



IBM Software Group

WebSphere MQ File Transfer Edition (FTE) - Basic Step-by-Step Configuration and Setup

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WebSphere MQ Unix® Level 2 Support

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Special Thanks to Angel Rivera



WebSphere® Support Technical Exchange

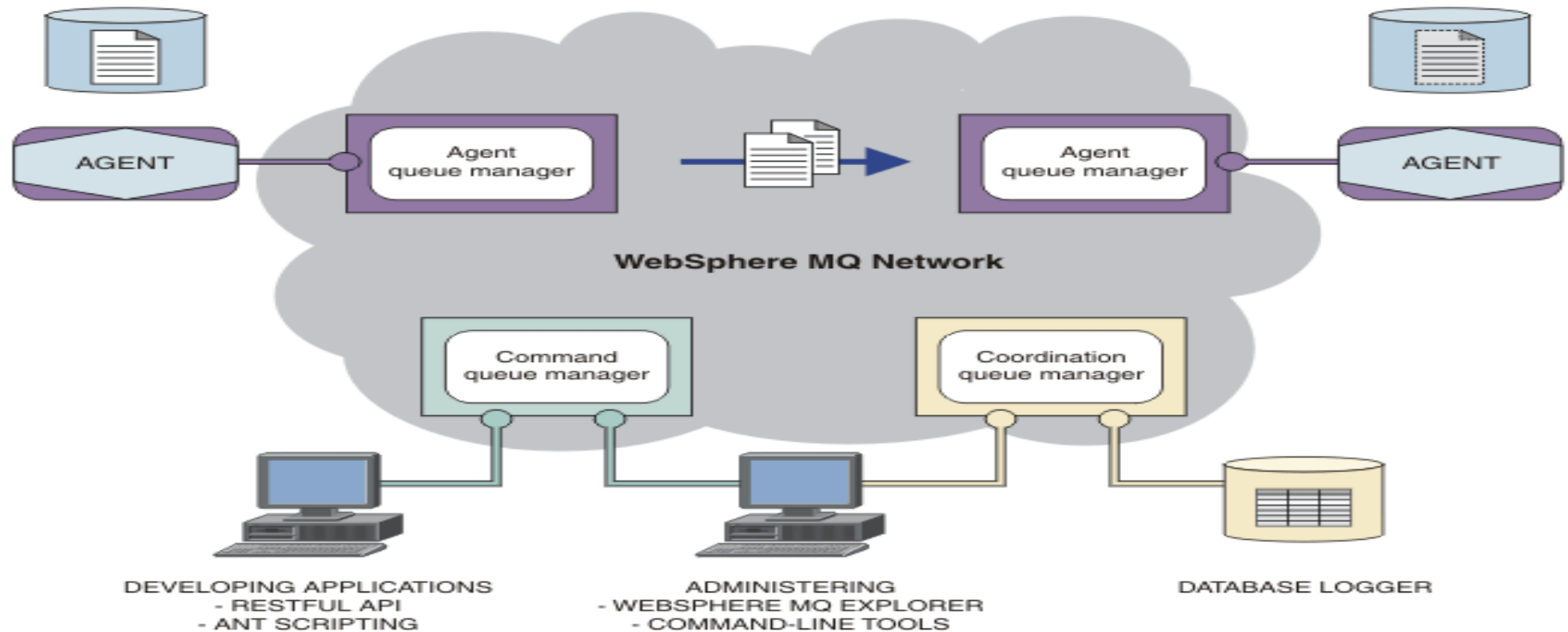


Agenda

- What is MQFTE
- Why use it
- How to setup MQFTE
 - ▶ Install
 - ▶ Setup
- Setup end to end MQFTE
- FTE directory structure & logs
- Some of the features MQFTE
- Question and Answers

What is MQFTE

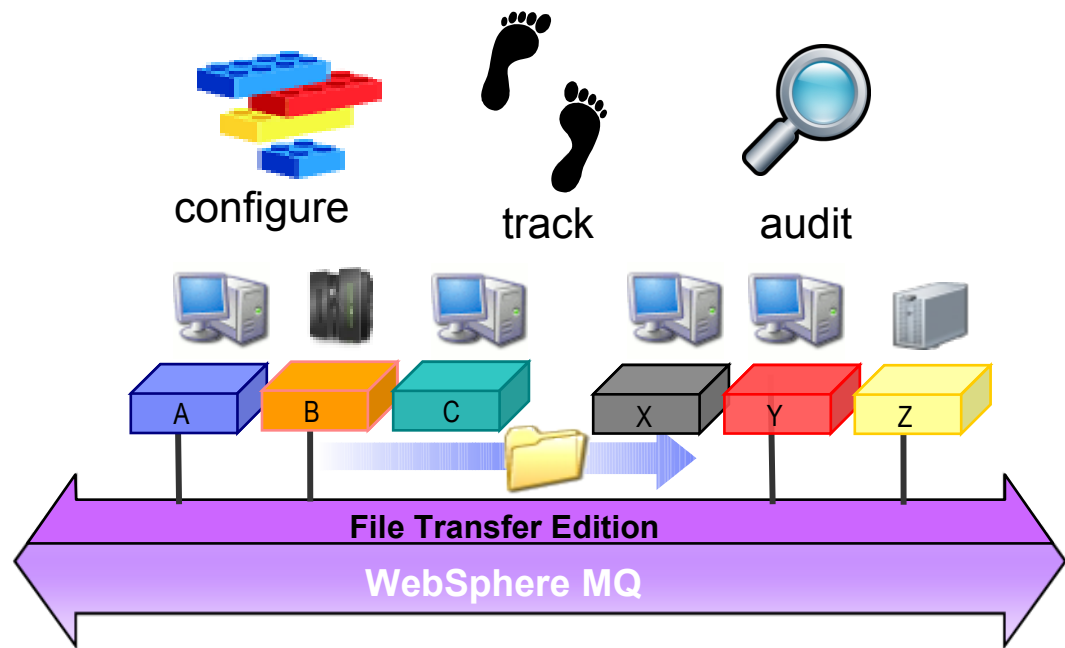
- WebSphere MQ File Transfer Edition (MQFTE) transfers files between systems in a managed and auditable way, regardless of file size or the operating systems used.



Why MQFTE

- Compared to regular FTP these are the advantages

- ▶ Reliability
- ▶ Security
- ▶ Automation
- ▶ Visibility
- ▶ Flexibility
- ▶ Integrated



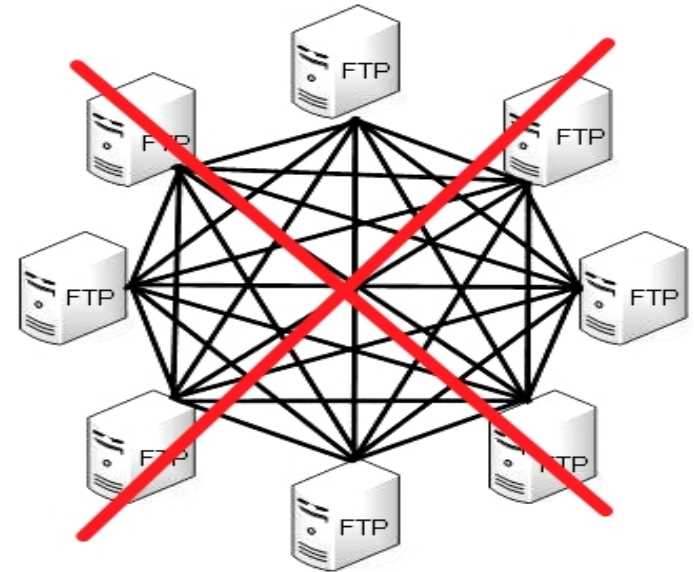
- (e.g. WebSphere DataPower, WebSphere Message Broker, Tivoli etc)

MQFTE vs FTP

- Any file size (Kb, Mb, Gb, Tb...)
- Reliable delivery leveraging MQ
- Guaranteed 100% Integrity
- Full logging for audit purpose
- High Performance
- Character set conversion
- Very Secure with Industry standard SSL security
- XML scripting (Ant Scripting) for distributed job automation
- Multi-purpose solution – transports both messages and files
- Supports many platforms
- Multi-instance so fail-over capability

► Learn more about it on [Information Week](#) webcast

(<https://www.techwebonlineevents.com/ars/eventregistration.do?mode=eventreg&F=1003640&K=CAA1AC>)



Major Players in MQFTE

- **Agent**

- ▶ FTE agent is a process which transfers to and from another agent

- **Agent Queue Manager**

- ▶ A queue manager that hosts an agent's queues.

- **Coordination Queue Manager**

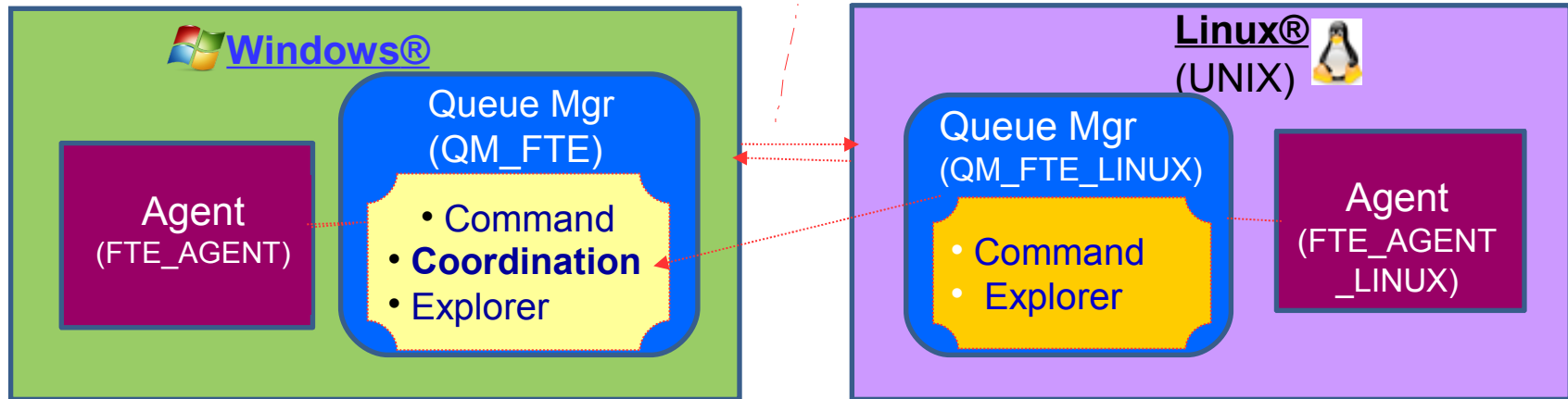
- ▶ The coordination queue manager broadcasts audit of file transfer also this QM in the MQ network that acts as a central location.

- **Command Queue Manager**

- ▶ The command queue manager is used to connect to the WebSphere MQ network and is the queue manager connected to when you issue MQFTE commands



How to setup MQFTE

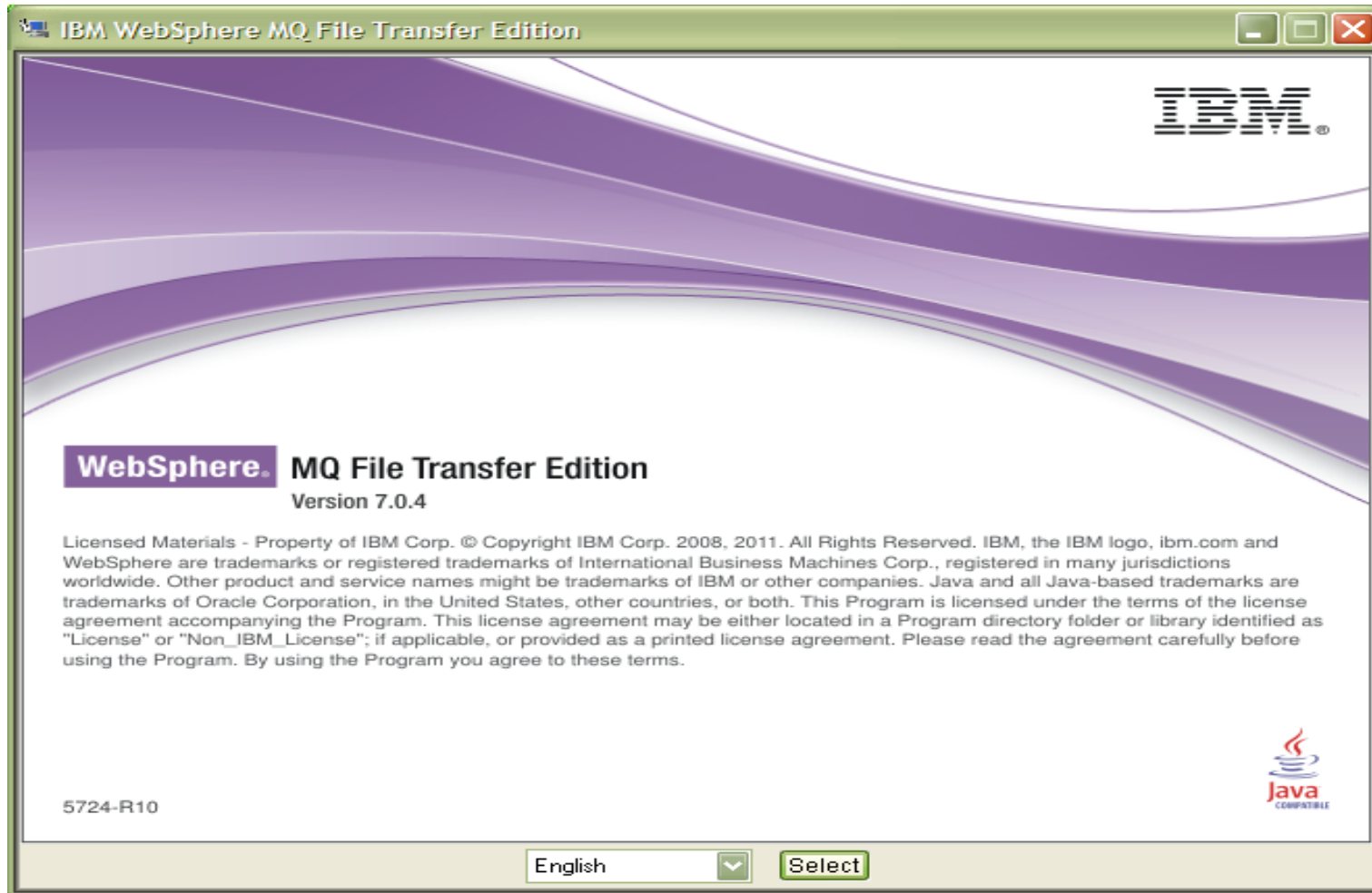


Ingredients (Prerequisites)

- ▶ MQ File Transfer Edition V7.0.4 – Server (has a server code will be used on both side)
- ▶ MQ File Transfer Edition V7.0.4 -- Documentation and Tools (has plug-in for MQ Explorer)
- ▶ MQ V7.0.1 or later and MQ Explorer
- ▶ Working knowledge of MQ where a queue manager already defined and started. Here we have **QM_FTE** and talk about it later.

