



Citi Architecture and Technology Engineering

Connectrix Manager 9.01.01 Certification

GDSE-07022-RN

Release Notes

1.0

1. Version Control

Version	Date	Author	Reviewed	Comments
0.1	8-Oct-07	Kevin Hobaugh	Quang Le	Peer Review
0.2	12-Oct-07	Kevin Hobaugh	SAN Stakeholders	RFC
1.0	26-Oct-07	Kevin Hobaugh	SAN Stakeholders	Production

2. Legal Notice

Information contained herein is for Internal Use and may be used only for business purposes authorized by Citigroup.

CITI, CITIBANK, CITICORP, CITIGROUP and the Umbrella Device are trademarks and service marks of Citicorp and are used and registered throughout the world. Citibank, Citicorp, Citigroup and their subsidiaries also claim rights in certain other trademarks and service marks contained in these pages.

3. Contact

Please address any comments or questions regarding the information contained in this document via email to the “*GT Global Distributed Storage Engineering” distribution list or alternatively to gdse@citi.com.

4. Latest Versions

It is recommended that the latest version of the document be used from the GDSE website <http://engineering.citigroup.net/gdse>. Newer versions may include certification on additional platforms, or comments on issues discovered after deployment.

5. Table of Contents

1. VERSION CONTROL	2
2. LEGAL NOTICE.....	3
3. CONTACT.....	3
4. LATEST VERSIONS	3
5. TABLE OF CONTENTS	4
6. INTRODUCTION.....	6
6.1. NOTABLE ENHANCEMENTS AND FIXES	6
7. SCOPE	7
7.1. CONNECTRIX MANAGER SERVER VERSION.....	7
7.2. CONNECTRIX MANAGER SERVER HOSTS	7
7.3. CONNECTRIX MANAGER CLIENT HOSTS	8
7.4. McDATA SWITCH MODELS.....	8
7.5. McDATA IPS ROUTER MODELS	8
7.6. FUNCTIONALITY.....	8
8. OUT OF SCOPE	8
9. CONNECTRIX MANAGER PRODUCT ROADMAP	8
10. PREREQUISITES	9
11. WHEN TO UPGRADE?	9
12. PLANNING FOR DOWNTIME	9
13. UPGRADE.....	10
13.1. PACKAGES	10
14. DOWNGRADE	10
14.1. DOWNGRADING THE CONNECTRIX MANAGER SERVER.....	10
14.2. DOWNGRADING THE CONNECTRIX MANAGER CLIENT.....	10
15. KNOWN ISSUES.....	11
16. CONCLUSION	11
17. APPENDIX A: REFERENCES.....	11
18. APPENDIX B – CONNECTRIX MANAGER 9.01.01 TEST ENVIRONMENT.....	12

19.	APPENDIX C: CONNECTRIX MANAGER 9.01.01 TEST PLAN AND RESULTS	13
19.1.	CONNECTRIX MANAGER UPGRADE/DOWNGRADE VERIFICATION.....	13
19.2.	PRODUCT MANAGEMENT	13
19.3.	SAN MANAGEMENT	14
19.4.	SECURITY MANAGEMENT	15
19.5.	FABRIC SECURITY – SANTEGRITY	15
19.6.	ALERTS/PERFORMANCE STATISTICS	16

6. Introduction

Connectrix Manager 9.1.1 is being certified as the new management platform for McData SANs. This version of Connectrix Manager contains several fixes and enhancements that correct several audit issues. When installed on a Citi SOE server, the number of required open firewall ports is reduced. This release should be considered a mandatory upgrade.

6.1. Notable Enhancements and Fixes

Enhancements

Integration of Connectrix Manager and SANVergence Manager into one product
SAN Routing support
Topology support for IP based extension
RSCN enable/disable through Connectrix Manager
Improved backup administration

Fixes

Improved Service Processor performance
Fixed problem where Connectrix Manager would hang every few days
Audit log anomalies

Hardware

QPM (4GB) card support in ED-140M (w/ EOS 9.0.0)
Support for MP-1620M and MP-2640M

