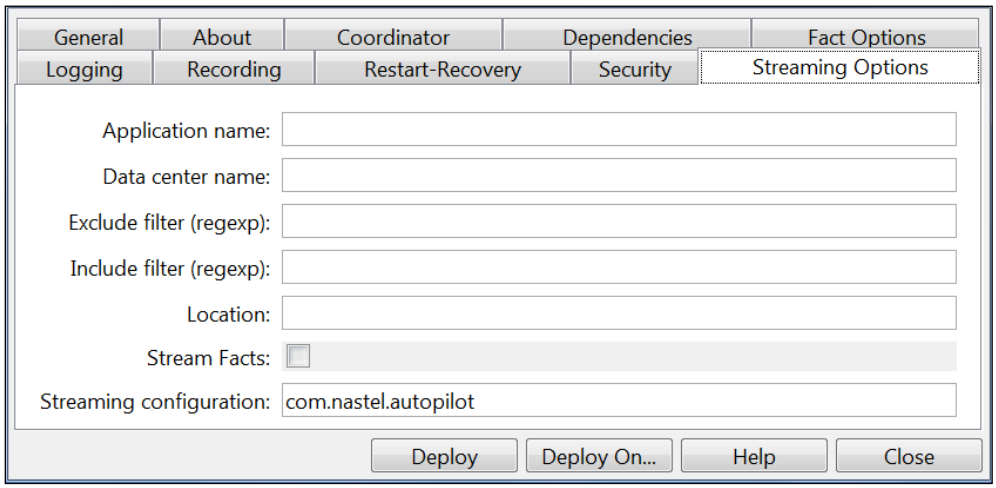


Figure 4-11. Create MFT Monitor – Streaming Options Tab

Table 4-10. MFT Monitor – Streaming Options Properties	
Application name	Sets application name if different from the default set in the **tnt4j.properties** file.
Data center name	Sets data center name if different from the default set in the **tnt4j.properties** file.
Exclude filter (regexp)	Ignore facts that match specified regular expression; that is, do not stream facts that match the regexp.
Include filter (regexp)	Only stream the facts that match specified regular expression.
Location	Sets server location if different from the default set in the **tnt4j.properties** file.
Stream Facts	Enable/disable fact streaming (requires TNT4J streaming framework).
Streaming configuration	Indicates where the data streams. This value must match a stanza in the **tnt4j.properties** file. The default is **com.nastel.autopilot**.

Chapter 5: Core Services/MFT Expert Metrics

This section describes the Core Services/MFT Expert metrics collected by the expert coming from the MFT messages. The data presented depends on the subscriptions used and the types of transfers being processed. The facts produced are samples only.

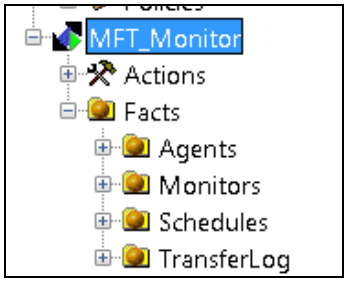


Figure 5-1. MFT Expert Facts

5.1 Agents

Identifies the agents connected to the coordinator, configuration, and status. Includes transfer states for all sources and destinations included.