Installation on MQFTE

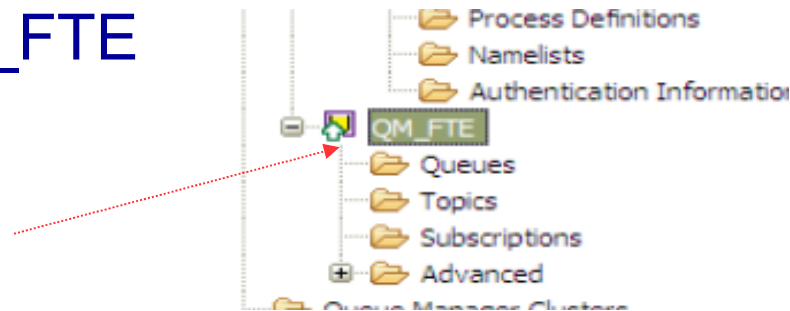
For Windows Server Code Search for : [CZXU0ML](#) 



Before you do this install

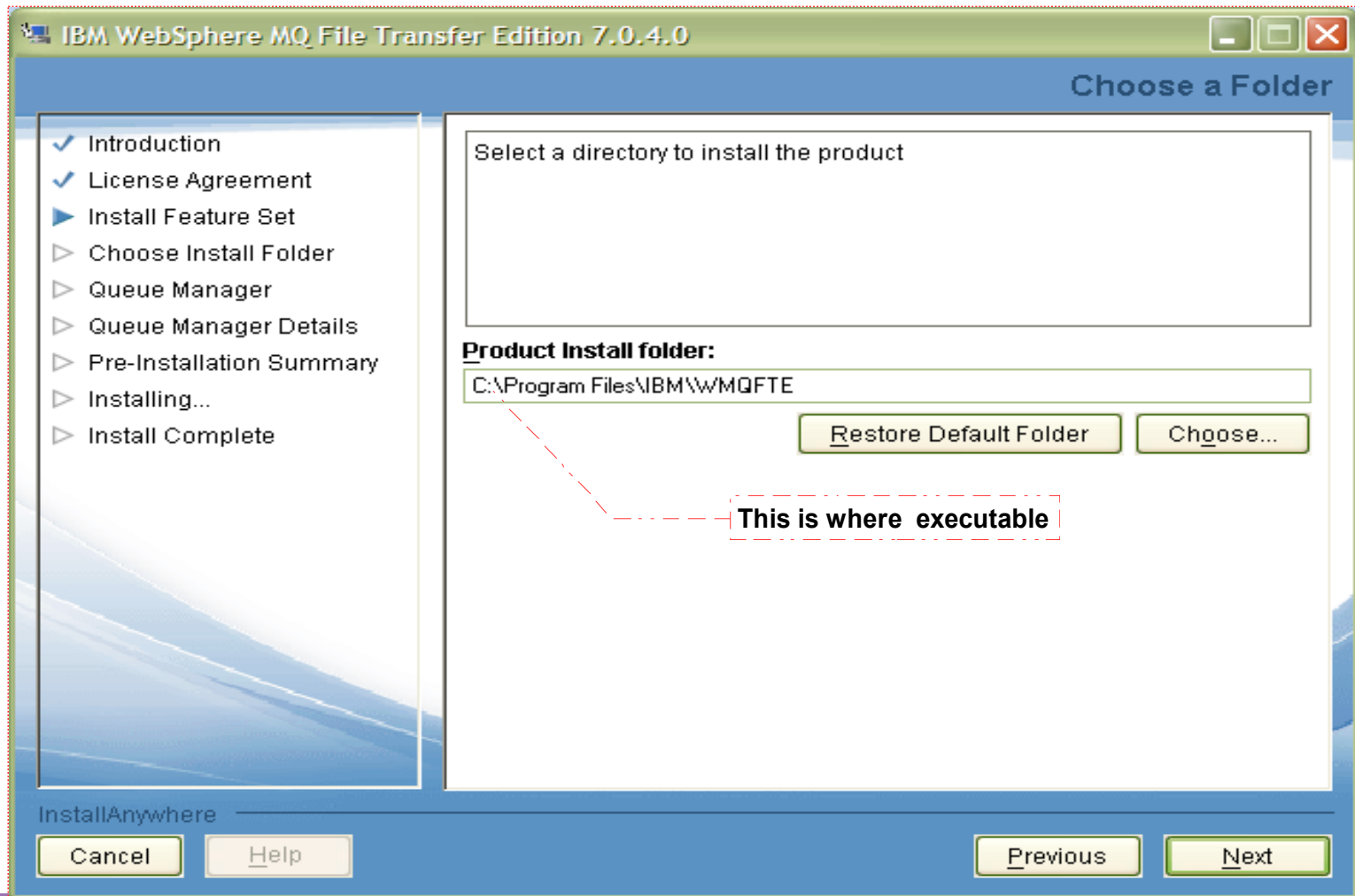


- Make sure you have Websphere MQ installed on that system.
- For this presentation, using MQ V7.0.1.6 (latest fix pack)
- Have a Queue Manager created here we have create a QM called **QM_FTE**

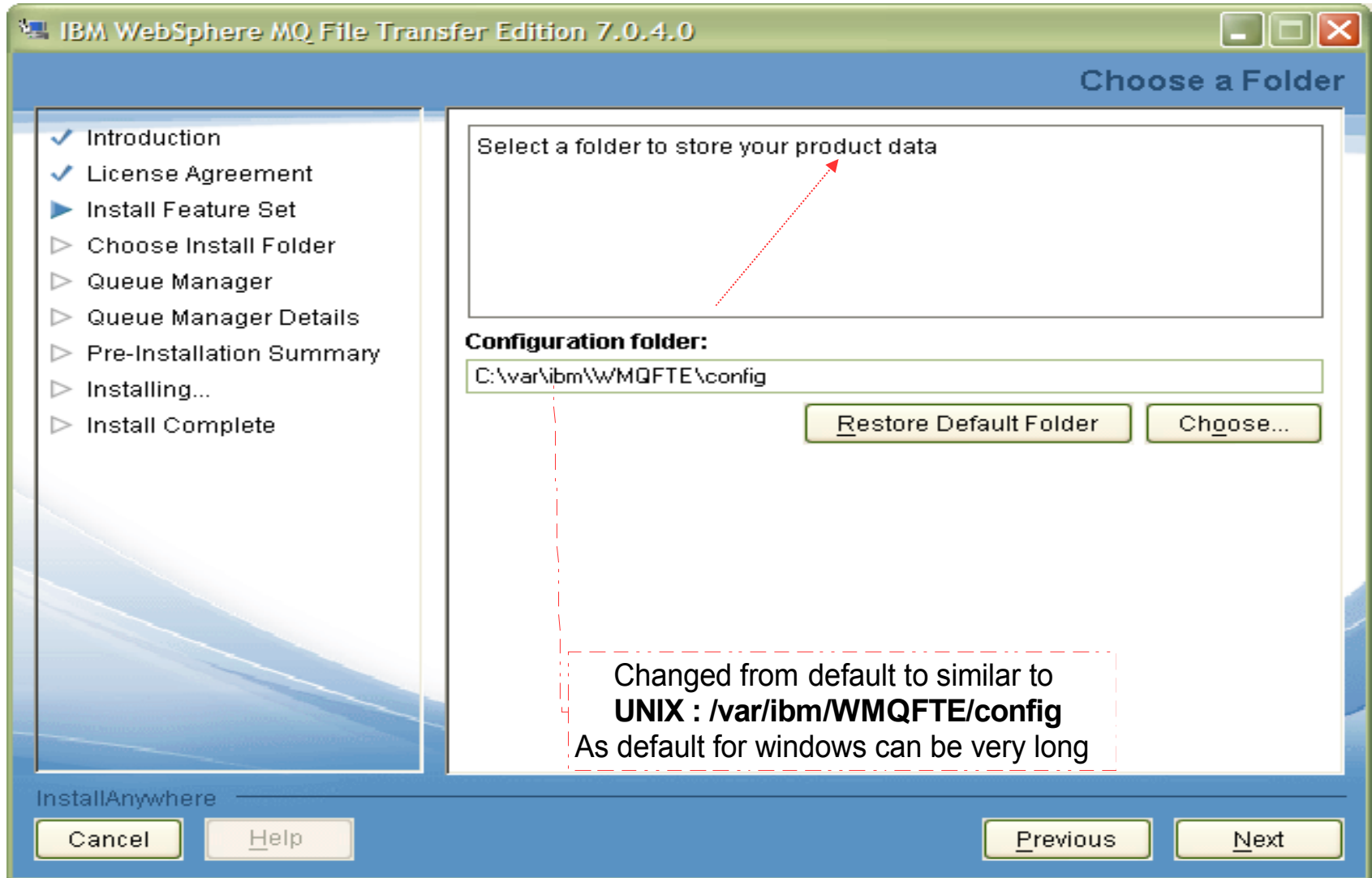


- If you need help above setup review **Quick Beginning guide** here :
(http://publib.boulder.ibm.com/infocenter/wmqv7/v7r0/topic/com.ibm.mq.amqtac.doc/wq10920_.htm)

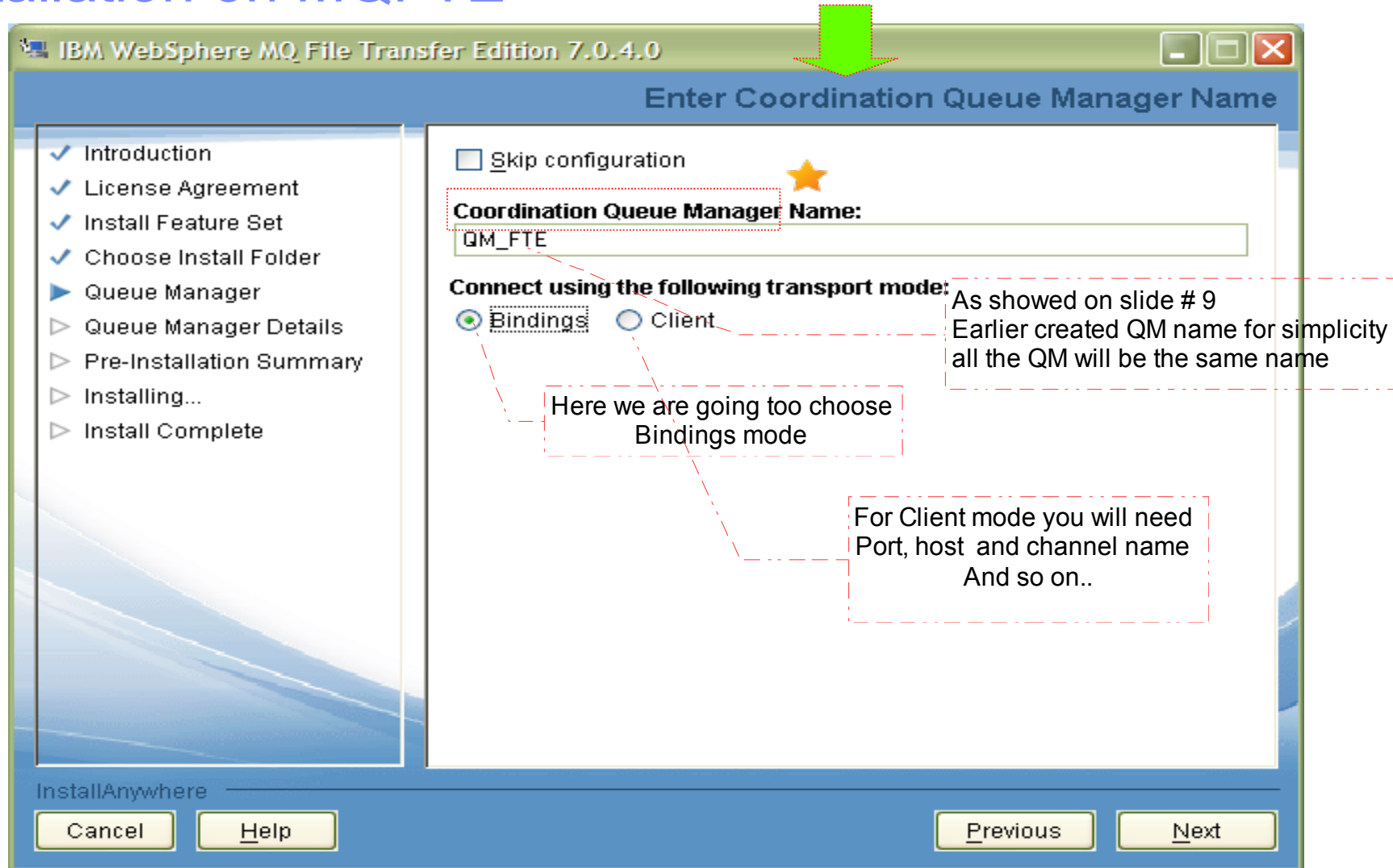
Installation on MQFTE (After accepting Licence agreement and other basic steps)



