

Managed file transfer with IBM WebSphere MQ File Transfer Edition for z/OS Name



© 2007 IBM Corporation



Trademarks

The following are trademarks of the International Business Machines Corporation in the United States, other countries, or both. For a complete list of IBM trademarks please visit <u>www.ibm.com/legal/copytrade.shtml</u>

CICS	IBM Logo	S/390
DB2	IMS	Tivoli
E-business logo	iSeries	VM/ESA
ESCON	MVS	VSE/ESA
eServer	OS/390	WebSphere
FICON	pSeries	z/OS
IBM	Rational	zSeries
Smart SOA	RS/6000	System z

Java and all Java-based trademarks are trademarks of Sun Microsystems, Inc. in the United States, other countries, or both.

Microsoft, Windows, Windows NT, and the Windows logo are trademarks of Microsoft Corporation in the United States, other countries, or both.

Microsoft trademark guidelines

Intel is a registeredtrademarksof Intel Corporation in the United States and other countries.

UNIX is a registered trademark of The Open Group in the United States and other countries.

Linux is a registered trademark of Linus Torvalds in the United States, other countries, or both.

Other company, product, or service names may be trademarks or service marks of others.



IBM's Vision – SOA Messaging Backbone

Addressing the full spectrum of transport requirements

SOA Messaging Backbone





logsade

Resource

indsets



End-Points



- Mobile, Wireless, PoS, Sensor, Actuator, RFID...
- Web services
 SOAP, WSDL, WS-RM, WS-N...

WSDL, XML, WS-* REST, MEST, KISS

HTTP, AJAX, REST,... Appliances

Web 2.0



Qualities-of-Service

— Transactional

- Guaranteed
- Persistent
- At-Most-Once
- Replay
- At-least-once
- ---- Best-Effort
 - Fire-and-Forget

Request-Reply

Fastest speed

Lowest Latency

···· \$\$ *** \$\$

Delivery Styles



- Point-to-Point
- Peer-to-Peer
- Publish/Subscribe
- Grid
- Bus
- Multicast
- Unicast



What's Driving Your Business Today?

Business Demands	IT Challenges
Support up-to-the-minute 24/7 decision making & forecasting	Reduce "batch window" or enable continuous stream of updates
Reduce disruption, cost & time wasted resolving errors in partner & customer transactions	Improve reliability of data exchange between IT systems & eliminate sources of error
Meet Regulatory Compliance or other audit obligations by demonstrating integrity of financial or sensitive data to avoid penalties	Preserve integrity of data and secure it – especially when moving it between IT systems
or conditive data to avoid portatioo	
Reduce cost & time to market of new business offerings	Accelerate new development by avoiding duplication of function
Reduce cost & time to market of new business offerings Streamline unnecessary investments	Accelerate new development by avoiding duplication of function Consolidate & reuse IT infrastructure across enterprise
Reduce cost & time to market of new business offerings Streamline unnecessary investments Make changes & absorb surprises without impacting ability to continue executing	Accelerate new development by avoiding duplication of function Consolidate & reuse IT infrastructure across enterprise Leverage SOA capabilities across the entire IT Infrastructure



How Do You Move Files?

IT Challenges	How do you transfer files?
Reduce "batch window" or enable continuous stream of updates	 Can you finish ever larger batches of file transfers overnight? Can you transfer updates continuously throughout the day?
Improve reliability of data exchange between IT systems & eliminate sources of error	 Can you move files reliably across your distributed IT systems? Can you restart file transfers that haven't completed properly? Can you automate & schedule transfers to avoid human-errors?
Preserve integrity of data and secure it – especially when moving it between IT systems	 Can you prove that files only went where were supposed to? Can you detect & recover whenever files are partially sent? Can you prevent unauthorized access to files?
Accelerate new development by avoiding duplication of function	 Can you avoid developing code to improve file transfers? Can you avoid duplicating file transfer logic across apps?
Consolidate & reuse IT infrastructure across enterprise	 Can you use a single infrastructure for all traffic including files? Can you reduce your administration & maintenance costs?
Leverage SOA capabilities across the entire IT Infrastructure	 Can you apply ESB capabilities to files e.g. transformation? Can you involve files as part of your business processes? Can you include file-oriented applications in your SOA?
Enable widespread use of IT infrastructure & reduce dependency on IT specialists	 Can you enable more IT staff to use a common infrastructure? Can you enable less skilled staff to use your IT infrastructure? Can you bring service-oriented & batch/file systems together?