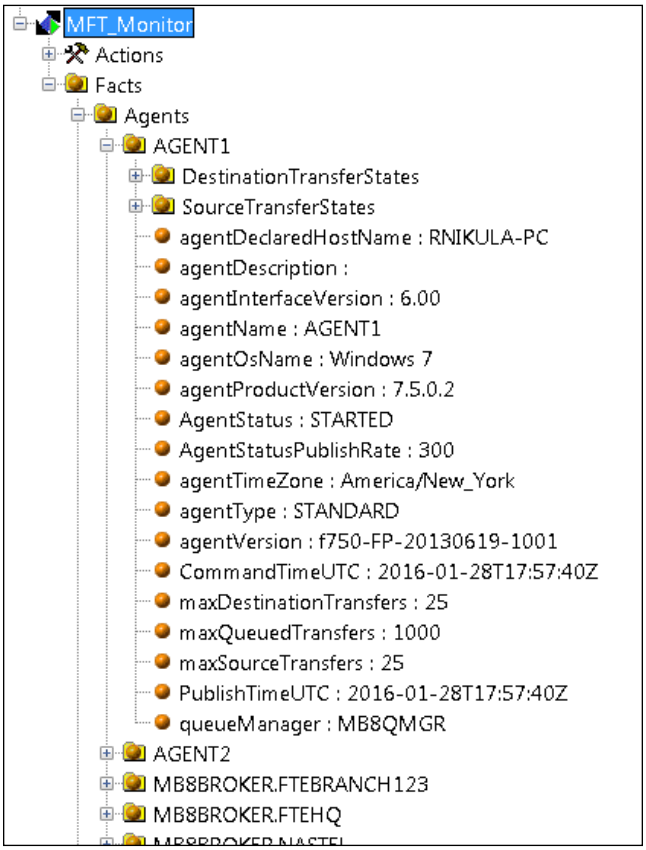


Figure 5-2. Agent Metrics

5.2 Monitors

Identifies the monitors defined, configuration, and status.

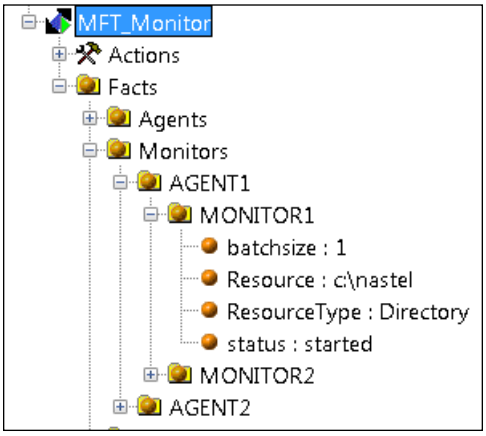


Figure 5-3. Monitor Metrics

5.3 Schedules

Identifies all defined schedules and their status.

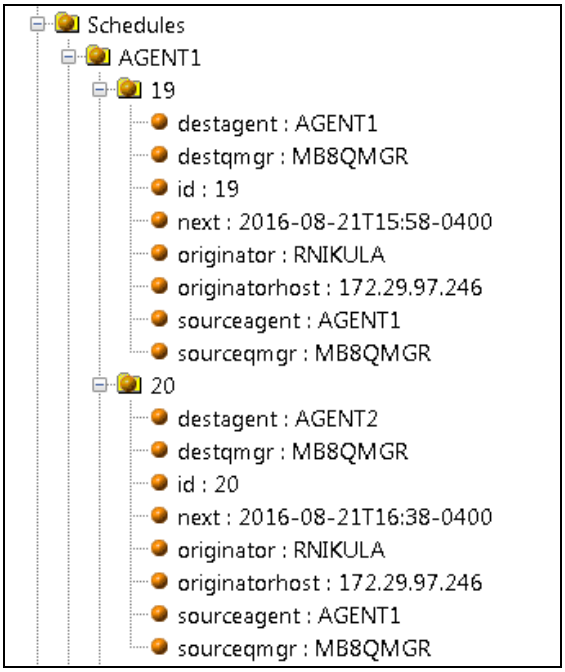


Figure 5-4. Schedules Metrics

5.4 Transfer Log

The transfer log writes a set of facts for each transfer that has an associated transfer ID and schedule ID. The schedule ID also is reported by the schedules section *(Figure 5-4)*.

Transfer log details can be found at *https://www.ibm.com/support/knowledgecenter/SSFKSJ_8.0.0/com.ibm.wmqfte.doc/scheduled_message_format.htm*