Installation on MQFTE



Installation on MQFTE



Installation on MQFTE

IBM WebSphere MQ File Transfer Edition 7.0.4.0

Enter agent queue manager details

- ✓ Introduction
- ✓ License Agreement
- ✓ Install Feature Set
- ✓ Choose Install Folder
- ▶ Queue Manager
- ▶ Queue Manager Details
- ▶ Pre-Installation Summary
- ▶ Installing...
- ▶ Install Complete

Enter the name of your agent:
FTE_AGENT

Agent description:
FTE Agent

Enter the agent's queue manager name:
QM_FTE

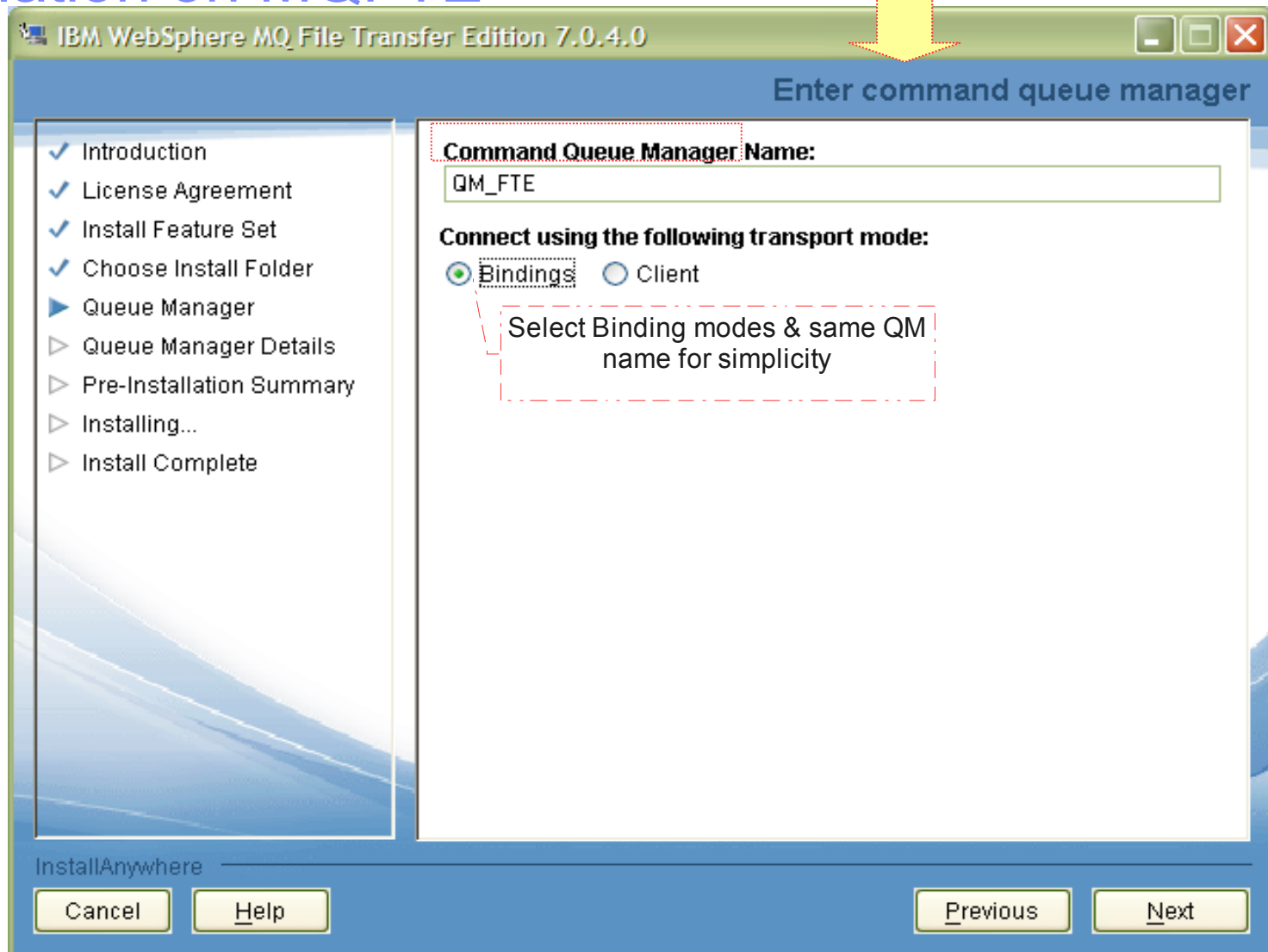
Connect using the following transport mode:
☒ Bindings ☐ Client