IBM

Shortcomings of basic FTP

Limited Reliability

- Checkpoint restart facilities not always available – files might be lost
 - Not transactional in nature
- Transfers or batches of transfers may terminate without notification
 - Partial files or incomplete batches could be used in subsequent business processes causing issues with integrity of applications and data downstream
- Files data could be unusable after transfer (ASCII/Binary transfer)

Limited Flexibility

- All resources usually have to be available concurrently
- Often only one FTP-based transfer can run at a time
- Typically transfers cannot be prioritized

Limited security

- In some cases usernames/passwords are sent with data – as plain text!
- Non-repudiation often lacking
- Privacy, authentication and encryption may not be available

Limited visibility and traceability

- Typically transfers cannot be monitored and managed centrally or remotely
- Logging capabilities may be limited and may only record transfers between directly connected systems



What is Managed File Transfer?

Enables managed movement of files and documents between IT systems

- Auditable
- Reliable
- Secure
- Any size file
- Automated
 - Eliminating need to manually detect transfer problems and restart transfers
- Backbone
 - Across distributed IT systems that need not be directly connected
- Time-independent
 - Without requiring IT systems and network to be constantly available
- Centralized control
 - Enabling remote management and monitoring of all aspects of transfer

Managed File Transfer is a strategic part of an organization's IT infrastructure

- Should be aligned with other transport mechanisms e.g. messaging
- Managed File Transfer should work with and re-enforce SOA initiatives
 - Including applying ESB capabilities to files

Introducing WebSphere MQ File Transfer Edition for z/OS V7.0

The newest member of the WebSphere MQ family

- -Builds upon WebSphere MQ's proven transport backbone
- -Licensed as a trade-up from WebSphere MQ on distributed platforms

Will deliver robust solution for Managed File Transfer

- Enable control of all aspects of file movement between IT systems
- Provide file delivery reliability
- Optimized for both small and massive files
- Provides audit trail of transfers

Designed to integrate with IBM's SOA portfolio

 Enables files to be delivered to WebSphere Message Broker for File Processing





WebSphere MQ File Transfer Edition

- Adds file transfer services to WebSphere MQ to enable movement of files regardless of size – in a managed way (reliable, auditable, secure)
- Multi-purpose infrastructure for both files and messages
- Flexible backbone for transfers not a singlehop solution like FTP
- ✓ <u>Multi-purpose</u> use for messages and files
- <u>Auditable</u> with logging subsystem that tracks transfer at source and at destination for audit purposes
- ✓ <u>Massive</u> files larger than MQ messages
- <u>Reliability</u> leveraging the MQ transport
- Integration with MQ-enabled apps and ESBs
- ✓ <u>No need to program</u> no need to use APIs
- <u>Simple</u> graphical tooling enabling remote configuration
- <u>Automatic</u> file conversion and compression
- <u>Security</u> of file payload using SSL
- <u>Visual</u> transfer status reporting
- <u>Support</u> for many supported MQ environments





Key Themes for WebSphere MQ File Transfer Edition



Auditable

Audit logs of transfers at source and target Audit data persisted to MQ queues and/or relational database. Captures time-stamped log at source and target



Ease-of-Use

Remote console for transfer initiation, unattended operation, scripting, scheduling, restart policies, status display Integrated with MQ Explorer configuration tooling



Simplicity

Small footprint, fast install No need to write code or use API to configure transfers – Enabled via GUI Leverages WebSphere MQ – no other technology pre-reqs



Access to individual files subject to file system permissions Link level security (inheriting MQ SSL security)

Breadth

Support WebSphere MQ V6 and V7 for transfers Core Platform support (Windows, z/OS, Linux (32 Bit), Solaris, AIX, HP) Good file type support (ASCII/EBCDIC, CR/LF, Flat files, z/OS QSAM, BPAM, VSAM)



Automated Transfers

Transfers can be scheduled to repeat at predetermined intervals Transfers can be triggered by range of file system events e.g. new files, updated file, etc.