7. Scope

Function	Test Plan Scope			Work Effort (light/heavy) man days	In Certification Scope
	Light	Heavy	Excluded		
Connectrix Mgr Upgrade		✓		(2 / 5)	✓
Connectrix Mgr Downgrade		✓		(1 / 3)	✓
Connectrix Mgr Functionality		✓		(5 / 15)	✓
Connectrix Mgr Client Functionality (W2K3)	✓			(2 / 5)	✓
Connectrix Mgr Client Functionality (Solaris 10)	✓			(2 / 5)	✓
Bug Fixes		✓		(5 / 10)	✓
Connectrix Mgr Backup / Restore	✓			(1 / 3)	✓
Connectrix Mgr Role Based Security	✓			(2 / 5)	✓
Element Manager	✓			(1 / 5)	✓
ESS Integration	✓			(1 / 3)	✓
Integration with EMC Secure Remote Support Gateway		✓		(2 / 5)	✓
Integration with SANScreen	✓			(2 / 5)	✓
Integration with Fibrezone Bridge for ECC	✓			(2 / 5)	✓
Package software	✓			45	✓
Review EP, ICQ, CAP and RA		✓		(2 / 5)	✓
Integrate CM audit log with eTrust Audit		✓		(5 / 10)	✓
Update eTrust Solutions Guide		✓		(5 / 10)	✓
Update McData Solutions Guide		✓		(5 / 10)	✓
Audit Log Quality		✓		(1 / 3)	✓

7.1. Connectrix Manager Server Version

- Upgrade from Connectrix Manager 08.07.01 on SOE to 09.01.00, then to 09.01.01.

7.2. Connectrix Manager Server Hosts

- Windows 2003 SP2 SOE server

7.3. Connectrix Manager Client Hosts

- Windows 2003 SP2 SOE server
- Solaris 10 Update 1 SOE server

7.4. McData Switch Models

- ED-140M (Intrepid 6140) w/ EOS 9.0.0
- ED-64M (Intrepid 6064) w/ EOS 9.0.0
- DS-32M2 (Sphereon 3232) w/ EOS 9.0.0
- DS-4700M (Sphereon 4700) w/ EOS 9.0.0

7.5. McData IPS Router Models

- MP-1620-M w/ EOSi 4.7.0
- MP-2640-M w/ EOSi 4.7.0

7.6. Functionality

- Data migration from older to newer Connectrix Manager version
- Multiple clients
- Connectrix Mgr backup and restore
- Zoning Administration
- RBAC (Role Based Access Control)
- SANVergence Integration
- Fault notification through ESS
- Remote support via EMC Secure Remote Support Gateway (ESRS)
- Switch configuration backup and restore

8. Out of Scope

- Extensive testing of SANVergence (IPS Routers) will be part of a separate project.

9. Connectrix Manager Product Roadmap

CM Version	GA Date	EOM	EOSL
8.07.01	11/2005	No Target Date	No Target Date
9.01.01	6/2007	No Target Date	No Target Date

GA – General Availability

EOM – End of Marketing

EOSL – End of Support Life

10. Prerequisites

- You will need to provide the **Serial Number** and **License** for the Connectrix Manager software during the upgrade/migration process. If you're missing this information, contact EMC to obtain it.
- You must have System Administrator user rights for Connectrix Manager. Obtain a login ID and password before proceeding.
- All switches and directors to be managed by Connectrix Manager 9.01.01 must be running E/OS version 6.x or higher.
- All switches and directors to be managed by Connectrix Manager 9.01.01 MUST have their SNMP Agent setting Enabled with a Community Name of **public** (the Community Name is case-sensitive). Failure to configure these setting will result in Connectrix Manager's inability to discover the switch/director.
- Connectrix Manager 9.01.01 is pre-configured to lock the application traffic to TCP ports 51510 and 51511 to simplify configuration of remote clients through a firewall.
***Note:** This is not an issue, if Connectrix Manager Server is installed on a Citi SOE server.*
- For Connectrix Manager 9.01.01 running on a Citi SOE server to communicate through the firewall to the SAN switches will require TCP port 2048 to be opened one-way from Connectrix Manager (source) to SAN switch (destination).
- UDP port 161 (SNMP/Read) and UDP port 123 (NTP/Read) will also need to be opened one-way from Connectrix Manager (source) to SAN switch (destination).

11. When to Upgrade?

Connectrix Manager 09.01.01 is required in order to take advantage of new enhancements and the integration of SANVergence Manager and Connectrix Manager.

12. Planning for Downtime

The upgrade has no impact on the operation of the fabric(s) controlled by the Connectrix Manager. However, Connectrix Manager itself will not be available for the duration of the upgrade. Zoning operations cannot be performed during this time and alerting of fabric and switch events may be impacted.

The upgrade should not take more than an hour to complete.