Here we are going too choose Bindings mode

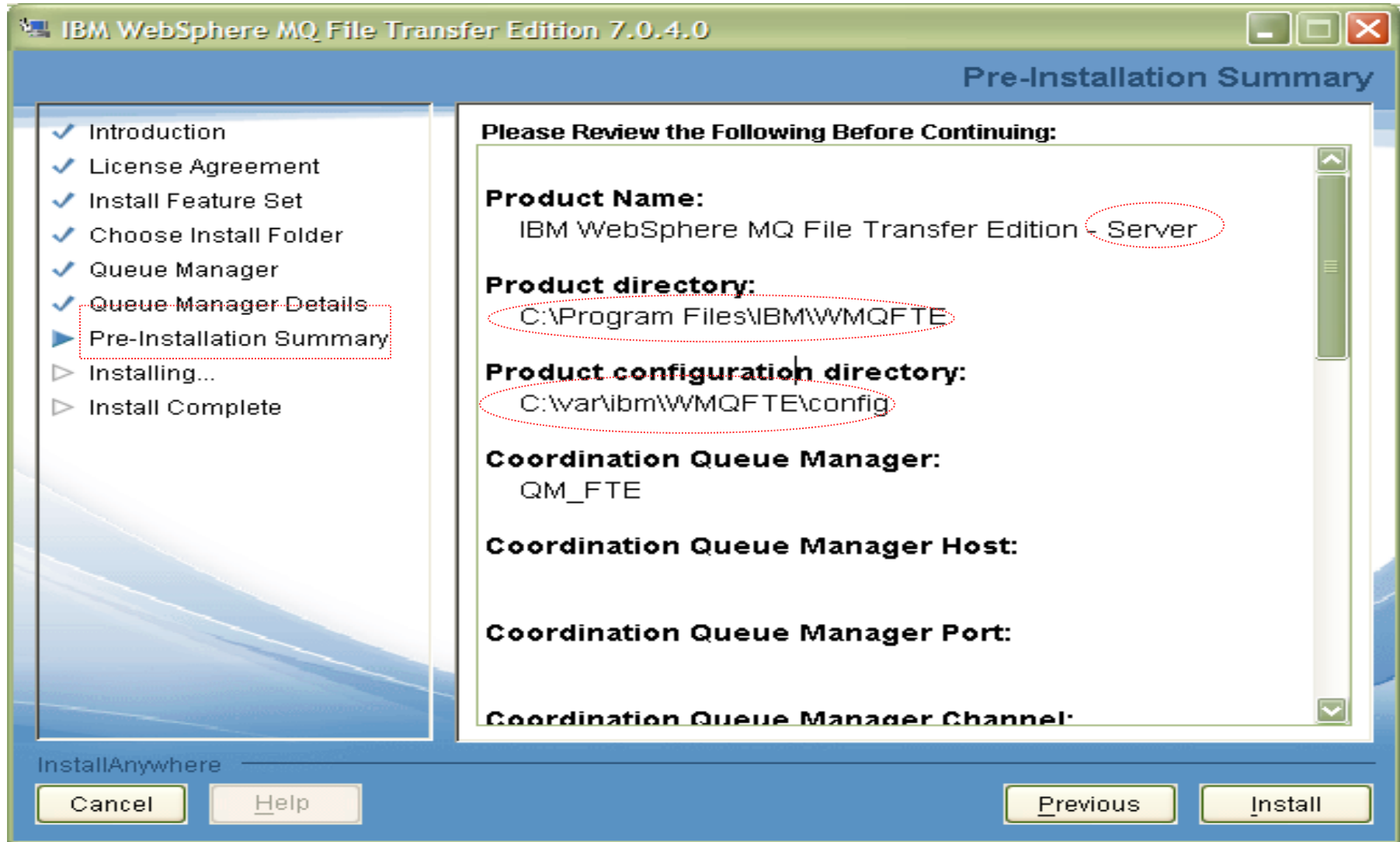
InstallAnywhere

Cancel Help Previous Next

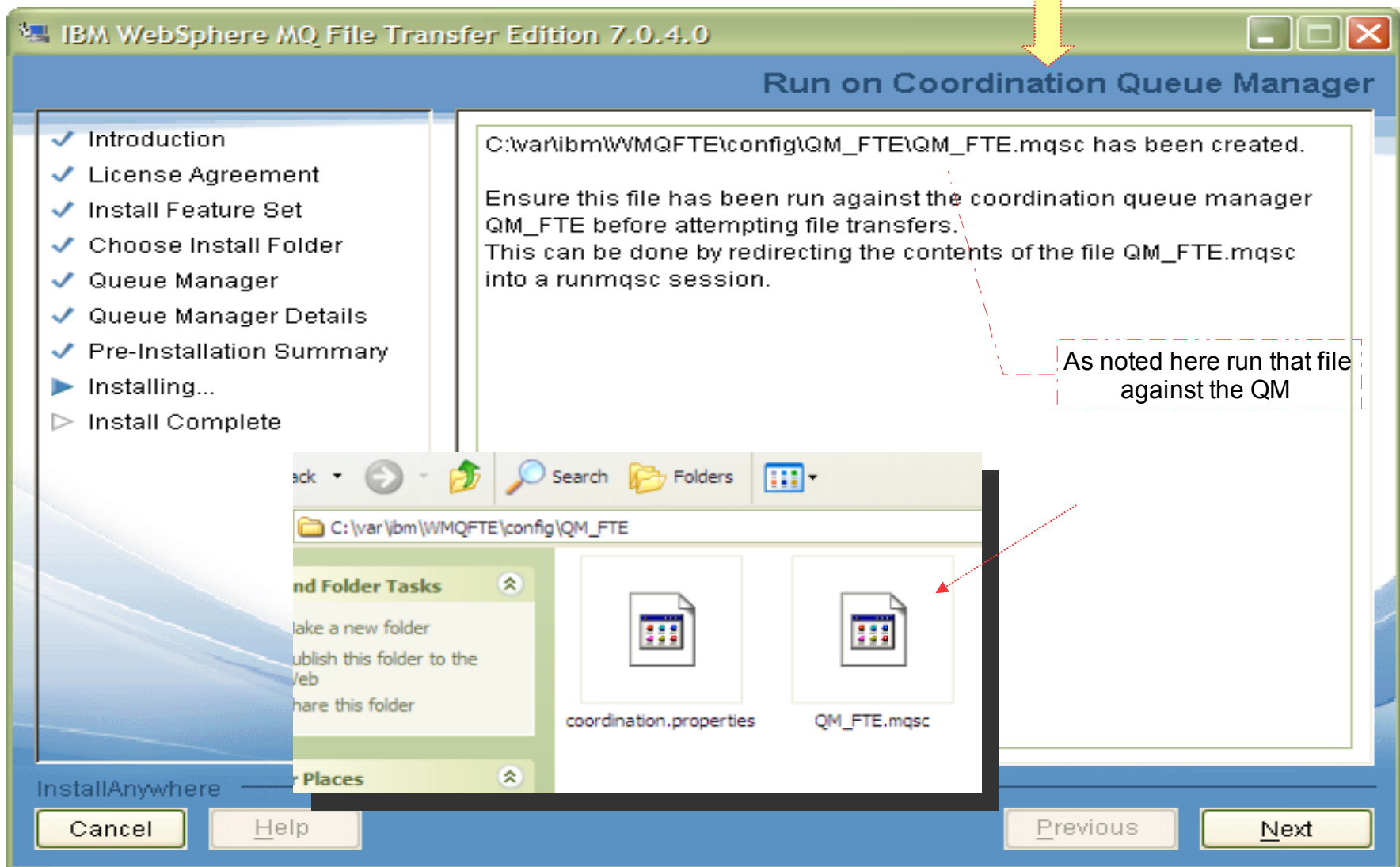
Installation on MQFTE




Installation on MQFTE

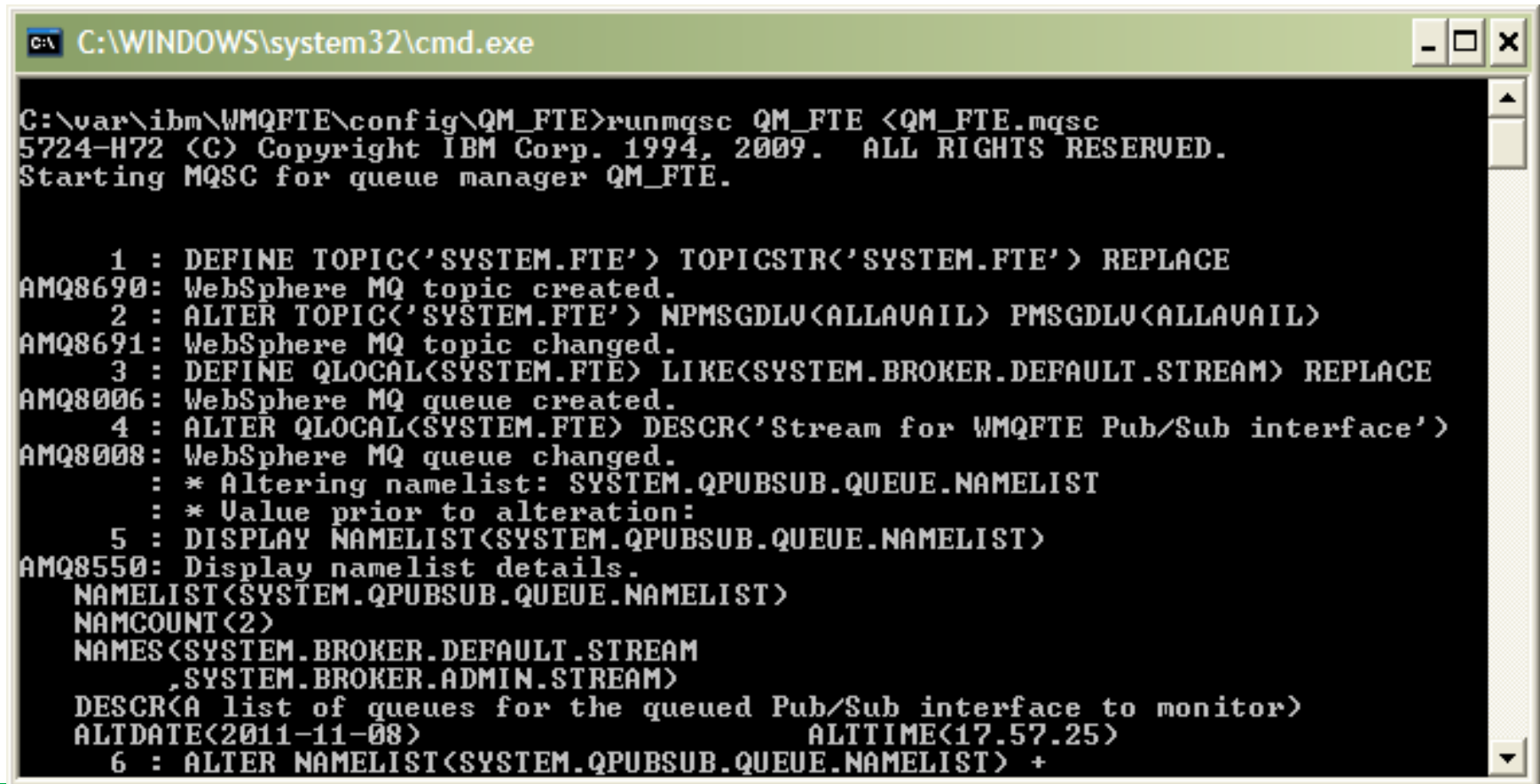


Installation on MQFTE



Installation on MQFTE

- As showed below running:
runmqsc QM_FTE < QM_FTE.mqsc 

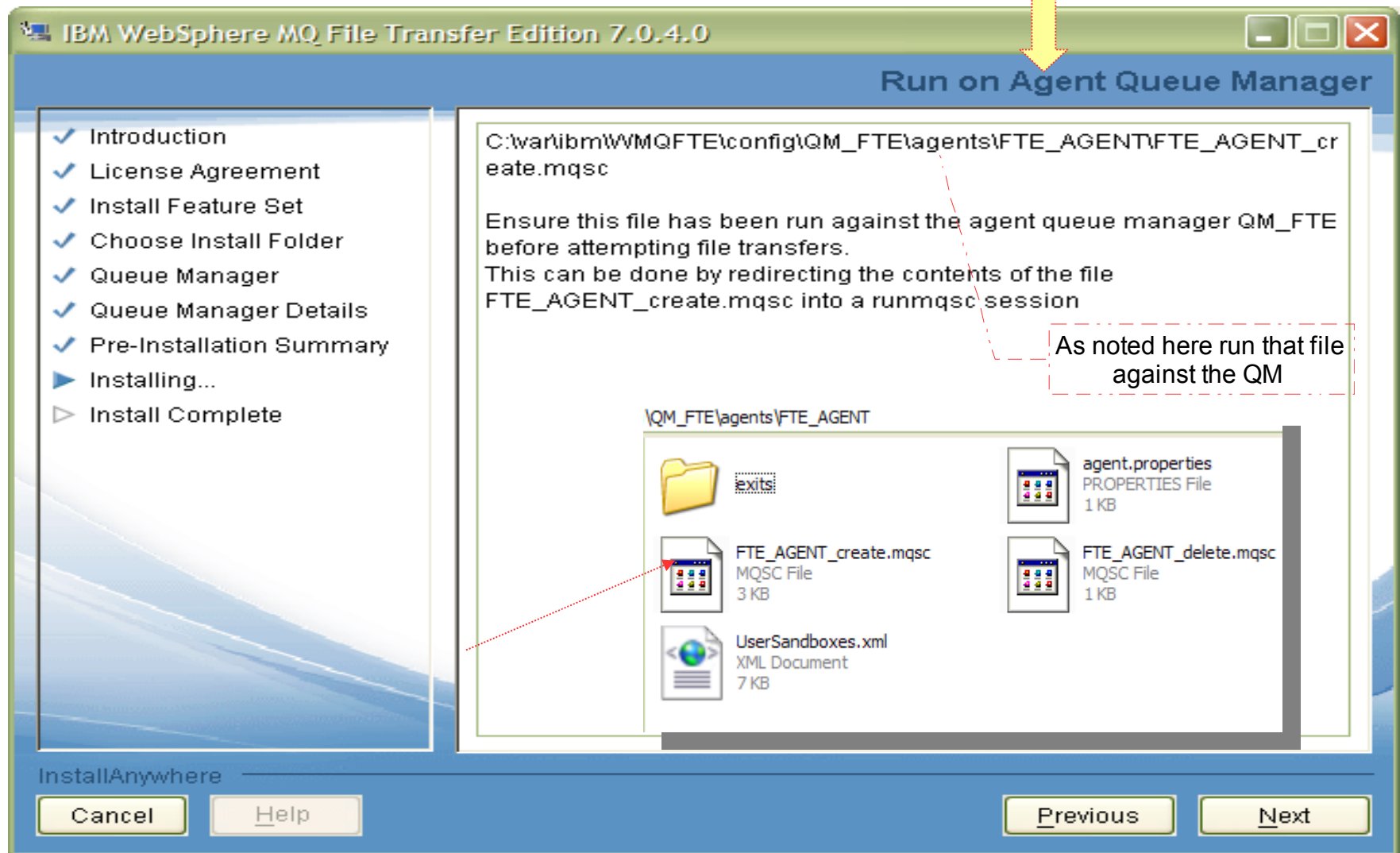


```
C:\WINDOWS\system32\cmd.exe

C:\var\ibm\WMQFTE\config\QM_FTE>runmqsc QM_FTE <QM_FTE.mqsc
5724-H72 (C) Copyright IBM Corp. 1994, 2009.  ALL RIGHTS RESERVED.
Starting MQSC for queue manager QM_FTE.

1 : DEFINE TOPIC('SYSTEM.FTE') TOPICSTR('SYSTEM.FTE') REPLACE
AMQ8690: WebSphere MQ topic created.
2 : ALTER TOPIC('SYSTEM.FTE') NPMMSGDLV(ALLAVAIL) PMSGDLV(ALLAVAIL)
AMQ8691: WebSphere MQ topic changed.
3 : DEFINE QLOCAL(SYSTEM.FTE) LIKE(SYSTEM.BROKER.DEFAULT.STREAM) REPLACE
AMQ8006: WebSphere MQ queue created.
4 : ALTER QLOCAL(SYSTEM.FTE) DESCR('Stream for WMQFTE Pub/Sub interface')
AMQ8008: WebSphere MQ queue changed.
       * Altering namelist: SYSTEM.QPUBSUB.QUEUE.NAMELIST
       * Value prior to alteration:
5 : DISPLAY NAMELIST(SYSTEM.QPUBSUB.QUEUE.NAMELIST)
AMQ8550: Display namelist details.
NAMELIST(SYSTEM.QPUBSUB.QUEUE.NAMELIST)
NAMCOUNT(2)
NAMES(SYSTEM.BROKER.DEFAULT.STREAM
      ,SYSTEM.BROKER.ADMIN.STREAM)
DESCR(A list of queues for the queued Pub/Sub interface to monitor)
ALTDATE(2011-11-08)                ALTIME(17.57.25)
6 : ALTER NAMELIST(SYSTEM.QPUBSUB.QUEUE.NAMELIST) +
```

Installation on MQFTE



Installation on MQFTE

- As showed below running:
`runmqsc QM_FTE < FTE_AGENT_create.mqsc`

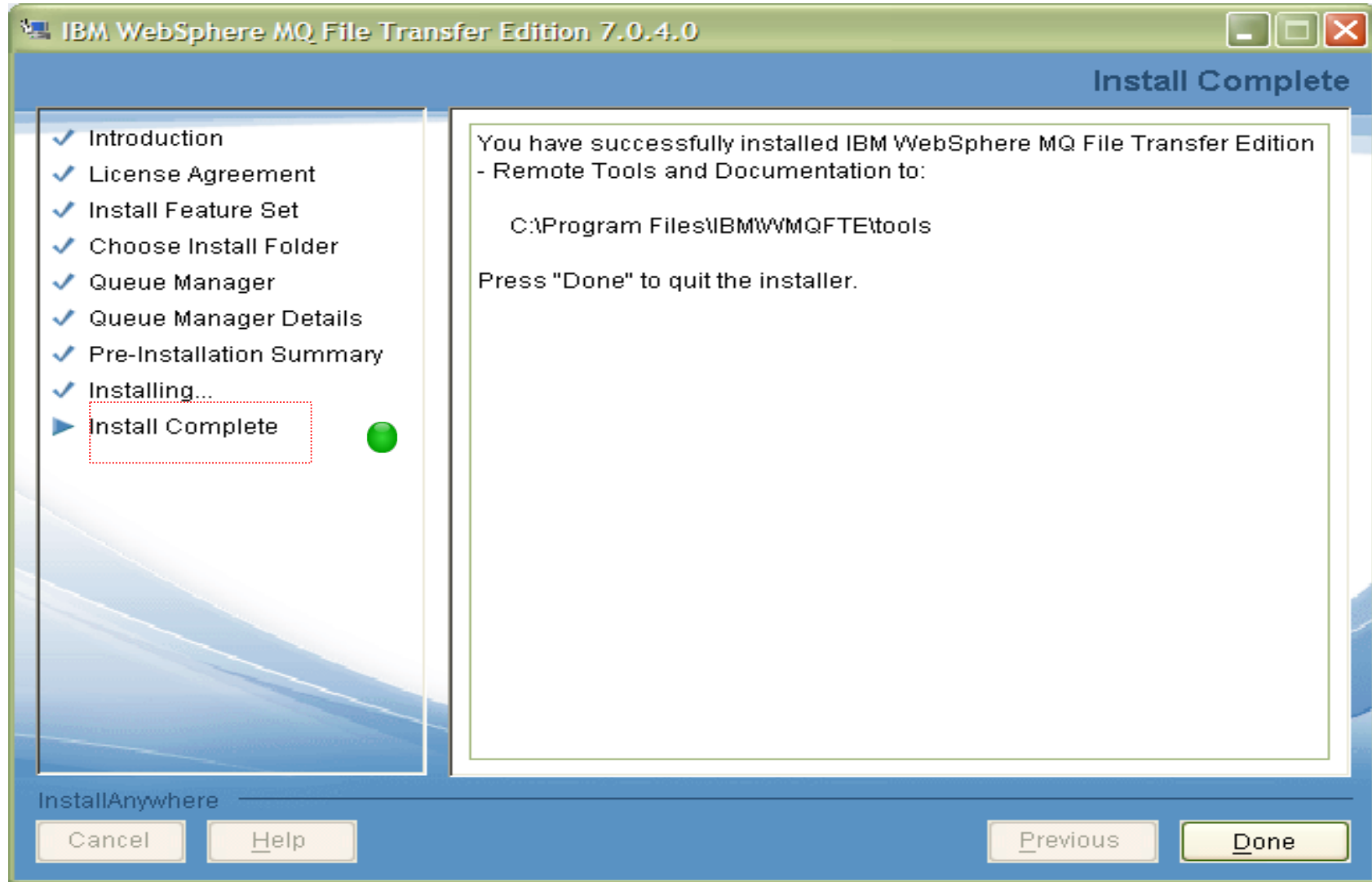


```
C:\WINDOWS\system32\cmd.exe

C:\var\ibm\WMQFTE\config\QM_FTE\agents\FTE_AGENT>runmqsc QM_FTE <FTE_AGENT_create.mqsc
5724-H72 (C) Copyright IBM Corp. 1994, 2009.  ALL RIGHTS RESERVED.
Starting MQSC for queue manager QM_FTE.

      1 : DEFINE QLOCAL<SYSTEM.FTE.COMMAND.FTE_AGENT> +
      :   DEFPRTY<0> +
      :   DEFSOPT<SHARED> +
      :   GET<ENABLED> +
      :   MAXDEPTH<5000> +
      :   MAXMSGL<4194304> +
      :   MSGDLUSQ<PRIORITY> +
      :   PUT<ENABLED> +
      :   RETINTVL<999999999> +
      :   SHARE +
      :   NOTRIGGER +
      :   USAGE<NORMAL> +
      :   REPLACE
AMQ8006: WebSphere MQ queue created.
      2 : DEFINE QLOCAL<SYSTEM.FTE.DATA.FTE_AGENT> +
      :   DEFPRTY<0> +
      :   DEFSOPT<SHARED> +
      :   GET<ENABLED> +
```

