2.2 Special Purpose Services

This section describes services that are installed on systems that specifically need to run these services. If any of these services are not required, it is recommended that the package be removed, or the service be masked to reduce the potential attack surface.

Note: This should not be considered a comprehensive list of services not required for normal system operation. You may wish to consider additions to those listed here for your environment

2.2.1 Ensure xinetd is not installed (Automated)

Profile Applicability:

- Level 1 - Server
- Level 1 - Workstation

Description:

The eXtended InterNET Daemon (`xinetd`) is an open source super daemon that replaced the original `inetd` daemon. The `xinetd` daemon listens for well known services and dispatches the appropriate daemon to properly respond to service requests.

Rationale:

If there are no xinetd services required, it is recommended that the package be removed to reduce the attack surface are of the system.

Note: If an xinetd service or services are required, ensure that any xinetd service not required is stopped and disabled

Audit:

Run the following command to verify `xinetd` is not installed:

```
# rpm -q xinetd

package xinetd is not installed
```

Remediation:

Run the following command to remove `xinetd`:

```
# dnf remove xinetd
```

CIS Controls:

Controls Version	Control	IG 1	IG 2	IG 3
v8	4.8 Uninstall or Disable Unnecessary Services on Enterprise Assets and Software Uninstall or disable unnecessary services on enterprise assets and software, such as an unused file sharing service, web application module, or service function.		●	●
v7	2.6 Address unapproved software Ensure that unauthorized software is either removed or the inventory is updated in a timely manner	●	●	●
v7	9.2 Ensure Only Approved Ports, Protocols and Services Are Running Ensure that only network ports, protocols, and services listening on a system with validated business needs, are running on each system.		●	●

2.2.2 Ensure xorg-x11-server-common is not installed (Automated)

Profile Applicability:

- Level 1 - Server

Description:

The X Window System provides a Graphical User Interface (GUI) where users can have multiple windows in which to run programs and various add on. The X Windows system is typically used on workstations where users login, but not on servers where users typically do not login.

Rationale:

Unless your organization specifically requires graphical login access via X Windows, remove it to reduce the potential attack surface.

Impact:

Many Linux systems run applications which require a Java runtime. Some Linux Java packages have a dependency on specific X Windows xorg-x11-fonts. One workaround to avoid this dependency is to use the "headless" Java packages for your specific Java runtime.

Audit:

Run the following command to Verify X Windows Server is not installed.

```
# rpm -q xorg-x11-server-common

package xorg-x11-server-common is not installed
```

Remediation:

Run the following command to remove the X Windows Server packages:

```
# dnf remove xorg-x11-server-common
```

CIS Controls:

Controls Version	Control	IG 1	IG 2	IG 3
v8	4.8 Uninstall or Disable Unnecessary Services on Enterprise Assets and Software Uninstall or disable unnecessary services on enterprise assets and software, such as an unused file sharing service, web application module, or service function.		●	●
v7	9.2 Ensure Only Approved Ports, Protocols and Services Are Running Ensure that only network ports, protocols, and services listening on a system with validated business needs, are running on each system.		●	●

2.2.3 Ensure Avahi Server is not installed (Automated)

Profile Applicability:

- Level 1 - Server
- Level 2 - Workstation

Description:

Avahi is a free zeroconf implementation, including a system for multicast DNS/DNS-SD service discovery. Avahi allows programs to publish and discover services and hosts running on a local network with no specific configuration. For example, a user can plug a computer into a network and Avahi automatically finds printers to print to, files to look at and people to talk to, as well as network services running on the machine.

Rationale:

Automatic discovery of network services is not normally required for system functionality. It is recommended to remove this package to reduce the potential attack surface.

Audit:

Run one of the following command to verify `avahi-autoipd` and `avahi` are not installed:

```
# rpm -q avahi-autoipd avahi

package avahi-autoipd is not installed
package avahi is not installed
```

Remediation:

Run the following commands to stop, mask and remove `avahi-autoipd` and `avahi`:

```
# systemctl stop avahi-daemon.socket avahi-daemon.service

# dnf remove avahi-autoipd avahi
```

CIS Controls:

Controls Version	Control	IG 1	IG 2	IG 3
v8	4.8 Uninstall or Disable Unnecessary Services on Enterprise Assets and Software Uninstall or disable unnecessary services on enterprise assets and software, such as an unused file sharing service, web application module, or service function.		●	●
v7	9.2 Ensure Only Approved Ports, Protocols and Services Are Running Ensure that only network ports, protocols, and services listening on a system with validated business needs, are running on each system.		●	●

2.2.4 Ensure CUPS is not installed (Automated)

Profile Applicability:

- Level 1 - Server

Description:

The Common Unix Print System (CUPS) provides the ability to print to both local and network printers. A system running CUPS can also accept print jobs from remote systems and print them to local printers. It also provides a web based remote administration capability.

