MYLAN

Linux
Hardware Installation/Operating System Installation Qualification

_____ **u5dpnbmep003**_____
Server Name

HRCDT64
Service Tag

NetBackup – Prod
Server's Primary Function

FINAL APPROVAL

Completion of the following signature block signifies that the appropriate parties have reviewed and the Quality Assurance representative has approved this installation qualification. The undersigned agree that system is installed completely, properly, and is in an environment suitable for its intended use.

Performed By: _____ Date: _____N/A_____

Performed By: _____N/A_____ Date: _____N/A_____

Technical/Peer Review: _____ Date: _____N/A_____

Information Systems: _____ Date: _____N/A_____

MYLAN

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Issue Date:	Version: 1.1	

1. Overview

This document outlines the approved procedure for setup, installation, and qualification of a Linux Operating System. The parameters to be entered and the steps to be taken to install, configure, and document the environment of the server hardware and software are detailed in this document. This procedure is executed whenever a qualified Linux Operating System is required within Mylan's computing environment.

2. Definitions

2.1. <u>DNS Server</u> – Mylan approved internal domain naming service (DNS) that is responsible for translating Internet Protocol addresses to host names and vise-versa.

2.2. <u>NTP Setup</u> – the method used to synchronize the server's clock time to a centralized time server.

2.3. <u>DMZ (demilitarized zone)</u> – the virtual area, protected by at least one or more firewalls, between Mylan's internal network and the Internet.

2.4. <u>Documentation</u> – physical evidence that portions of this protocol were executed. All qualification documentation must have the IQ's outline number, your initials, and date of execution indicated on each page.

3. References

3.1. Mylan Pharmaceuticals, Inc. SOP-0007 Computer Systems Validation

3.2. KVM Guidelines – maintained by Data Services

3.3. Server Installation Request Form – maintained by Data Services

4. Assumptions

4.1. All hardware and software needed for the installation have been acquired.

4.2. A DNS server exists.

4.3. The latest Linux O/S patches are available for installation.

4.4. A check mark indicates the step was successfully completed.

4.5. Server meets minimum hardware requirements for Linux Operating System referring to documentation labeled 'Linux Hardware Requirements' located in the Validation Cabinet.

Installation Qualification (IQ)

5. **Identify Server on which Linux is to be installed:**

   _____u5dpnbmep003_____

   Server Name

   _____ HRCDT64_____

   Service Tag

6. **Identify the Linux O/S and Version to be installed:**

   _____ RED HAT LINUX ENTERPRISE SERVER_____

   Linux O/S

   _____8.10_____

   Linux O/S Version

7. **Hardware Setup**

   7.1.   ☒ Create a DNS entry or verify Dynamic update on the Corporate DNS server.

   7.2.   ☒ Update the master IP list.

8. **Indicate the source for O/S deployment:**

   8.1.   ☒ Download from Vendor web site. Please indicate web site:

   _https://access.redhat.com/downloads/_____ _____

   8.2.   ☐ CD

   8.3.   ☐ Other. Please indicate:_____N/A_____

9. **Configure the Linux Operating Environment**

   9.1.   ☒ Set a strong password for the root account.

   9.2.   List IP Addresses assigned to server

   ___10____._6____. _177_____.__12_____

   ___N/A_____.__N/A_____.___N/A_____.____N/A____

   9.3.   ☒ Create a login banner to warn against unauthorized use.

9.4. ☒ Configure O/S to log failed login attempts. Ensure that the logs are configured to rotate if necessary to preserver data for at least 30 days.

9.5. ☒ Remove any default accounts from passwd, shadow, and group that will not be used.

9.6. ☒ Ensure that accounts do not exist that have blank passwords.

9.7. ☒ Eliminate login to service accounts by assigning/dev/null or /sbin/nologin for the default shell.

9.8. ☒ Eliminate r-services such as rcp, rlogin, etc.

9.9. ☒ Install and configure SSH.

9.10. ☒ Disable SNMP if not used and if used, change the default read and write community strings.

9.11. ☒ Disable all services that are not required such as FTP, HTTP, tftp, xinetd, chargen, echo, finger, walld, sprayd, etc.

9.12. ☒ Disable or remove compliers and development tools if the server will not be used for software development.

9.13. ☒ Strengthen the default umask so that files are not created with default Group or Other access for: root and World access for other users.

9.14. ☒ Password protect single user mode.

9.15. ☒ Set password aging to force password change at least every 90 days.

9.16. ☒ Disable NFS file sharing if not required. If required, configure sharing to allow access by designated accounts and host only.

9.17. ☒ Restrict access to cron and at scheduling services

9.18. ☒ Restrict access of Administration tools such as Ifconfig, chkconfig, traceroute, iptables, etc.

9.19.   ☒ Update the O/S with the latest Linux Updates.

Indicate any updates that are not installed and the reason:

___N/A_____

___N/A_____

___N/A_____

___N/A_____

9.20.   List the configuration file for NTP setup

_____/etc/chrony.conf_____

9.21.   ☒ Verify that O/S settings are configured properly to accommodate server on KVM. See the following document:

IS_Shr_Technician Share\Documentation\KVM Guidelines\readme first.doc

9.22.   Will the server be SAN attached?

9.22.1.   ☐ Yes. Execute protocol IS-SAN-IQ-0020.

9.22.2.   ☒ No

10. Application software (setup "non-Administrator" account and install additional software common to any environment).

10.1.   Is additional application software being installed on this server?

10.2.   ☐ Yes

Record applications name and versions, and user account that runs the software:

Application Name	Version	Procedure followed	User Account that runs software
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A

10.3.   ☒ No

11. Boot server from main disk and monitor for errors. Check the environment, file system, and top CPU processes.

11.1.   ☒ Include a copy of the output generated by the env, df –hl, and top commands.

12. Disaster Recovery

12.1.   Will backups of this server be performed by Data Services?

☒ Yes.

12.1.1. ☐ Provide documented evidence that the Backup Agent installation Qualification has been executed.

12.1.2. ☐ Provide documented evidence that server has a successful backup created.

12.1.3. ☐ Provide a copy of the backup policy.

12.2.   ☐ No. Explain: __N/A_____

Installation Qualification (IQ)

13. System Monitoring

    13.1.   Indicate monitoring protocol:

        13.1.1. ☐ Argent Guardian

        13.1.2. ☒ Other: _____Splunk Monitoring_____

    13.2.   ☒ Provide documented evidence that server has successfully sent a failure notice or alert.

14. Backup suspension

    14.1.   Is this server in a powered-off state to facilitate it relocation a data center?

        14.1.1. ☐ Yes. Contact the Backup Administrator and request suspension of the server's backup policy.

        14.1.2. ☒ No.

15. Finalize Documentation

    15.1   ☒ Ensure that all documentation pages are numbered with the IQ's outline number

    15.2   ☒ Initial and date each documentation page

    15.3   ☒ Staple all documentation together, attach to this IQ, and submit to the appropriate parties for approval

Installation Execution

All installation steps have been completed with expected results, indicating that the Operating System has been properly installed, suitable for its intended use, and meets the minimum requirements established by Mylan's Corporate IT policies.

_____   _____   _____

Performed By   Initial   Date

_____N/A_____   _N/A__   _____N/A_____

Performed By   Initial   Date

Date	Reason For Change	Version
18 Apr 2016	Final Approval Table: Updated Document Approval table: Removed IQ start date and GXP server options: Removed Sections removed: Section 7 Section 16	2.0
	Added Installation Execution statement on page 7 Revised Final Approval Statement on page 1 Added GxP statement to page 1	1.1
07/13/2005	Original	1.0