Architecture

- Enables remote GUI configuration and admin using same tooling as MQ
- Tooling publishes transfer requests to Backbone
- "Agents" running alongside Queues managers publish audit trail to Coordination Center
- "Agents" monitor file directories, load/unload files & perform pre- & post-transfer activities
- Coordination Queue manager publishes transfer status, process and audit trail
- Coordination Queue manager requires MQ V7.0
- Multiple Coordination Queue manager could control transfers, capture audit log and publish status





Features & Benefits

File Transfer Backbone	Simplifies configuration, administration & auditing
Time-Independent File Transfer	Improves productivity of applications
Reliable File Transfer	Reduces business disruption by helping preserve integrity of file data
Event-Driven File Transfer	Enables flexible distribution of file data and alerting
Centralized Configuration	Remote management of the whole file transfer backbone
Remote status reporting	Enables transfer status to be viewed remotely
Scheduling	Enables transfers to be scheduled at intervals
Automation	Enables transfers to be triggered based on file events
Scripting	Enables programmatic control of transfers
Audit Log	Enables auditing of file movements at source and target
Zero coding	Accelerates solution deployment and reduces skills requirements
Custom Exits	Enables addition user function to be added pre- and post- transfer
ESB Connectivity	Enables mediation, transformation and content-based routing to be applied to files using WebSphere Message Broker



File Transfer Backbone

- WebSphere MQ File Transfer Edition for z/OS will provide a file transfer *backbone*
 - Source and target systems do not need to be directly connected
 - Backbone determines path across network between Source and Target
 - Utilizes this built-in characteristic of WebSphere MQ transport

Simplifies transfer configuration, administration & auditing

- Transfer files from any point on the Backbone to any other point
- Enables multi-hops across Backbone as opposed to coordinating a series of single-hops
- Control, monitor from any point even via intermediate points
- Audit log of transfers at actual, logical Source and Target
 - Rather than having to piece audit trail together from a series of disconnected transfers







Time-Independent File Transfer

Transfer files regardless of when solution components are free or available





Reliable File Transfer

- IBM Managed File Transfer starts with industry's leading connectivity backbone
 - *Reliability* Patented technology & well-grounded two-phase commit techniques
 - Trusted 10,000 client sites worldwide moving \$trillions worth of data every day
 - **Proven** Leader in messaging connectivity for over 15 years
 - Integrated with IBM's SOA portfolio including ESB and BPM software and can connect to other commercial IT systems



IBM

Centralized Configuration & Administration

- Logically centralized configuration of remote, distributed backbone
- Remotely view & configure entire backbone including on z/OS



UA MIESSAGING PAGABONE

- Visual display at a glance
- Eclipse-based environment
- Extensible and customizable

- Remote connection from Linux x86 and Windows
- SSL secured connections



Eclipse-based GUI integrated into MQ Explorer

WebSphere MQ Explorer - Navigator	WebSphere MQ Explorer	
BM WebSpere MQ MyQueueMgr Managed File Transfer WerMFTE1 Queues Origins SubScriptions Advanced Channels Clent Connections	Managed File Transfer WebSphere MQ File Transfer Edition is new product in the WebSphere MQ product family offering Managed File Transfer capa Moving files between IT systems reliably and securely regardless of their size. Robustness and resilience to failures Loging of file movements for audit purposes Automation of all aspects of transfers (Eliminating the need to manually detect transfer problems and restart transfers.) Scheduling of transfers	abilities, including:
	Managed File Transfer Managed File Transfer MursMFTE1 Transfer Templates Current Transfers Scheduled Transfers Transfer Agents TxAgent1 TxAgent3	
VERTICAL PROPERTY VERTICAL V	HI NOVTURSMELEZ	top on recooptiere and real
	Scheme: Default for Saved Transfers	
	Scheme: Default for Saved Transfers Last updated: 13:23:23	
	Scheme: Default for Saved Transfers Last updated: 13:23:23 Summary transfer progress Properties	
	Scheme: Default for Saved Transfers Last updated: 13:23:23 Summary transfer progress Name Source Dest File number Current file Rate	Started (local)