Rationale:

If the system does not need to print jobs or accept print jobs from other systems, it is recommended that CUPS be removed to reduce the potential attack surface.

Note: Removing CUPS will prevent printing from the system

Impact:

Disabling CUPS will prevent printing from the system, a common task for workstation systems.

Audit:

Run the following command to verify `cups` is not installed:

```
# rpm -q cups

package cups is not installed
```

Remediation:

Run the following command to remove `cups`:

```
# dnf remove cups
```

References:

1. More detailed documentation on CUPS is available at the project homepage at http://www.cups.org.

CIS Controls:

Controls Version	Control	IG 1	IG 2	IG 3
v8	4.8 Uninstall or Disable Unnecessary Services on Enterprise Assets and Software Uninstall or disable unnecessary services on enterprise assets and software, such as an unused file sharing service, web application module, or service function.		●	●
v7	9.2 Ensure Only Approved Ports, Protocols and Services Are Running Ensure that only network ports, protocols, and services listening on a system with validated business needs, are running on each system.		●	●

2.2.5 Ensure DHCP Server is not installed (Automated)

Profile Applicability:

- Level 1 - Server
- Level 1 - Workstation

Description:

The Dynamic Host Configuration Protocol (DHCP) is a service that allows machines to be dynamically assigned IP addresses.

Rationale:

Unless a system is specifically set up to act as a DHCP server, it is recommended that the rpm -q dhcp-server package be removed to reduce the potential attack surface.

Audit:

Run the following command to verify `dhcp` is not installed:

```
# rpm -q dhcp-server

package dhcp-server is not installed
```

Remediation:

Run the following command to remove `dhcp`:

```
# dnf remove dhcp-server
```

References:

1. dhcpd(8)

CIS Controls:

Controls Version	Control	IG 1	IG 2	IG 3
v8	4.8 Uninstall or Disable Unnecessary Services on Enterprise Assets and Software Uninstall or disable unnecessary services on enterprise assets and software, such as an unused file sharing service, web application module, or service function.		●	●
v7	9.2 Ensure Only Approved Ports, Protocols and Services Are Running Ensure that only network ports, protocols, and services listening on a system with validated business needs, are running on each system.		●	●

2.2.6 Ensure DNS Server is not installed (Automated)

Profile Applicability:

- Level 1 - Server
- Level 1 - Workstation

Description:

The Domain Name System (DNS) is a hierarchical naming system that maps names to IP addresses for computers, services and other resources connected to a network.

Rationale:

Unless a system is specifically designated to act as a DNS server, it is recommended that the package be removed to reduce the potential attack surface.

Audit:

Run one of the following commands to verify `bind` is not installed:

```
# rpm -q bind

package bind is not installed
```

Remediation:

Run the following command to remove `bind`:

```
# dnf remove bind
```

CIS Controls:

Controls Version	Control	IG 1	IG 2	IG 3
v8	4.8 Uninstall or Disable Unnecessary Services on Enterprise Assets and Software Uninstall or disable unnecessary services on enterprise assets and software, such as an unused file sharing service, web application module, or service function.		●	●
v7	9.2 Ensure Only Approved Ports, Protocols and Services Are Running Ensure that only network ports, protocols, and services listening on a system with validated business needs, are running on each system.		●	●

2.2.7 Ensure FTP Server is not installed (Automated)

Profile Applicability:

- Level 1 - Server
- Level 1 - Workstation

Description:

FTP (File Transfer Protocol) is a traditional and widely used standard tool for transferring files between a server and clients over a network, especially where no authentication is necessary (permits anonymous users to connect to a server).

Rationale:

FTP does not protect the confidentiality of data or authentication credentials. It is recommended SFTP be used if file transfer is required. Unless there is a need to run the system as a FTP server (for example, to allow anonymous downloads), it is recommended that the package be removed to reduce the potential attack surface.