13. Upgrade

Note these cautions before upgrading to version 9.01.01:

- Backup the current Connectrix Manager 8.7.1 directory
- Export Nicknames and ZoneSets
- Connectrix Manager Audit, Event, Session, Product Status, and Fabric log files are not migrated. As a safeguard, you should export these logs before migrating to Connectrix Manager 9.1.
- ***You will need to upgrade to Connectrix Manager 9.01.00, prior to upgrading to Connectrix Manager 9.01.01.***
- After installing Connectrix Manager Server 9.01.01, all remote clients running down-level versions of Connectrix Manager must install the 9.01.01 client application.
- All systems managing switches, including the Connectrix service processor and any remote systems running client software, must be offline before upgrading.
- Depending on the type of migration that will be performed, the Connectrix Manager Services may need to be stopped. Pay special attention to the instructions.

13.1. Packages

- Connectrix Manager 9.1.0 Server (CSP): **cnms9010**
- Connectrix Manager 9.1.1 Server (CSP): **cnms9110**
- Connectrix Manager 9.1.1 Client: **cnmgr910**

14. Downgrade

14.1. Downgrading the Connectrix Manager Server

Once the Connectrix service processor is running Connectrix Manager 9.01.01, any downgrade to a previous Connectrix Manager release will result in the loss of saved firmware files.

It is recommended that a backup be completed and saved on 8.07.01 before upgrading to release 9.01.01. Then, that backup can be used if you encounter any problems after downgrading to Connectrix Manager 8.07.01.

To downgrade to Connectrix Manager 8.07.01, stop the Connectrix Manager 9.01.01 services and restart the Connectrix Manager 8.07.01 services.

14.2. Downgrading the Connectrix Manager Client

To downgrade the client to Connectrix Manager 8.07.01, reinstall the client software.

15. Known Issues

New zoning information can be lost when multiple clients are in the zoning library simultaneously making changes. This problem will be fixed in Connectrix Manager 9.5, scheduled for release in 3Q08.