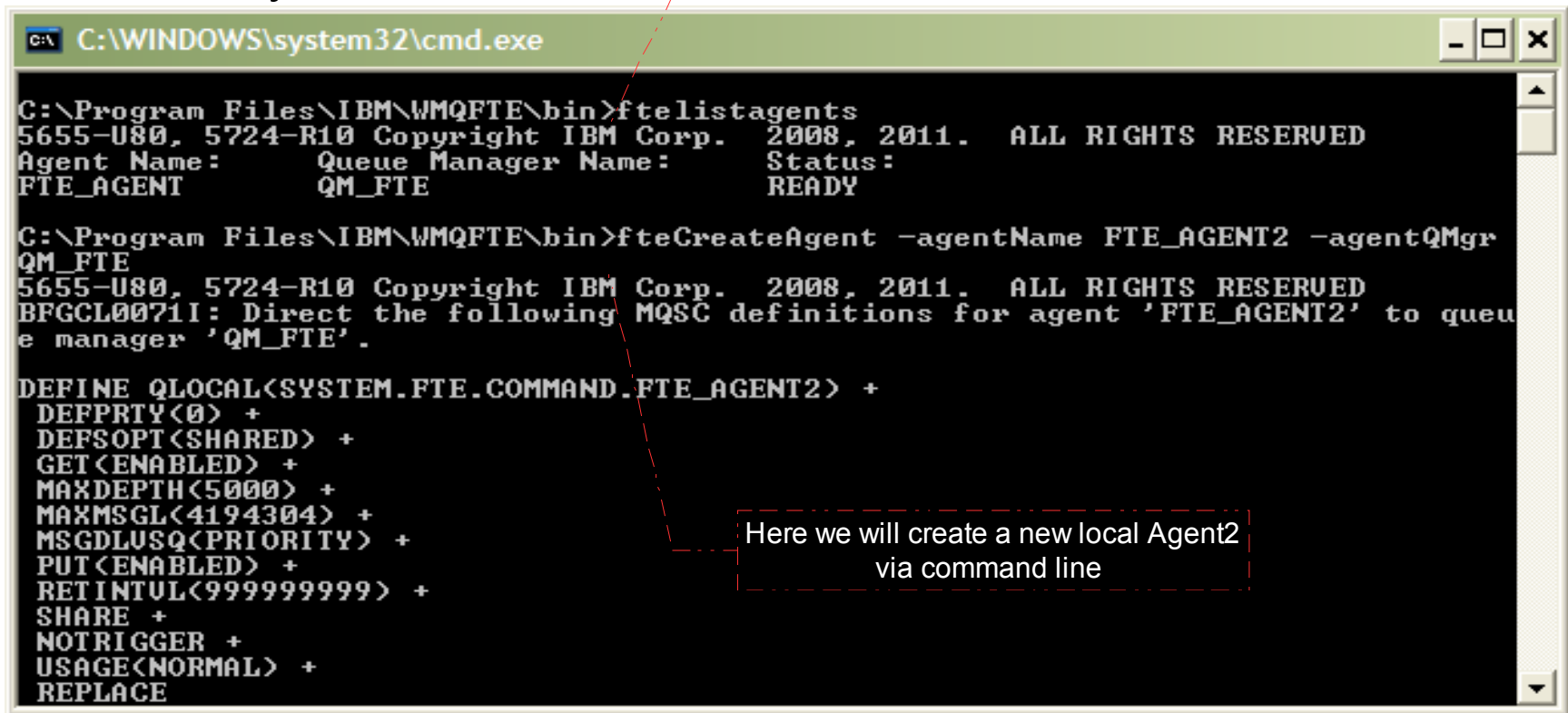
Installation on MQFTE



This is where mqfte commands can be run

Createing MQFTE Agents (fteCreateAgent)

- Let's create one more agent name :FTE_AGENT2 via command line as initially noted on slide # 13 which was created via GUI



```
C:\WINDOWS\system32\cmd.exe

C:\Program Files\IBM\WMQFTE\bin>ftelistagents
5655-U80, 5724-R10 Copyright IBM Corp. 2008, 2011. ALL RIGHTS RESERVED
Agent Name:      Queue Manager Name:      Status:
FTE_AGENT        QM_FTE                                READY

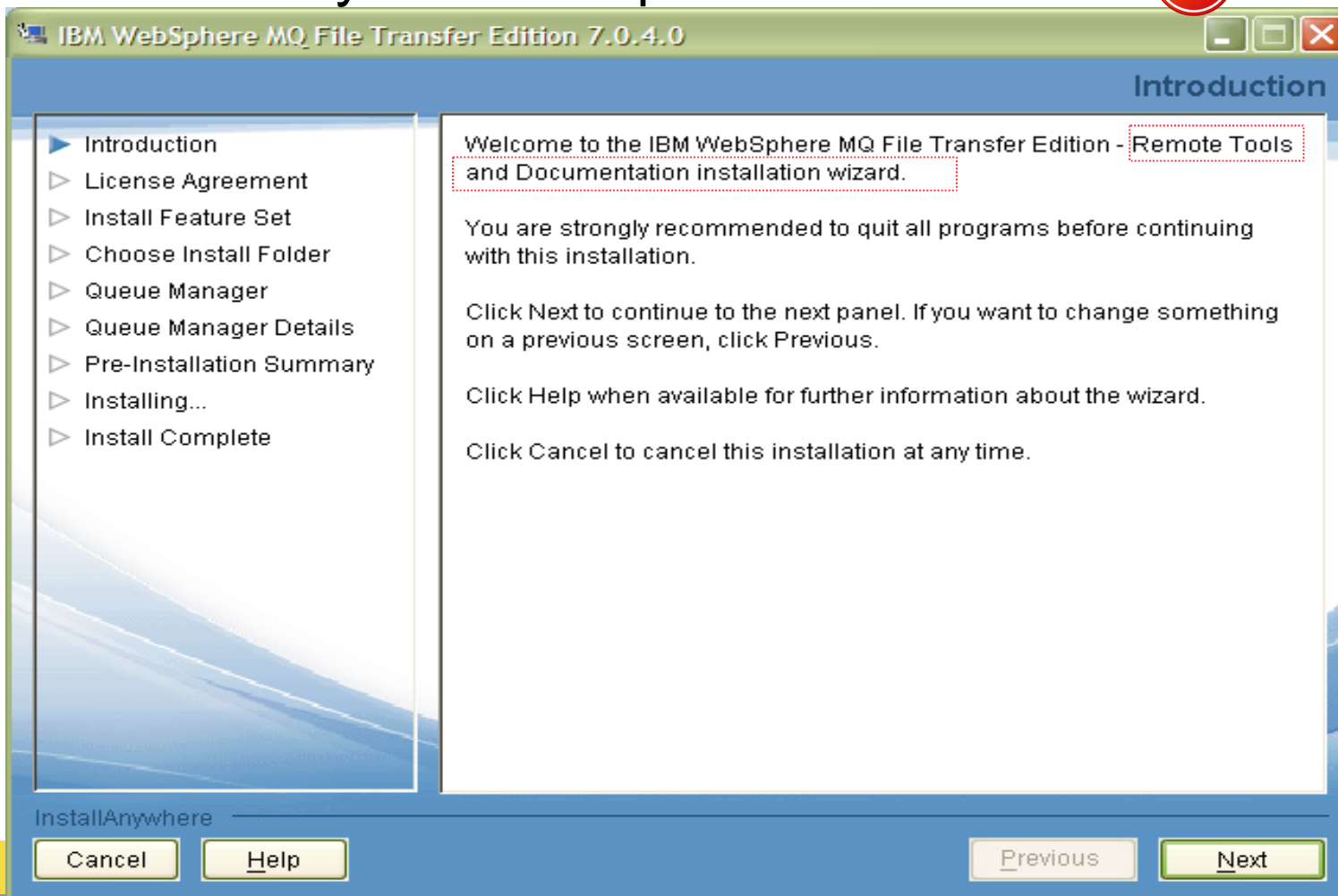
C:\Program Files\IBM\WMQFTE\bin>fteCreateAgent -agentName FTE_AGENT2 -agentQMGr
QM_FTE
5655-U80, 5724-R10 Copyright IBM Corp. 2008, 2011. ALL RIGHTS RESERVED
BFGCL0071I: Direct the following MQSC definitions for agent 'FTE_AGENT2' to queu
e manager 'QM_FTE'.

DEFINE QLOCAL<SYSTEM.FTE.COMMAND.FTE_AGENT2> +
  DEFPRTY<0> +
  DEFSOPT<SHARED> +
  GET<ENABLED> +
  MAXDEPTH<5000> +
  MAXMSGL<4194304> +
  MSGDLUSQ<PRIORITY> +
  PUT<ENABLED> +
  RETINTVL<999999999> +
  SHARE +
  NOTRIGGER +
  USAGE<NORMAL> +
  REPLACE
```

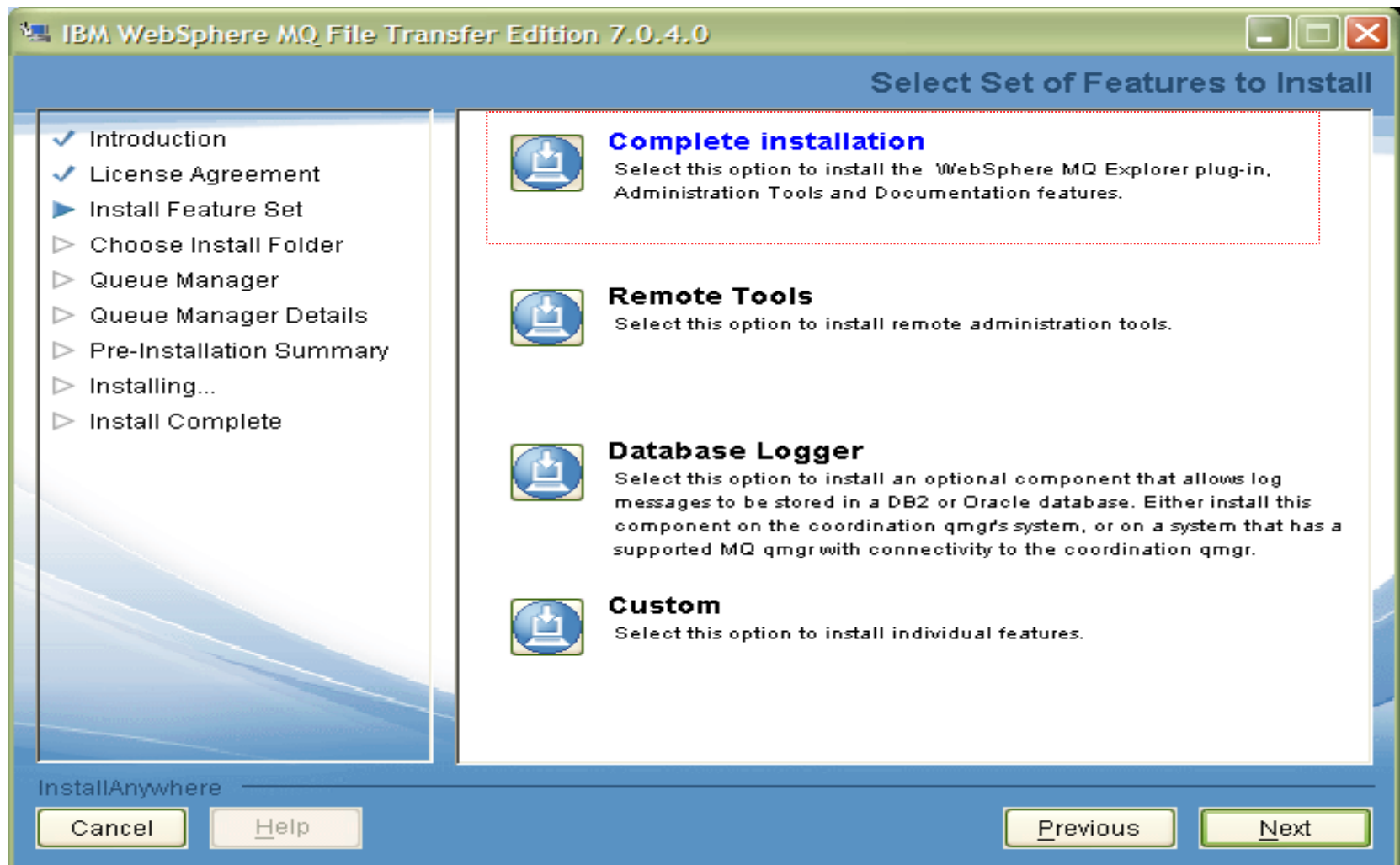
Here we will create a new local Agent2 via command line

Installing Plug-in for MQ Explorer = Remote Tools and Documentation (CZXV9ML for windows)

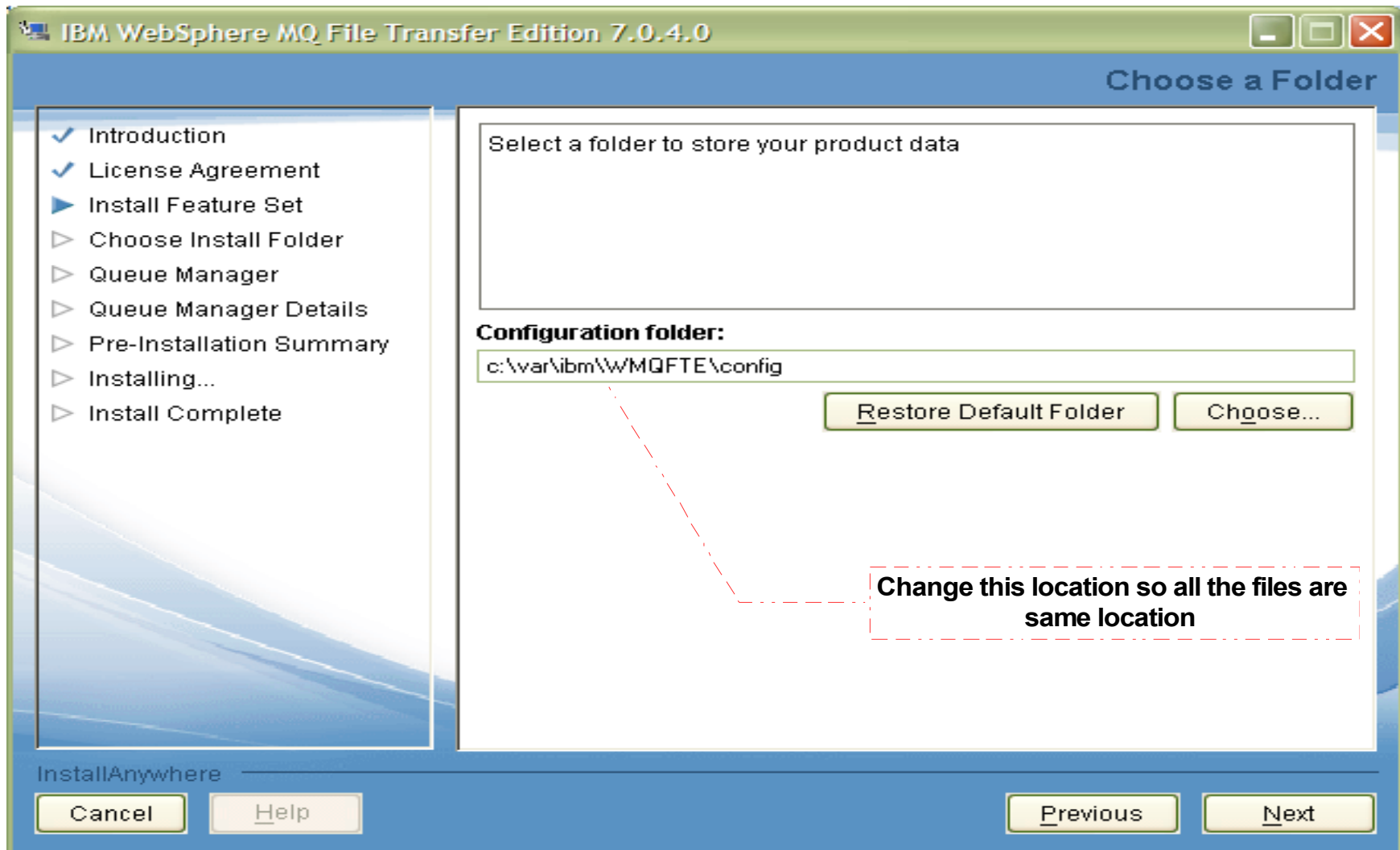
- Make sure your MQ Explorer is turned off