Audit:

Run the following command to verify `ftp` is not installed:

```
# rpm -q ftp

package ftp is not installed
```

Remediation:

Run the following command to remove `ftp`:

```
# dnf remove ftp
```

CIS Controls:

Controls Version	Control	IG 1	IG 2	IG 3
v8	4.8 Uninstall or Disable Unnecessary Services on Enterprise Assets and Software Uninstall or disable unnecessary services on enterprise assets and software, such as an unused file sharing service, web application module, or service function.		●	●
v7	9.2 Ensure Only Approved Ports, Protocols and Services Are Running Ensure that only network ports, protocols, and services listening on a system with validated business needs, are running on each system.		●	●

2.2.8 Ensure VSFTP Server is not installed (Automated)

Profile Applicability:

- Level 1 - Server
- Level 1 - Workstation

Description:

FTP (File Transfer Protocol) is a traditional and widely used standard tool for transferring files between a server and clients over a network, especially where no authentication is necessary (permits anonymous users to connect to a server).

Rationale:

Unless there is a need to run the system as an FTP server, it is recommended that the package be removed to reduce the potential attack surface.

Audit:

Run the following command to verify `vsftpd` is not installed:

```
# rpm -q vsftpd

package vsftpd is not installed
```

Remediation:

Run the following command to remove `vsftpd`:

```
# dnf remove vsftpd
```

CIS Controls:

Controls Version	Control	IG 1	IG 2	IG 3
v8	4.8 Uninstall or Disable Unnecessary Services on Enterprise Assets and Software Uninstall or disable unnecessary services on enterprise assets and software, such as an unused file sharing service, web application module, or service function.		●	●
v7	9.2 Ensure Only Approved Ports, Protocols and Services Are Running Ensure that only network ports, protocols, and services listening on a system with validated business needs, are running on each system.		●	●

2.2.9 Ensure TFTP Server is not installed (Automated)

Profile Applicability:

- Level 1 - Server
- Level 1 - Workstation

Description:

Trivial File Transfer Protocol (TFTP) is a simple protocol for exchanging files between two TCP/IP machines. TFTP servers allow connections from a TFTP Client for sending and receiving files.

Rationale:

TFTP does not have built-in encryption, access control or authentication. This makes it very easy for an attacker to exploit TFTP to gain access to files

Audit:

Run the following command to verify `tftp-server` is not installed:

```
# rpm -q tftp-server

package tftp-server is not installed
```

Remediation:

Run the following command to remove `tftp-server`:

```
# dnf remove tftp-server
```

CIS Controls:

Controls Version	Control	IG 1	IG 2	IG 3
v8	4.8 Uninstall or Disable Unnecessary Services on Enterprise Assets and Software Uninstall or disable unnecessary services on enterprise assets and software, such as an unused file sharing service, web application module, or service function.		●	●
v7	9.2 Ensure Only Approved Ports, Protocols and Services Are Running Ensure that only network ports, protocols, and services listening on a system with validated business needs, are running on each system.		●	●

2.2.10 Ensure a web server is not installed (Automated)

Profile Applicability:

- Level 1 - Server
- Level 1 - Workstation

Description:

Web servers provide the ability to host web site content.

Rationale:

Unless there is a need to run the system as a web server, it is recommended that the packages be removed to reduce the potential attack surface.

Note: Several http servers exist. They should also be audited, and removed, if not required.

Audit:

Run the following command to verify `httpd` and `nginx` are not installed:

```
# rpm -q httpd nginx

package httpd is not installed
package nginx is not installed
```

Remediation:

Run the following command to remove `httpd` and `nginx`:

```
# dnf remove httpd nginx
```

CIS Controls:

Controls Version	Control	IG 1	IG 2	IG 3
v8	4.8 Uninstall or Disable Unnecessary Services on Enterprise Assets and Software Uninstall or disable unnecessary services on enterprise assets and software, such as an unused file sharing service, web application module, or service function.		●	●
v7	9.2 Ensure Only Approved Ports, Protocols and Services Are Running Ensure that only network ports, protocols, and services listening on a system with validated business needs, are running on each system.		●	●

2.2.11 Ensure IMAP and POP3 server is not installed (Automated)

Profile Applicability:

- Level 1 - Server
- Level 1 - Workstation

Description:

`dovecot` is an open source IMAP and POP3 server for Linux based systems.