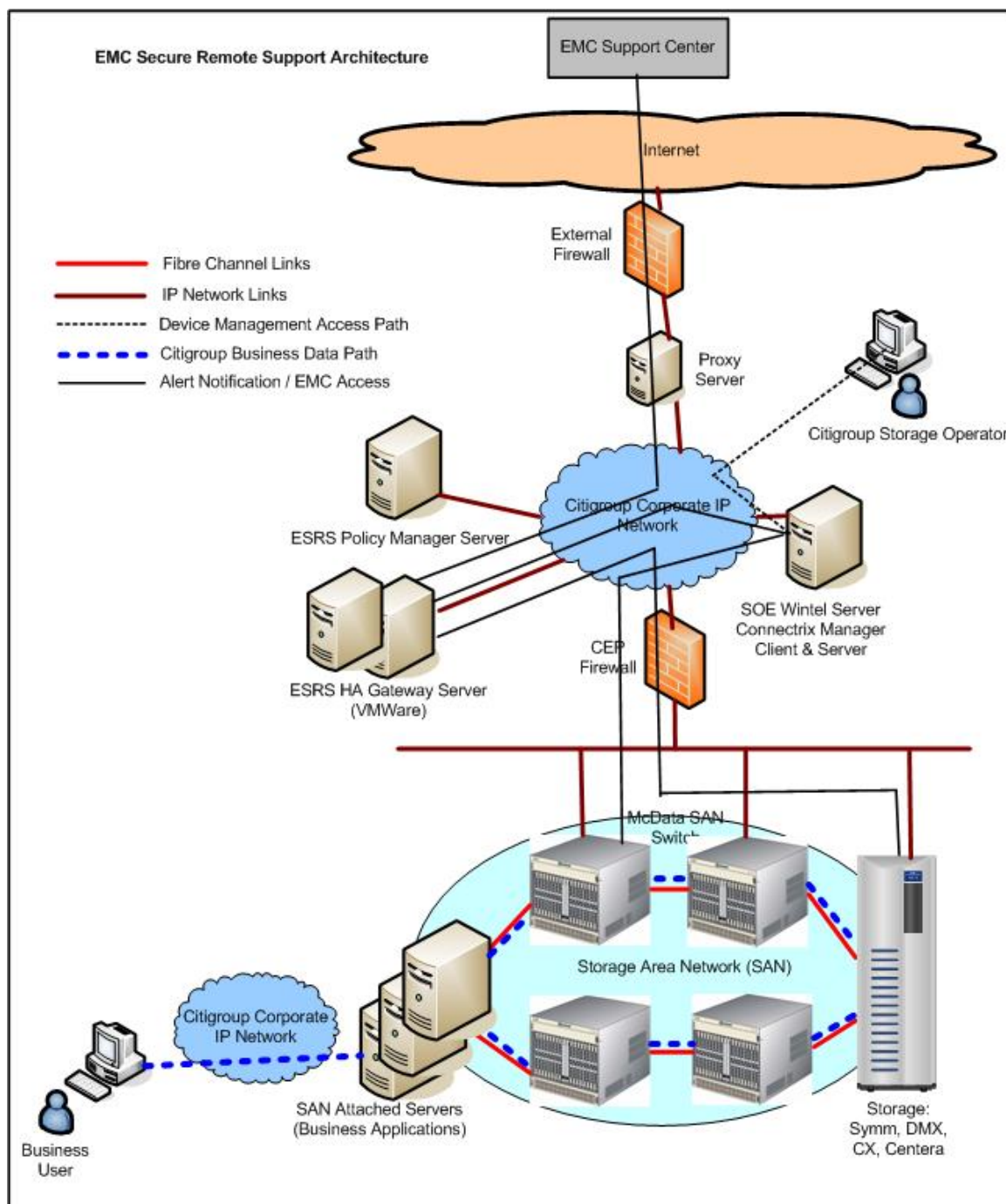
16. Conclusion

Connectrix Manager 9.01.01 was successfully upgraded and passed our test criteria, except where noted. This product is ready for deployment in the Citi SAN Environment.

17. Appendix A: References

Document	Location
GDSE-05040-RN E/OS 09.00.00 Release Notes	http://engineering.citigroup.net/gdse/products/platforms/mcdatafc/releasenotes/06035-rn.pdf?a=5441
GDSE-04046-SG McData Switch Solution Guide	http://engineering.citigroup.net/gdse/products/platforms/mcdatafc/stdsdocs/04046-sg.pdf?a=5441
Connectrix Manager Version 09.01.01 Release Notes	Available from EMC
Connectrix Manager Version 09.01.01 User Guide	Available from EMC

18. Appendix B – Connectrix Manager 9.01.01 Test Environment



19. Appendix C: Connectrix Manager 9.01.01 Test Plan and Results

19.1. Connectrix Manager Upgrade/Downgrade Verification

No.	Test	Expected Behavior	Result	Pass/Fail	Notes
1.	Configuration settings across upgrade	Prior settings should be preserved	As expected	Pass	
2.	Client upgrade	Both Win2K and Solaris clients successfully connect to the Connectrix Manager Server	As expected	Pass	
3.	Client communication through firewall to CM Server. Open firewall ports (51511 and 51510) through the firewall. (Only applies to CM Server running on EMC 1U CSP)	Verify no more than two are required for Client to communicate with CM Server.	As expected	Pass	
4.	Connectrix Manager Server on SOE communication through firewall to the SAN switches. Open firewall port (2048)	Verify CM Client can communicate through the CM Server to the switches.	As expected	Pass	
5.	Multiple clients	It should be possible to use more than one client simultaneously	As expected	Pass	
6.	Downgrade the CM to the previous version	Shutdown CM 9.1.1 Connectrix Services on the CM server. Start up CM 8.7.1 CM Services should be able to discover and manage the SAN.	As expected	Pass	
7.	Configuration settings across downgrade	Prior settings should be preserved	As expected	Pass	
8.	Client downgrade	Reinstalled the prior Connectrix Manager client version and successfully connected to the CM server.	As expected	Pass	

19.2. Product Management

No.	Test	Expected Behavior	Result	Pass/Fail	Notes
1.	Fabric Discovery / Topology	Products connected to the SAN should be discovered.	As expected	Pass	
2.	Switch Properties	Prior properties should be preserved (Switch model, firmware version, location and IP address).	As expected	Pass	
3.	Configure multiple ISL's and	Traffic on highly utilized	As expected	Pass	

	test with OpenTrunking	ISL's should be rerouted to less used ISL, without impact to host traffic.			
4.	Port Fencing ISL Threshold	Verify thrashing ports will be blocked	As expected	Pass	
5.	Nicknames – Importing from prior version of Connectrix Mgr.	Prior nickname settings should be preserved.	As expected	Pass	
6.	Vendor Notification via EMC Secure Remote Support Gateway	EMC should be receiving SAN alerts.	As expected	Pass	
7.	Automatic Connectrix Mgr SP backup.	Periodically Connectrix Mgr backup service will back up the Connectrix Mgr configuration files.	As expected	Pass	
8.	Connectrix Mgr SP restore	If the Connectrix Mgr server were to crash, Connectrix Mgr should be able to be restored from the Citi server backup.	As expected	Pass	
9.	Switch backup and restore	Manually backup and restore switch configurations to a local drive\directory.	As expected	Pass	
10.	Test QPM cards (ED-140M)	Traffic on ports configured at 4gb should transmit at 4gb. Test with 4gb FA	N/A	N/A	Unable to test. QPM card unavailable. Will test in future.