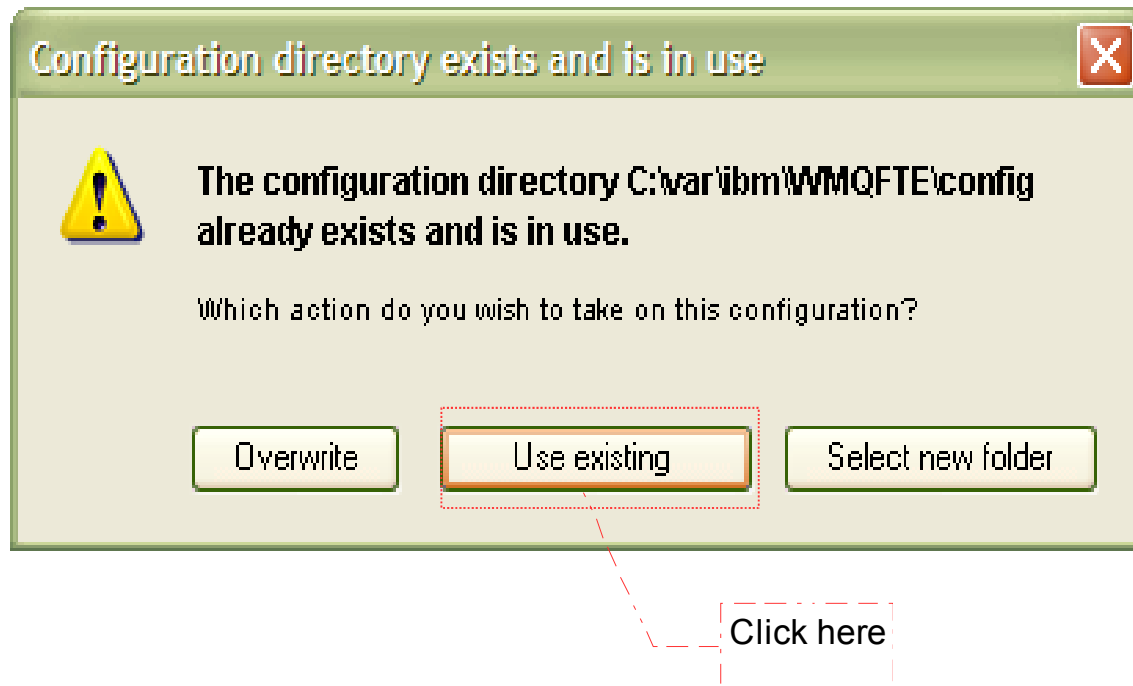
Installing Remote Tools and Documentation



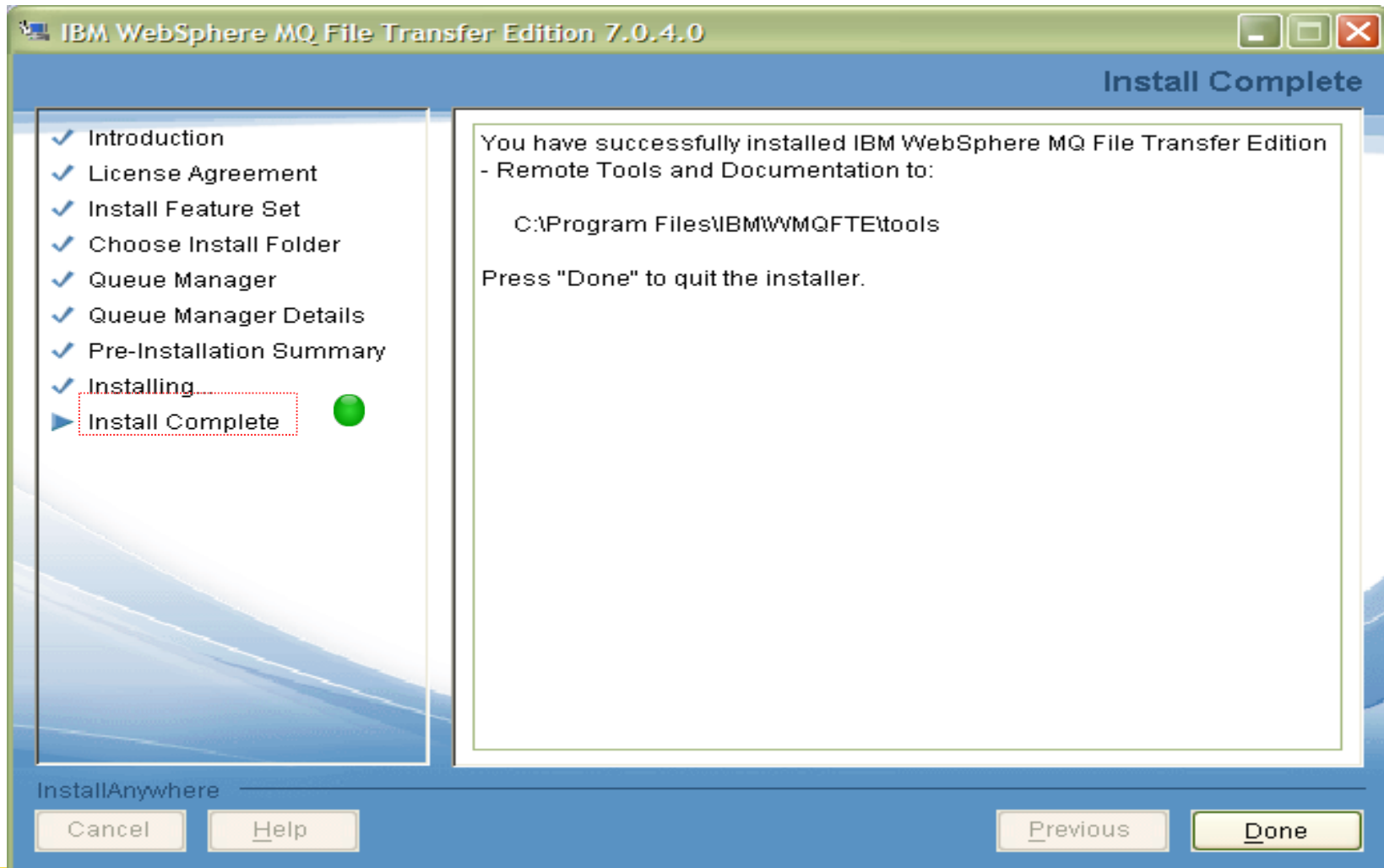
Installing Remote Tools and Documentation



Installing Remote Tools and Documentation



Installing Remote Tools and Documentation (After skipping basic steps)



MQ Explorer after install of Remote Tools

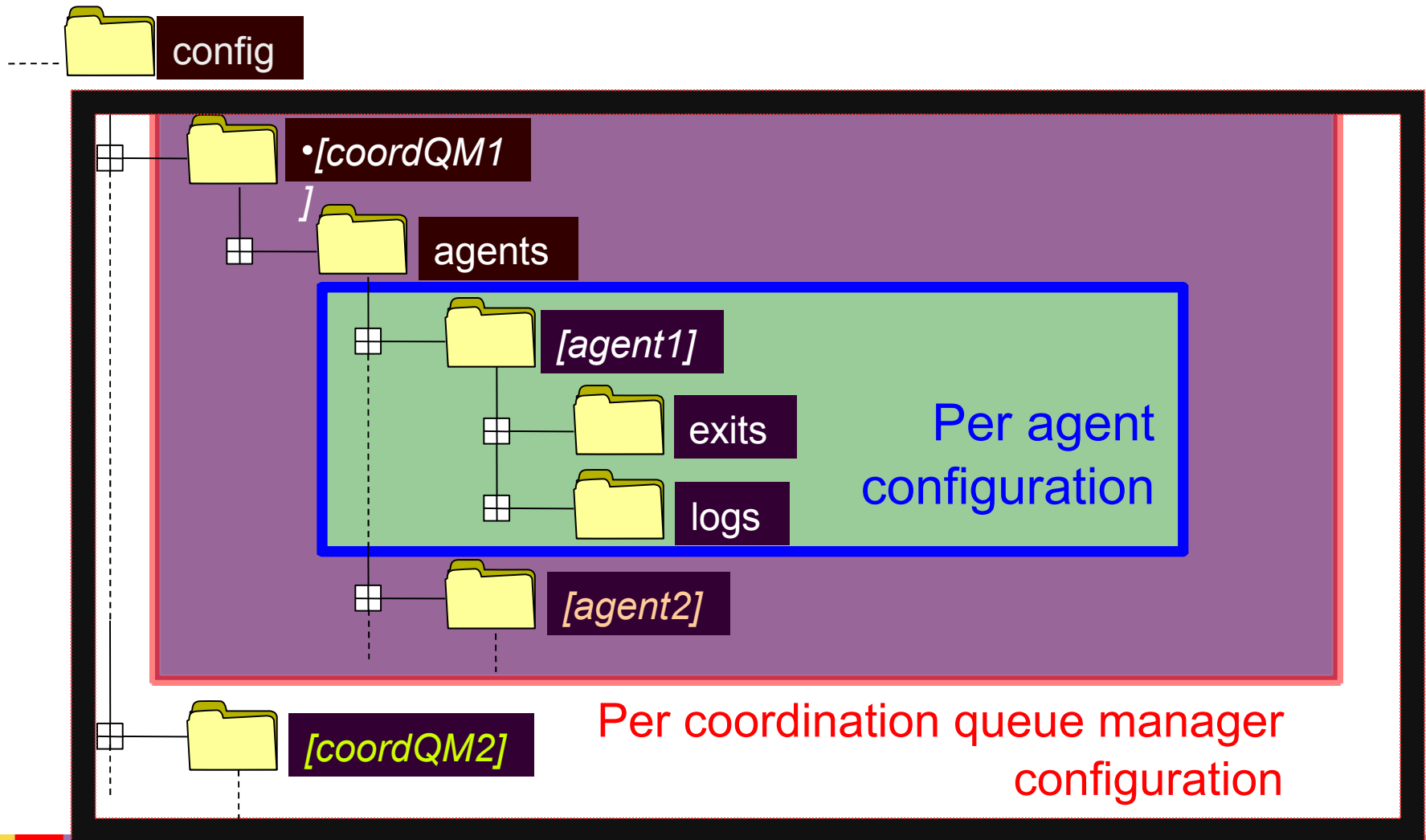
The screenshot displays the IBM WebSphere MQ Explorer interface. The left pane shows the navigation tree with 'Managed File Transfer' selected. The main pane shows the 'Managed File Transfer Central' page, which includes a list of features: Moving files between IT systems reliably and securely regardless of their size, Robustness and resilience to failures, Logging of file movements for audit purposes, Automating all aspects of transfers and eliminating the need to manually detect transfer problems, and Scheduling of transfers.

A red dashed box highlights the 'Managed File Transfer' folder in the navigation tree and the 'Managed File Transfer Central' page. A red arrow points to the 'Agents' table in the bottom right pane, which lists the newly created FTE agents.