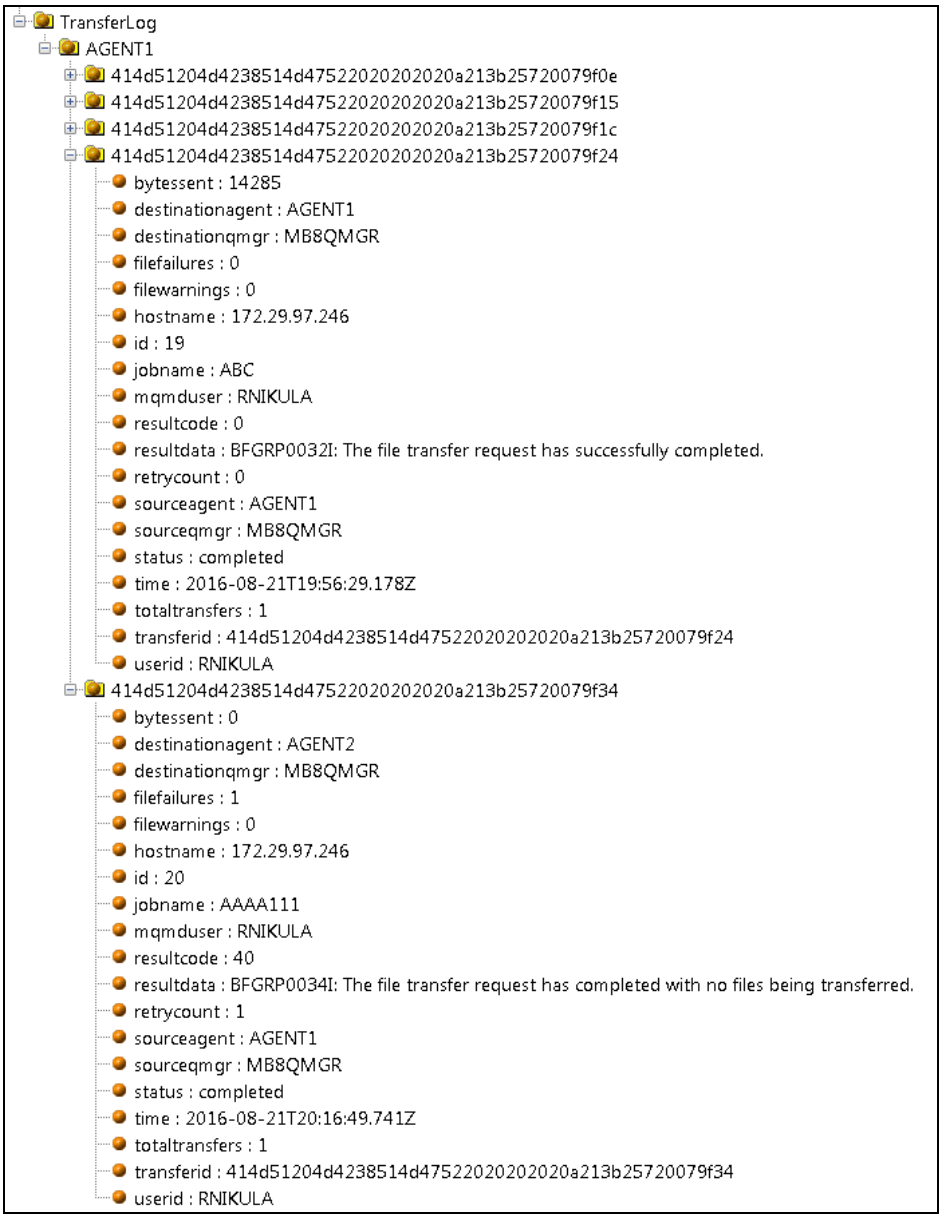


Figure 5-5. Transfer Log

The normal process is:

- started
- in progress
- completed or failed or partial.

The facts replace each other, that is; if the status is “started” the process has not reached “in progress” and so on.

Appendix A: References

A.1 meshIQ Documentation

Table A-1. meshIQ Documentation

Document Number (or higher)	Title
CS-INS11.000	*Core Services Installation Guide*
CS-USR11.000	*Core Services Administrator's Guide*
M6/MQ 10.002.1	*AutoPilot M6 Plug-in for IBM MQ Installation and User's Guide*
M6/OSM 600.002	*AutoPilot M6 Operating System Monitors Installation and User's Guide*
AP/TEMS 110.003	*AutoPilot Plug-in for TIBCO EMS*
AP/OR 100.003	*AutoPilot/Oracle Plug-in Guide*
AP/IT JMX 430.001	*AutoPilot/JMX Plug-in Guide*

Appendix B: Conventions

B.1 Typographical Conventions

Table B-1. Typographical Conventions	
Convention	Description
Blue/Underlined	Used to identify links to referenced material or websites. **Example:** *meshIQ Resource Center*
Bold Print	Used to identify topical headings and to identify toggles or buttons used in procedural steps. Example: Click **EXIT**.
Italic Print	Used to place emphasis on a title, menu, screen name, or other categories.
Monospaced Bold	Used to identify keystrokes/data entries, file names, directory name etc.
Monospaced italic	Used to identify variables in an address location. Example: [*C:\AutoPilot_Home*]\documents. Where the portion of the address in the brackets [ ] is variable.
Monospaced Text	Used to identify addresses, commands, scripts etc.
Normal Text	Typically used for general text throughout the document.
Table Text	Table text is generally a smaller size to conserve space. 10-, 9-, and 8-point type is used in tables throughout the meshIQ product family of documents