Rationale:

Unless POP3 and/or IMAP servers are to be provided by this system, it is recommended that the package be removed to reduce the potential attack surface.

Note: Several IMAP/POP3 servers exist and can use other service names. These should also be audited and the packages removed if not required.

Audit:

Run the following command to verify `dovecot` and `cyrus-imapd` are not installed:

```
# rpm -q dovecot cyrus-imapd

package dovecot is not installed
package cyrus-imapd is not installed
```

Remediation:

Run the following command to remove `dovecot` and `cyrus-imapd`:

```
# dnf remove dovecot cyrus-imapd
```

CIS Controls:

Controls Version	Control	IG 1	IG 2	IG 3
v8	4.8 Uninstall or Disable Unnecessary Services on Enterprise Assets and Software Uninstall or disable unnecessary services on enterprise assets and software, such as an unused file sharing service, web application module, or service function.		●	●
v7	9.2 Ensure Only Approved Ports, Protocols and Services Are Running Ensure that only network ports, protocols, and services listening on a system with validated business needs, are running on each system.		●	●

2.2.12 Ensure Samba is not installed (Automated)

Profile Applicability:

- Level 1 - Server
- Level 1 - Workstation

Description:

The Samba daemon allows system administrators to configure their Linux systems to share file systems and directories with Windows desktops. Samba will advertise the file systems and directories via the Server Message Block (SMB) protocol. Windows desktop users will be able to mount these directories and file systems as letter drives on their systems.

Rationale:

If there is no need to mount directories and file systems to Windows systems, then this package can be removed to reduce the potential attack surface.

Audit:

Run the following command to verify `samba` is not installed:

```
# rpm -q samba

package samba is not installed
```

Remediation:

Run the following command to remove `samba`:

```
# dnf remove samba
```

CIS Controls:

Controls Version	Control	IG 1	IG 2	IG 3
v8	4.8 Uninstall or Disable Unnecessary Services on Enterprise Assets and Software Uninstall or disable unnecessary services on enterprise assets and software, such as an unused file sharing service, web application module, or service function.		●	●
v7	9.2 Ensure Only Approved Ports, Protocols and Services Are Running Ensure that only network ports, protocols, and services listening on a system with validated business needs, are running on each system.		●	●

2.2.13 Ensure HTTP Proxy Server is not installed (Automated)

Profile Applicability:

- Level 1 - Server
- Level 1 - Workstation

Description:

Squid is a standard proxy server used in many distributions and environments.

Rationale:

Unless a system is specifically set up to act as a proxy server, it is recommended that the squid package be removed to reduce the potential attack surface.

Note: Several HTTP proxy servers exist. These should be checked and removed unless required.

Audit:

Run the following command to verify `squid` is not installed:

```
# rpm -q squid

package squid is not installed
```

Remediation:

Run the following command to remove the `squid` package:

```
# dnf remove squid
```

CIS Controls:

Controls Version	Control	IG 1	IG 2	IG 3
v8	4.8 Uninstall or Disable Unnecessary Services on Enterprise Assets and Software Uninstall or disable unnecessary services on enterprise assets and software, such as an unused file sharing service, web application module, or service function.		●	●
v7	9.2 Ensure Only Approved Ports, Protocols and Services Are Running Ensure that only network ports, protocols, and services listening on a system with validated business needs, are running on each system.		●	●

2.2.14 Ensure net-snmp is not installed (Automated)

Profile Applicability:

- Level 1 - Server
- Level 1 - Workstation

Description:

Simple Network Management Protocol (SNMP) is a widely used protocol for monitoring the health and welfare of network equipment, computer equipment and devices like UPSs.

Net-SNMP is a suite of applications used to implement SNMPv1 (RFC 1157), SNMPv2 (RFCs 1901-1908), and SNMPv3 (RFCs 3411-3418) using both IPv4 and IPv6.

Support for SNMPv2 classic (a.k.a. "SNMPv2 historic" - RFCs 1441-1452) was dropped with the 4.0 release of the UCD-snmp package.

The Simple Network Management Protocol (SNMP) server is used to listen for SNMP commands from an SNMP management system, execute the commands or collect the information and then send results back to the requesting system.