19.3. SAN Management

Generate I/O from multiple hosts during this testing section. Zoning changes should be made to one of the host while monitoring the other for errors.

No.	Test	Expected Behavior	Result	Pass/Fail	Notes
1.	Zone Manipulation	Create a zone	As expected	Pass	
2.		Copy a zone	As expected	Pass	
3.		Rename a zone	As expected	Pass	
4.		Delete a zone	As expected	Pass	
5.	Zoneset Manipulation	Create a zoneset	As expected	Pass	
6.		Copy a zoneset	As expected	Pass	
7.		Rename a zoneset	As expected	Pass	
8.		Delete a zoneset	As expected	Pass	
9.	Add a new Zone to a Zoneset and activate it with I/O running from multiple hosts	Activation should not cause any interruption in I/O for any host. Host not affected by the zoning should not receive any errors or retries. Only affected members should notice "RSCN".	As expected	Pass	

10.	Multiple Clients perform zoning library updates and activations	Multi client zone updates should update the zoning library successfully. No lost zoning.	Zoning information is lost if multiple clients are in the zoning library simultaneously.	Fail	This is a known problem and will be fixed in Connectrix Mgr 9.5 due 2 nd /3 rd Qtr 08.
-----	---	--	--	------	--

19.4. Security Management

No.	Test	Expected Behavior	Result	Pass/Fail	Notes
1.	Users and Roles User Groups - Citi Storage Admin - Citi IPS Admin - Citi Info Sec Admin - Citi Auditor - Vendor Maintenance - SANScreen Monitor	Add users with varying degrees of authority. Verify user access is per defined roles.	As expected	Pass	
2.	Security Logs	Verify security event placed in Security Log on failed attempts.	Failed logins not showing in Security Log.	Fail	This feature will be included in Connectrix Mgr 9.5 due 2 nd /3 rd Qtr 08
3.	Clearing security logs	Verify Citi Security Administrator is the only group capable of clearing security logs.	As expected	Pass	Created Citi User Groups per McData Solutions Guide
4.	Integrating Master Log with eTrust Audit Release 8	All records recorded in the Connectrix Manager Master Log should be sent to eTrust.	As expected	Pass	

19.5. Fabric Security – SANtegrity

No.	Test	Expected Behavior	Result	Pass/Fail	Notes
1.	Block/Unblock a port.	Port should be blocked and should not allow fabric connections. An event is logged.	As expected	Pass	
2.	Bind/Unbind a port.	Bound port will not allow a connection, other than the bound WWN.	As expected	Pass	
3.	Fabric Binding administration.	Product should be able to administer Fabric Binding to allow only authorized switches to log in..	As expected	Pass	

19.6. Alerts/Performance Statistics

No.	Test	Expected Behavior	Result	Pass/Fail	Notes
1.	Show routes / Hop Counts	The path of the Fibre Channel frames should be highlighted.	As expected	Pass	
2.	Threshold Alert Modification and Activation (Port or ISL)	Thresholds can be modified and activated, thus providing a record of a logged event.	As expected	Pass	
3.	Realtime Performance	Verify realtime performance is being displayed.	As expected	Pass	
4.	Logs Functioning Properly Audit Log Event Log Fabric Log Product Status Log Session Log	Prior events should be preserved in the logs. In addition, events from testing in prior steps should be displayed in the logs.	As expected Prior events are NOT preserved. It is document by EMC, that the logs will be cleared. New events are logged.	Pass	If eTrust Audit has been deployed this is not an issue. All Connectrix Mgr Master Log records are sent to eTrust.
5.	Element Manager Logs Audit Log Event Log Hardware Log Link Incident Log Port Threshold Alert Log Security Log Open Trunking Log Embedded Port Log Switch Fabric Log	Prior events should be preserved in the logs. In addition, events from testing in prior steps should be displayed in the logs.	As expected	Pass	
6.	Verify log events are accurate No null zone entries. Correlation of any event to single user ID (changes should be tested with multiple clients connected)	Zone or zoneset changes should not show Null entries and a single user ID should be association with any change.	As expected	Pass	
7.	Verify increased size of log files	Number of records retained in the log should have been increased, to allow more than 1000 records to be viewed.	As Expected	Pass	All Connectrix Mgr records are logged in the Master Log. ETrust Audit sends these records to the eTrust DB.