Creating File Transfers

File Window Help		😳 Create Transfer	
File Window Help	🚯 Create Transfer	New Edit Transfer	
WebSphere MQ Explorer - Navigator	New/Edit Transfer	Enter Advanced values (step 3)	
BM WebSpere MQ MyOueueMar	Enter basic values to set up a transfer (step 2)		
Managed File Transfer			
	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Basic Advanced	
Topics	Basic Advanced	✓ A failure of any file in a <set> means that the <set> h</set></set>	nas failed
Advanced	From	Remove files from target on failure and write error	r to audit stream
Channels	*Host 🔻 Find	Leave successful files and write the error to audit	t stream
Listeners	*Path Browse 0	Overwrite files on the target file system that have the	same name
Process Definitions		 Append source file content to file of same name 	on target filesystem
Authentication Informa	Include subdirectories	 Replace the file of the same name on target file 	system
Queue Manager Clusters	То	Move files	
Managed File Transfer	*Host 🛛 Find	Remove source files on successful completion of	f whole group
Transfer Templates	*Path Browse	 Remove source files on successful completion of 	each file
Transfer History		Maximum number of filer expected	
B Scheduled Transfers	Filename Use original filename Append None	150	
Transfer Agents	UTC timestamp	130	
TxAgent2	Basic Settings auto-incremented inde		
E ChursMFTE2	Text transfer (ASCII/EBCDIC & CR/LF automated)	Transfer Priority High Default Low	
	Mode O Binary transfer (no conversion)	Settings below are speculative onl	y
		Only transfer shanned files. (Modified timestamp ha	(hanned)
	Add to transfer V	Keep source file's attributes (wounder group timestan)	n normissions)
		The source mes autoutes (owner, group, unrestan	p, permasions)
		For text transfers from a z/OS machine	
		Create new lines from z/OS ASA control characters	
		 Ignore z/OS ASA control characters 	
		Lock all files in a group at the start of the group tran	sfer
Management of the second secon			
	e		
		Previous Next	Finish
	Previous Next Finish	L	
	·		



Auditing File Transfers

VebSphere	MQ Explorer							
Transfe	er History							
Filter: D	Default for transfer histo	ory						
Name	Source Agent	Source File	Target Agent	Target File	Started (UTC)	Completion State	State recorded (UTC)	Owner
Tx001	TxAgent1	/home/greg/recip	RxAgent1	/recipes/greg	20080416-23:22.00000	✓ Completed	20080822-23:59.00000	Bob Builder
Tx002	TxAgent2	/home/greg/recip	RxAgent2	/recipes/greg	20080416-23:22.00000	XFailed	20080822-23:59.00000	Bob Builder
Tx003	TxAgent2	/home/greg/recip	RxAgent2	recipes/greg	20080416-23:22.00000	Partial - in progress	20080822-23:59.00000	Bob Builder
Tx004	TxAgent3	/home/greg/recip	RxAgent3	/recipes/greg		O Not yet started	20080822-23:59.00000	Bob Builder
	Are	chive all						
	Captur	es log a	t Source	and T	arget			
run run run run run run run run run run	Can be	e viewed	remotel	y using	g MQ Explo	orer		
	- Applica	ations ca	ın subsc	ribe to	audit inform	nation (or p	portions of it)	
		orde oo	n ha laa	dod int	o othor eve	tome o a		•



Scheduling File Transfers

hedule	Triggers	•			
Schedu	le transfer	O Transfe	r on complet	ion of wizard	
Hours		(Transfer M	lame		
	•	Start d	late	time	
00 01	02 03	Repeat 反	0		
Days		Every 1	4 days		
Mon 12th	Tue 13th	Until F	orever date	Time 17th	
Weeks					
	18 19	20 21	22	23 24	25
17 Months					
17 1 Months			Transfer Na	me	
17 1 Months Mar	Apr	May	Transfer Na	me Jul	e e Aug
17 1 Months Mar Years	Apr	May	Transfer Na Jun	me Jul	Aug
17 1 Months Mar Years	Apr	May	Transfer Na Jun Transfer Na	me	Aug
17 1 Months Mar Years 2007	Apr 2008	May	Transfer Na Jun Transfer Na 2010	me 2011	Aug
17 1 Months Mar Years 2007 Transfer Tr Repeat ev Until <i>hh.m</i>	Apr 2008 ransfer Nar ery on minu m on dd/mn	May 2009 ne at hh:mm, tes hours day	Transfer Na Jun Transfer Na 2010 starting dd/ rs weeks mo	me 2011 nm/yyyy nths years	Aug