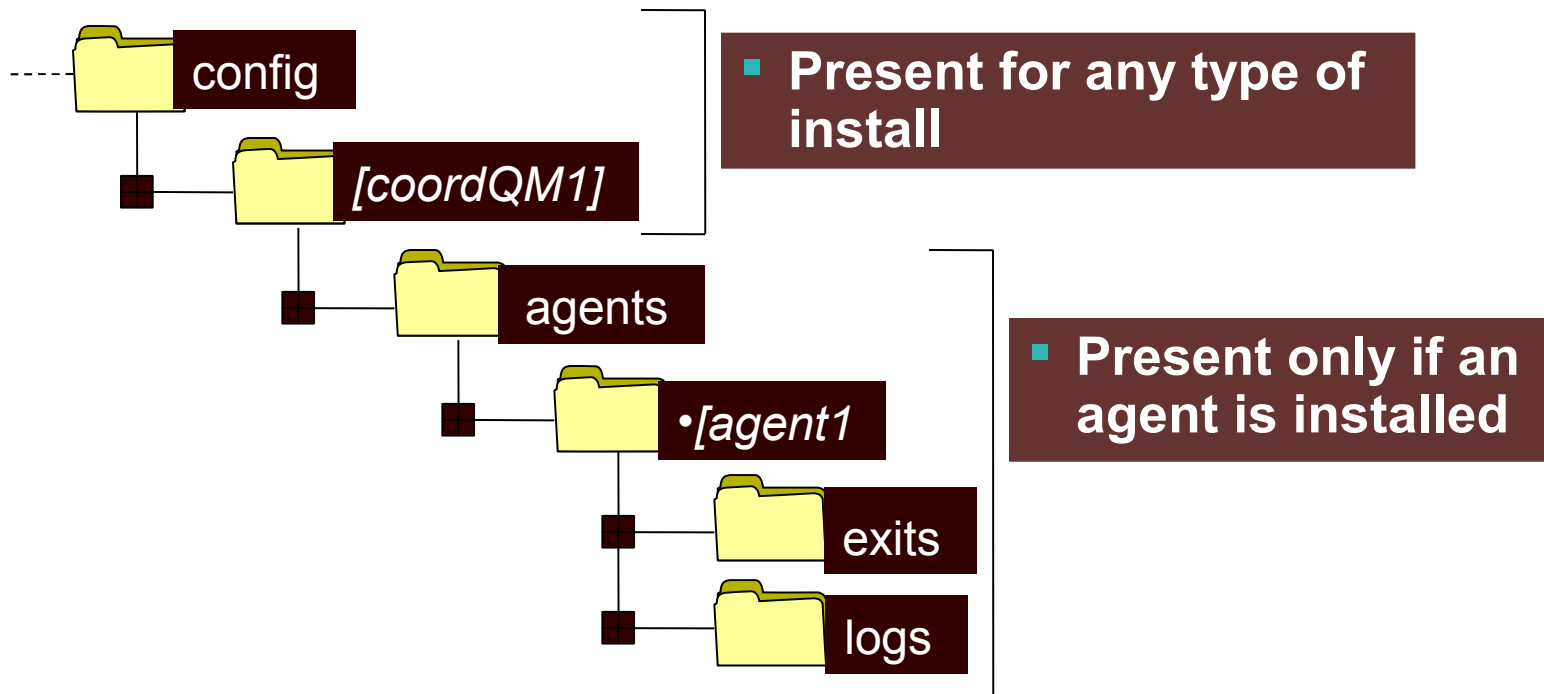
Newly created FTE on Explorer

Name	Description	Status	Source transfer	Destination transfer
FTE_AGENT	FTE Agent	Ready	0	0
FTE_AGENT2	FTE Agent	Ready	0	0

Configuration Directory Structure

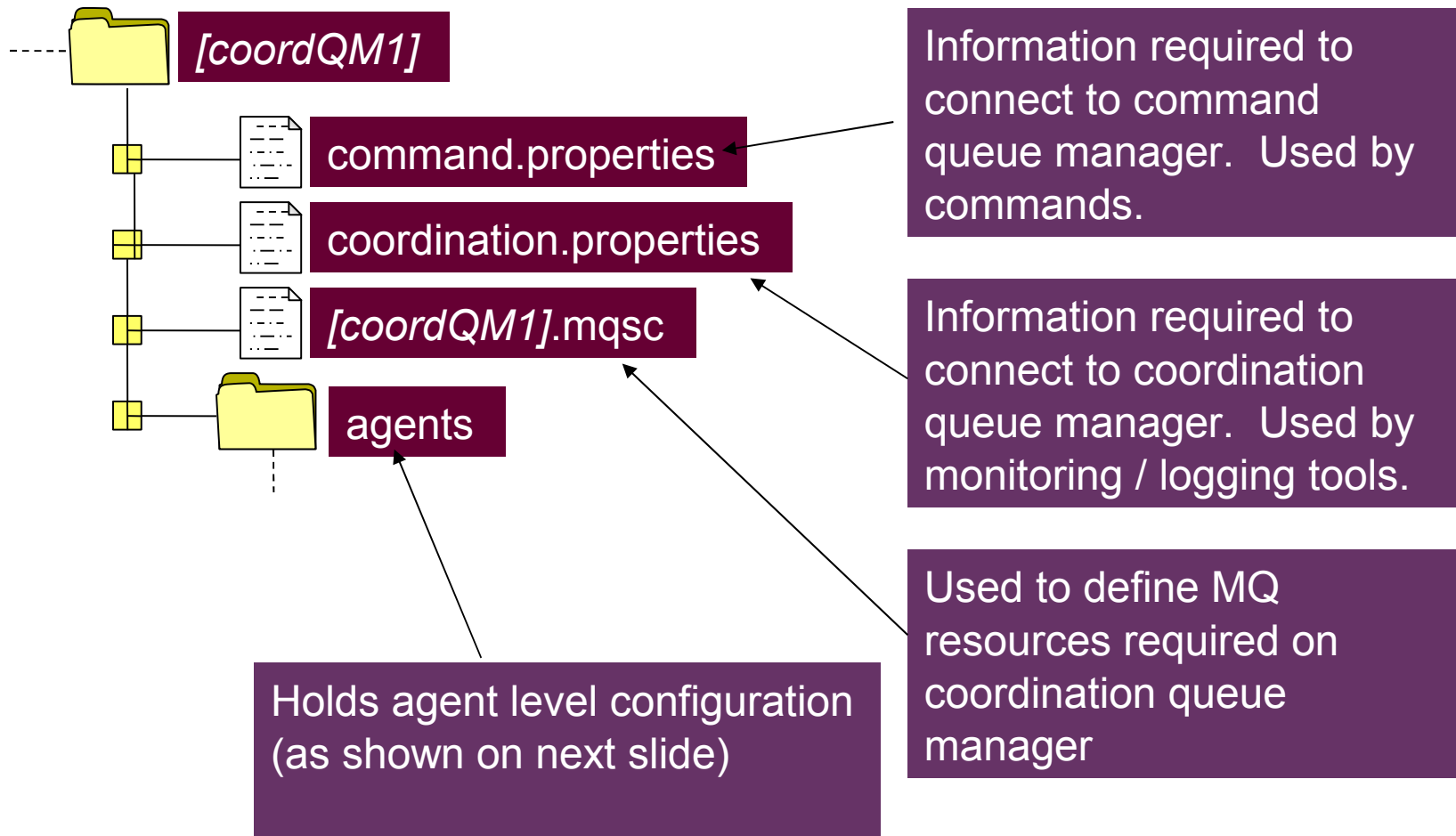


Configuration Directory Structure

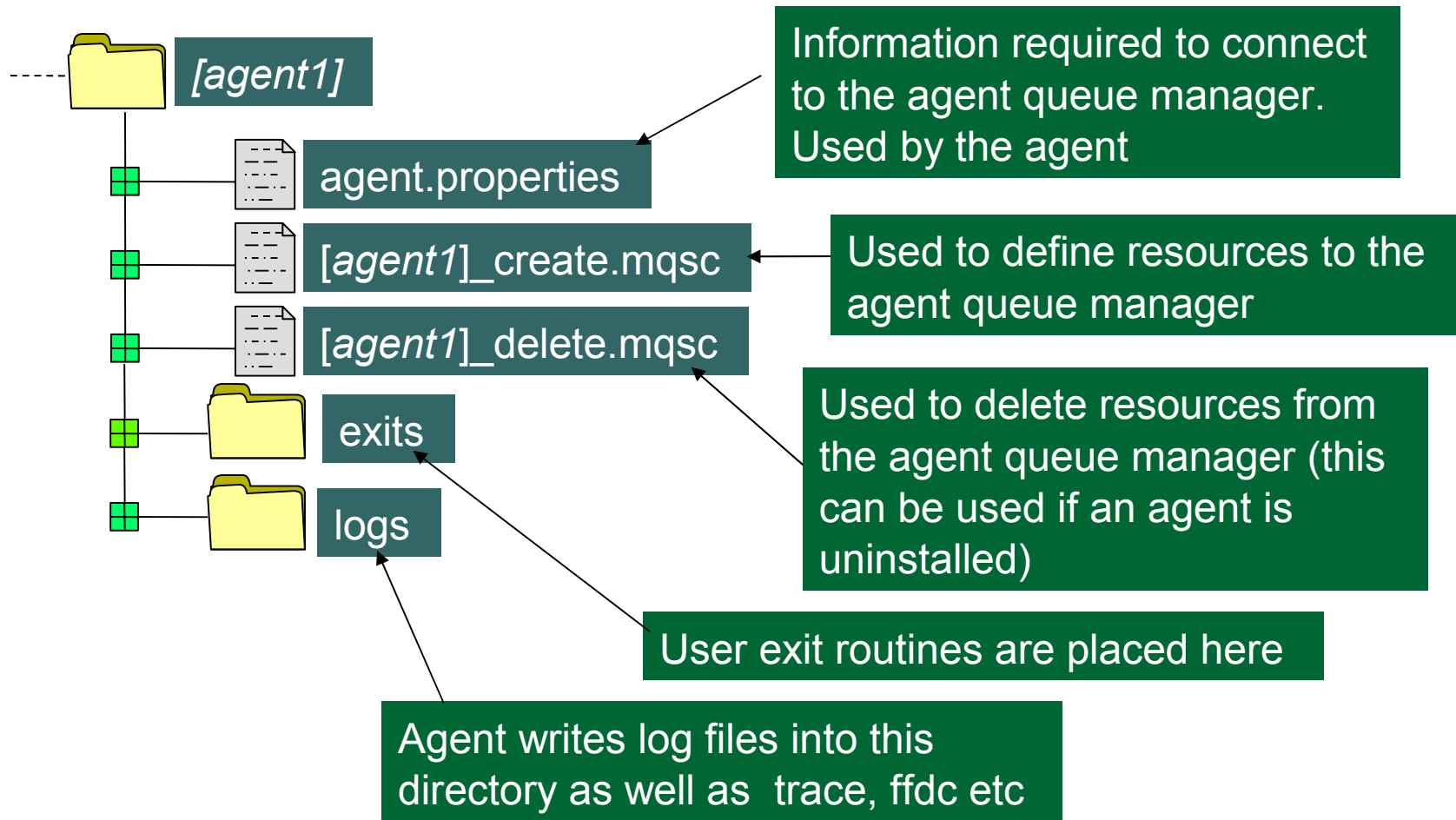


- Typically only a single agent (or a single set of commands) would be present on a system

Coordination Level Configuration

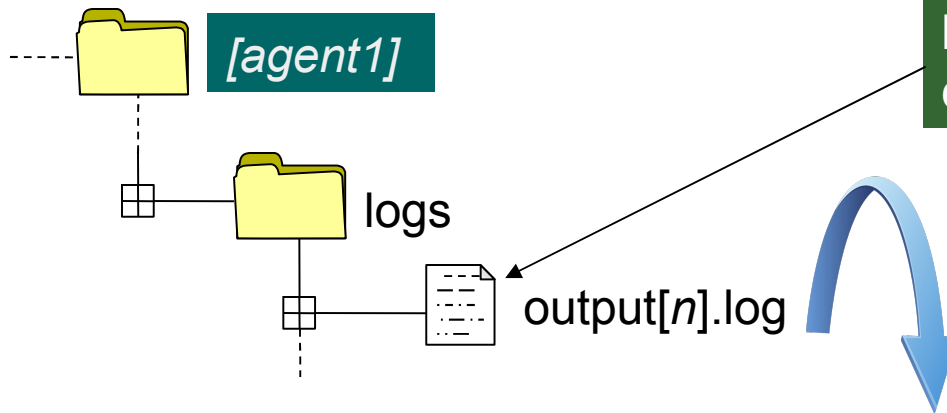


Agent Level Configuration



Agent Level Configuration

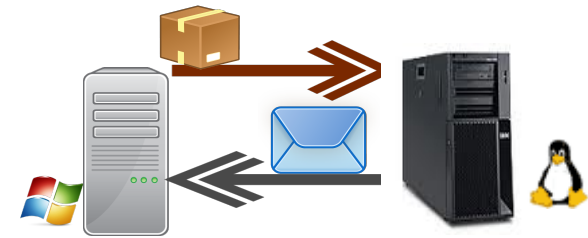
Each agent writes a wrapping sequence of log files that can be used for problem determination



```

O ***** Start Display Current Environment ***** O
O Build level: V7.0.4 f000-704-GM7-20110511-1307 O
O Java runtime version: O
O JRE 1.6.0 IBM J9 2.4 Windows XP x86-32 jvmwi3260sr9-20101124_69295 (JIT enabled, AOT enabled) O
O ..... O
O Properties: O
O agentDesc=, agentName=FTE_AGENT, agentQMgr=QM_FTE, coordinationQMgr=QM_FTE, transferRoot= O
O com.ibm.wmqfte.product.root=C:\Program Files\IBM\WMQFTE O
O com.ibm.wmqfte.product.config=C:\var\ibm\WMQFTE\config O
O WebSphere MQ Components: O
O Common Services for Java Platform, Standard Edition / 7.0.1.4 / k701-104-110104 O
O ***** End Display Current Environment ***** O
O [22/11/2011 12:55:59:546 EST] 00000001 Agent I BFGAG0115I: Relative path transfer root directory: C: O
O [22/11/2011 12:55:59:734 EST] 00000001 Agent W BFGAG0125W: The maximum size to which the java heap O
O [22/11/2011 12:55:59:734 EST] 00000001 AgentRuntime I BFGAG0058I: The agent has successfully initialized. O
O [22/11/2011 12:56:00:703 EST] 00000001 AgentRuntime I BFGAG0059I: The agent has been successfully started. O
  
```

Transfer a file to another Box



- Install MQFTE code as noted earlier on slide # 8 on this linux box and skip configuration steps we will do that in step # 3 .
- Here there will be 4 sections for this setup
- **Setup # 1** : Install/Setup of linux box showing on MQ explorer on windows side
- **Setup # 2** : Setup Communication among both boxes (Windows & Linux)
- **Setup # 3** : MQFTE setup on linux box point to windows box via command line and view agents
- **Setup # 4** : A simple transfer of files and review logs



Notes: Step # 1

notes

- Assume this Linux box has MQ code installed and we will do further configuration below:

1) Create a queue manager :

```
Linuxbox #> crtmqm QM_FTE_LINUX
```

2) Start Queue manager:

```
Linuxbox #> strmqm QM_FTE_LINUX
```

3) Start Listener

```
Linuxbox #> runmqsc QM_FTE_LINUX
```

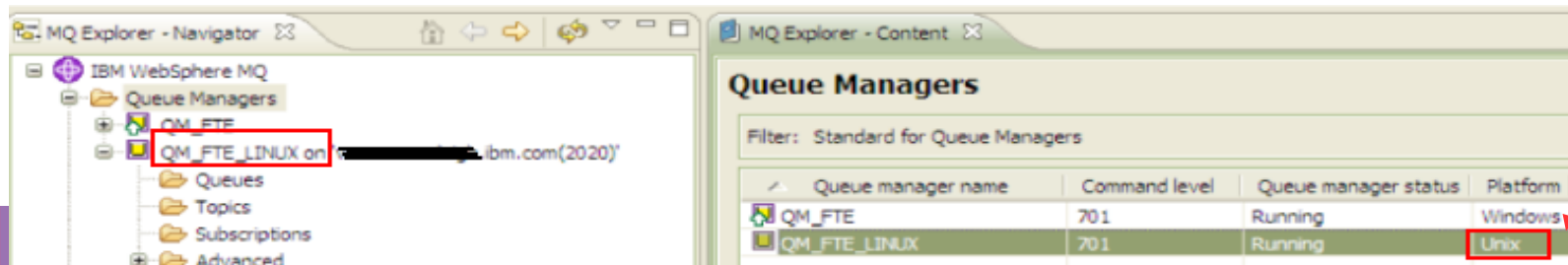
```
define listener(TCP.LISTENER) trptype(tcp) control(qmgr) port(2020)
start listener(TCP.LISTENER)
```

4) Add a SYSTEM.ADMIN.SVRCONN to communicate to MQ Explorer

```
Linuxbox #> runmqsc QM_FTE_LINUX
```

```
DEFINE CHANNEL(SYSTEM.ADMIN.SVRCONN) CHLTYPE(SVRCONN)
```

5) Now add from Windows MQ Explorer this new server by providing hostname & port and so on : and you can see this below:



Notes: Step # 2



- Have a two way communication (sender/receiver channel) between both Queue Managers:

1) Please follow **Techdoc: 1470997** for your configuration

<http://www.ibm.com/support/docview.wss?uid=swg21470997>

2) For this Linux box we will run this command in mqsc to create & start channel

```
define qlocal(QLNXTST)
define qlocal(QM_FTE) usage(xmitq)
define qremote(LWIN_LNX) rname(LWIN) rqmname(QM_FTE) xmitq (QM_FTE)
define channel(QM_FTE.LNX_FTE_TST) chltype(RCVR) trptype(TCP)
define channel(LNX_FTE_TST.QM_FTE) chltype(SDR) +
conname('windowsbox.xyz.ibm.com(1420)') +
xmitq(QM_FTE) trptype(TCP)
start channel(LNX_FTE_TST.QM_FTE)
```

3) Run similar commands on Windows side and start channels and then you can see:





Step #3 MQFTE Setup

1) Create a Co-ordination Queue Manager pointing to windows box: (as diagram showed in slide # 7)

```
bin> ./fteSetupCoordination -coordinationQMGr QM_FTE  
-coordinationQMGrHost windowsbox.xyz.ibm.com -coordinationQMGrPort 1420  
-coordinationQMGrChannel SYSTEM.DEF.SVRCONN
```

Note: This will command will create coordination.properties file in config dir

2) Create a Setup Command:

```
bin> ./fteSetupCommands -connectionQMGr QM_FTE -connectionQMGrHost  
windowsbox.xyz.ibm.com -connectionQMGrPort 1420 -connectionQMGrChannel  
SYSTEM.DEF.SVRCON
```

Note: This will command will create command.properties file in config dir

3) Create MQFTE Agent :

```
bin> ./fteCreateAgent -agentName FTE_LINUX_AGENT -agentQMGr QM_FTE_LINUX  
(this will create a file FTE_LINUX_AGENT_create.mqsc )
```

4) Run that file against Linux Queue manager :

```
bin> runmqsc QM_FTE_LINUX < /var/ibm/WMQFTE/config/QM_FTE/agents/  
FTE_LINUX_AGENT/FTE_LINUX_AGENT_create.mqsc
```

Step #3 MQFTE Setup (Cont).



5) Start MQFTE agent :

```
/opt/ibm/WMQFTE/bin> ./fteStartAgent FTE_LINUX_AGENT
5655-U80, 5724-R10 Copyright IBM Corp. 2008, 2011. ALL RIGHTS RESERVED
BFGCL0030I: The request to start agent 'FTE_LINUX_AGENT' on this machine
has been submitted.
BFGCL0031I: Agent log files located at:
/var/ibm/WMQFTE/config/QM_FTE/agents/FTE_LINUX_AGENT
```

6) As we can view below newly create agent is ready:

```
/opt/ibm/WMQFTE/bin> ./fteListAgents
5655-U80, 5724-R10 Copyright IBM Corp. 2008, 2011. ALL RIGHTS RESERVED
```

Agent Name:	Queue Manager Name:	Status:
FTE_AGENT	QM_FTE	READY
FTE_AGENT2	QM_FTE	READY
FTE_LINUX_AGENT	QM_FTE_LINUX	READY
TUX_AGENT	QM_FTE	STOPPED
TUX_LNX_AGENT	TUX_FTE_TST	READY

MQFTE Setup if existing setup is there



Uses this setup only if you want to point to another Box or exiting MQFTE setup is already there



1) Lets point to a Co-ordination Queue Manager on Aix:

```
bin> ./fteSetupCoordination -coordinationQMgr QM_FTE_AIX  
-coordinationQMgrHost aixbox.xyz.ibm.com -coordinationQMgrPort 1450  
-coordinationQMgrChannel SYSTEM.DEF.SVRCONN
```

2) Create a Setup Command:

```
bin> ./fteSetupCommands -connectionQMgr QM_FTE_AIX -connectionQMgrHost  
aixbox.xyz.ibm.com -connectionQMgrPort 1450 -connectionQMgrChannel  
SYSTEM.DEF.SVRCON -p QM_FTE_AIX
```

3) Lets Create MQFTE Agent :

```
bin> ./fteCreateAgent -agentName FTE_AIX_AGENT -agentQMgr QM_FTE_LINUX  
-p QM_FTE_AIX  
(this will create a file FTE_AIX_AGENT_create.mqsc )
```

4) Run that file against Linux Queue manager :

```
bin> runmqsc QM_FTE_LINUX < /var/ibm/WMQFTE/config/QM_FTE_AIX/agents/  
FTE_AIX_AGENT/FTE_AIX_AGENT_create.mqsc
```

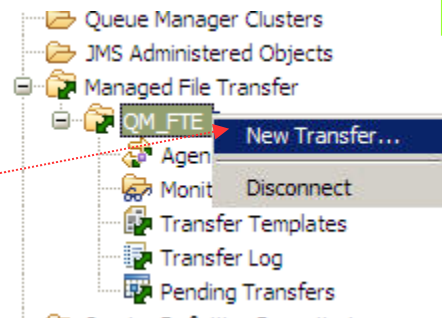
Step #4 :Transfer a file from a Windows to a Linux Box

1

Name	Description	Status	Source transfer	Destination transfer
TUX_LNX_AGENT		Ready	0	0
TUX_AGENT		Stopped	0	0
FTE_AGENT2		Ready	0	0
FTE_AGENT	FTE Agent	Ready	0	0

As you can see Newly Linux agent is showing up

2



To create a new Transfer Click on New Transfer

3

New Transfer

Enter source agent, destination agent, and all file names to create a transfer.

Basic Advanced

From:

Agent: FTE_AGENT (FTE Agent)

Type: File

File: C:\FTE-Test-Sender\file.zip

☐ Include subdirectories

To:

Agent: TUX_LNX_AGENT

Type: File

Directory: /tmp/fromwindows

File name: file.zip

☐ Overwrite files on the destination file system that have the same name

Select Windows Agent

Select Linux Agent

Step # 4 Transfer a file Review logs & Progress (Cont.)

MQ Explorer - Content

Transfer Log

Transfer locally one agent to another

Source	Destination	Completion State	Started (America/New_Yo
FTE_AGENT	FTE_AGENT2	Successful	11/11/11 10:27:55 AM EST
C:\MQFTE-7.0.4\config\data.link	C:\FTE-Test-Receiver\config	Successful	
FTE_AGENT	TUX_LNX_AGENT	Successful	11/15/11 11:46:56 AM EST
C:\FTE-Test-Sender\file.zip	/tmp/fromwindows/file.zip	Successful	
FTE_AGENT	TUX_LNX_AGENT	Failed	11/15/11 12:08:24 PM EST
C:\FTE-Test-Sender\file.zip	/tmp/fromwindows/file.zip	Failed - BFGIO0006E: File "/tmp/fromwindows/file.zip" already exists.	

Transfer to Linux Agent

Filter the displayed log entries:

*

Managed File Transfer - Current Transfer Progress

Source	Destination	Current File	File Number	Progress	Rate	Started (America/New_York)
FTE_AGENT	FTE_AGENT2	data.link - (77B / 77B)	1 / 1	100%	122B/s	11/14/11 10:10:21 AM EST
FTE_AGENT	TUX_LNX_AGENT	file.zip - (954B / 954B)	1 / 1	100%	# Successful #	11/15/11 11:46:56 AM EST
FTE_AGENT	TUX_LNX_AGENT	file.zip - (0B / 954B)	1 / 1	0%	# Failed #	11/15/11 12:08:24 PM EST

File sent

It failed due to file exist already

MQFTE Features : Scheduling & Triggering File Transfers

New Transfer

Enter schedule and event settings.

Choose when to start the scheduled

Enter schedule and event settings.

Schedule **Triggers**

☒ Enable scheduled transfer

Time base: ADMIN Local time (America/New_York)

Start: 11/28/2011 10:00 PM

:Repeat ☒

Every: 2 weeks

☐ Until: 11/28/2011 10:00:00 PM

☒ For: 3 repetitions

☐ Forever

Schedule **Triggers**

☒ Enable triggered transfer

File Trigger

File:

Trigger Attribute

Trigger when file...

☐ match pattern

☐ do not match pattern

☒ match pattern and exceed 4 KB

Add to group **Remove selected**

Check	Comparison	Qual...	Names
FILESIZE	GREATER_EQ...	4KB	C:\FTE-Test-Sender\smile...

Choose when to repeat the scheduled transfer and how often

MQFTE Features: Resource Monitoring

A

Advanced

Name: QM_FTE-Monitor

Type: Directory

Directory: C:\var\ibm\Wf

Trigger Conditions

File Matching

File Pattern: *.tar

Exclude Pattern: *.rar

☐ Interpret patterns as regular e

Trigger Attribute

Trigger when files...

☐ match pattern

☐ match pattern and exceed

☒ match pattern and file size remains unchanged for: 2 polls

☐ do not match pattern

B

Trigger Attribute

Trigger when files...

☐ match pattern

☐ match pattern and exceed

☒ match pattern and file size remains unchanged for: 2 polls

☐ do not match pattern

C

Create New Monitor

New Monitor

Enter metadata attribute-value pairs

Attribute name: Part Number

Attribute value: 3212

Add Remove selected

Attribute name	Attribute value
Part Color	Red

As noted here A,B,C noted are GUI options for Monitoring FTE and D is command line option

D

```
C:\WINDOWS\system32\cmd.exe
C:\Program Files\IBM\WMQFTE\bin>ftelistmonitors -v
5655-U80, 5724-R10 Copyright IBM Corp. 2008, 2011. ALL RIGHTS RESERVED
Monitor Information:
Name: QM_FTE-MONITOR
Agent: FTE_AGENT
Status: Started
Resource Type: Directory
Resource: C:\var\ibm\WMQFTE
Poll interval: 1 minutes
Batch size: 1
Condition: No Size Change <for 2 polls>
Pattern: *.tar <wildcard>
```

Summary

After this WSTE Presentation, you should be able to:

- You have learn about overview of MQFTE and it's benefits
- Major players in MQFTE
- Understanding a full end to end setup
- Important file structure and review of logs
- Learn about moving files among two boxes
- Some of the features of MQFTE



Resources

Information Center:

- ▶ <http://publib.boulder.ibm.com/infocenter/wmqfte/v7r0/index.jsp>

Redbooks / Redguides / Redpapers/ Developer Works:

- ▶ Getting Started with WebSphere MQ File Transfer Edition V7
 - <http://www.redbooks.ibm.com/abstracts/sg247760.html>
- ▶ IBM® WebSphere MQ File Transfer Edition Solution Overview
 - <http://www.redbooks.ibm.com/abstracts/redp4532.html>
- ▶ Managed File Transfer for SOA using IBM WebSphere MQ File Transfer Edition
 - <http://www.redbooks.ibm.com/abstracts/redp4533.html>
- ▶ B2B Enabled Managed File Transfer using WebSphere DataPower B2B Appliance XB60 and WebSphere MQ File Transfer Edition
 - <http://www.redbooks.ibm.com/abstracts/redp4603.html>
- ▶ One-to-many file transfers using WebSphere MQ File Transfer Edition
 - http://www.ibm.com/developerworks/websphere/library/techarticles/1103_cullen/1103_cullen.html

Trial Download:

- ▶ <http://www.ibm.com/software/integration/wmq/filetransfer/>



Additional WebSphere Product Resources

- Learn about upcoming WebSphere Support Technical Exchange webcasts, and access previously recorded presentations at:
http://www.ibm.com/software/websphere/support/supp_tech.html
- Discover the latest trends in WebSphere Technology and implementation, participate in technically-focused briefings, webcasts and podcasts at:
<http://www.ibm.com/developerworks/websphere/community/>
- Join the Global WebSphere Community:
<http://www.websphereusergroup.org>
- Access key product show-me demos and tutorials by visiting IBM Education Assistant:
<http://www.ibm.com/software/info/education/assistant>
- View a webcast replay with step-by-step instructions for using the Service Request (SR) tool for submitting problems electronically:
<http://www.ibm.com/software/websphere/support/d2w.html>
- Sign up to receive weekly technical My Notifications emails:
<http://www.ibm.com/software/support/einfo.html>



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Questions and Answers