Triggering File Transfers





Monitoring File Transfer Progress

bSphere MQ Explorer - Navigator	WebSphere I	WebSphere MQ Explorer - Transfer progress								
[®] IBM WebSpere MQ [®] MyQueueMgr	Transfe	Transfer Progress Detail								
	Filter: D	Filter: Default for saved transfers								
Managed File Transfer Managed File Transfer										
Queues	Name	Source	Dest	File number	Current file	Rate	Started (local)			
Topics SubScriptions Advanced Channels	Tx001.1	agenti	agent2/destDir	1	ubuntu-710.iso (320kB / 699 MB)	34kB/s	20080416-23:22.00000			
	Tx001.2		agent2/destDir	2	ubuntu-710.iso (320kB / 699 MB)	34kB/s	20080416-23:22.00000			
	Tx001.3		agent2/destDir	3	ubuntu-710.iso (320kB / 699 MB)	34kB/s	20080416-23:22.00000			
Client Connections	□Tx002	agent1/sourceDir	agent2/destDir	38 / 7	tt (5B / 13 kB)	28kB/s	20080416-23:40.00000			
Services				Pause Cancel	Ctrl+P Del					
Process Definitions	20									
Mamelists							Annual Contraction of the			
Authentication Information										
JMS Administered Objects										
🖬 👼 Managed File Transfer						COLORD COL				
hursMFTE1			Dien	ave v	isual progra	ace of	f tranefo	rc		
			Disp	iays v	isuai piogre	33 0	liansie	13		
Current Transfers 🛛 🗧										
® Scheduled Transfers	1	 Current progress of remote transfers 								
Transfer Agents										
TxAgent2			Letter Vielen							
TxAgent3			Tran	efor n	roarass car	n ha c	subscrib	۵d		
File			IIali	sici p	logiess cal		Subscrib	eu		
			Ч		•					
			Enah	א פסור	rd narty and	haer	noko			
			Спак		party and	ncoh				
			appli	catior	ns to monite	n or r	eact to			
			appi	Julio						
			ever	its						
			0.01	10						
	Scheme:	Default for Saved Tr	ransfers							
	Last upda	ited: 13:23:23								
	(under starten and									
	webSphere N	Q Explorer - Summary	transfer progress V	VebSphere MQ Expl	orer - Properties					
	Name	Source	Dest	File number	Current file	Rate		Started (local)		
	Tx001	agent1/sourceDir	agent2/destDir	1/3	ubuntu-710.iso (320kB / 699 MB)	34kB/s		20080416-23:22.00000		
	Tx002	agent1/sourceDir	agent2/destDir	38 / 754	MQ7-license.bit (5B / 13 kB)	28kB/s		20080416-23:40.00000		



Scripting

- Scripting language will provide automated, programmatic control of transfers
- Transfer commands can be invoked from the supported Operating Systems shell environment
- Developers can use any native scripting language on the OS that can invoke these commands

Examples:

- fteCreateTransfer Starts a new file transfer from the command line
- fteStartAgent
 Starts a File Transfer agent from the command line
- fteShowAgentDetails
- fteStopAgent

- Displays the details of a particular File Transfer agent
- Stops a File Transfer agent in a controlled way



Planned initial platform coverage

Core platforms targeted for initial release:

- WebSphere MQ File Transfer Edition for z/OS
 - z/OS
- WebSphere MQ File Transfer Edition (Distributed)
 - AIX
 - Linux x86
 - Sun Solaris
 - HP-UX
 - Microsoft Windows

WebSphere MQ Versions supported:

- V6.0
- V7.0



Consolidated Transport Backbone

- Combined solution for transferring messages and files via a single consolidated infrastructure
 - Reducing operational costs through synergies and lowering skills requirements
- A Managed File Transfer solution that can be leveraged in SOA
 - A one-two punch Solve today's file problem while building a foundation for the future
 - Single Universal Connectivity solution bringing together file- message- service- and event-oriented applications and Web 2.0 traffic
 - Apply ESB capabilities to file data transformation, mediation, content-based routing



Product roadmap, timeframes and features subject to change and not to be viewed as IBM commitments reportion



Next Steps

Think about how you move files and documents around

- Could you show in an audit where the last 10 transferred files and documents came from?
- What advantages could you gain from a consolidated transport backbone?
- Do you know what kinds of files might be moving unsecured around your organization?
- Could you get even more value from your MQ infrastructure by enabling file transfers?
- What benefits can you get from applying ESB capabilities to files and documents?

• Why not?

- Ask your IBM representative about WebSphere MQ File Transfer Edition for z/OS
- Apply to join the Early Access Program Ask your IBM rep to nominate you
- Get an analyst's view at

www.ibm.com/software/info1/websphere/index.jsp?tab=integration/hiddenrisk

Additional materials

- WebSphere MQ File Transfer Edition web site <u>http://www-306.ibm.com/software/integration/wmq/filetransfer/</u>
- Teleconference: Introducing reliable, Managed File Transfer for z/OS <u>http://www.ibm.com/software/os/systemz/telecon/27aug/index.html</u>