Rationale:

The SNMP server can communicate using `SNMPv1`, which transmits data in the clear and does not require authentication to execute commands. `SNMPv3` replaces the simple/clear text password sharing used in `SNMPv2` with more securely encoded parameters. If the the SNMP service is not required, the `net-snmp` package should be removed to reduce the attack surface of the system.

Note: If SNMP is required:

- *The server should be configured for `SNMP v3` only. `User Authentication` and `Message Encryption` should be configured.*
- *If `SNMP v2` is **absolutely** necessary, modify the community strings' values.*

Audit:

Run the following command to verify `net-snmp` is not installed:

```
# rpm -q net-snmp

package net-snmp is not installed
```

Remediation:

Run the following command to remove `net-snmpd`:

```
# dnf remove net-snmp
```

CIS Controls:

Controls Version	Control	IG 1	IG 2	IG 3
v8	4.8 Uninstall or Disable Unnecessary Services on Enterprise Assets and Software Uninstall or disable unnecessary services on enterprise assets and software, such as an unused file sharing service, web application module, or service function.		●	●
v7	2.6 Address unapproved software Ensure that unauthorized software is either removed or the inventory is updated in a timely manner	●	●	●
v7	9.2 Ensure Only Approved Ports, Protocols and Services Are Running Ensure that only network ports, protocols, and services listening on a system with validated business needs, are running on each system.		●	●

2.2.15 Ensure NIS server is not installed (Automated)

Profile Applicability:

- Level 1 - Server
- Level 1 - Workstation

Description:

The `ypserv` package provides the Network Information Service (NIS). This service, formally known as Yellow Pages, is a client-server directory service protocol for distributing system configuration files. The NIS server is a collection of programs that allow for the distribution of configuration files.

Rationale:

The NIS service is inherently an insecure system that has been vulnerable to DOS attacks, buffer overflows and has poor authentication for querying NIS maps. NIS generally has been replaced by such protocols as Lightweight Directory Access Protocol (LDAP). It is recommended that the `ypserv` package be removed, and if required a more secure services be used.

Audit:

Run the following command to verify `ypserv` is not installed:

```
# rpm -q ypserv

package ypserv is not installed
```

Remediation:

Run the following command to remove `ypserv`:

```
# dnf remove ypserv
```

CIS Controls:

Controls Version	Control	IG 1	IG 2	IG 3
v8	4.8 Uninstall or Disable Unnecessary Services on Enterprise Assets and Software Uninstall or disable unnecessary services on enterprise assets and software, such as an unused file sharing service, web application module, or service function.		●	●
v7	2.6 Address unapproved software Ensure that unauthorized software is either removed or the inventory is updated in a timely manner	●	●	●
v7	9.2 Ensure Only Approved Ports, Protocols and Services Are Running Ensure that only network ports, protocols, and services listening on a system with validated business needs, are running on each system.		●	●

2.2.16 Ensure telnet-server is not installed (Automated)

Profile Applicability:

- Level 1 - Server
- Level 1 - Workstation

Description:

The `telnet-server` package contains the `telnet` daemon, which accepts connections from users from other systems via the `telnet` protocol.

Rationale:

The `telnet` protocol is insecure and unencrypted. The use of an unencrypted transmission medium could allow a user with access to sniff network traffic the ability to steal credentials. The `ssh` package provides an encrypted session and stronger security.

Audit:

Run the following command to verify the `telnet-server` package is not installed:

```
rpm -q telnet-server

package telnet-server is not installed
```

Remediation:

Run the following command to remove the telnet-server package:

```
# dnf remove telnet-server
```

CIS Controls:

Controls Version	Control	IG 1	IG 2	IG 3
v8	4.8 Uninstall or Disable Unnecessary Services on Enterprise Assets and Software Uninstall or disable unnecessary services on enterprise assets and software, such as an unused file sharing service, web application module, or service function.		●	●
v7	2.6 Address unapproved software Ensure that unauthorized software is either removed or the inventory is updated in a timely manner	●	●	●
v7	9.2 Ensure Only Approved Ports, Protocols and Services Are Running Ensure that only network ports, protocols, and services listening on a system with validated business needs, are running on each system.		●	●

2.2.17 Ensure mail transfer agent is configured for local-only mode (Automated)

Profile Applicability:

- Level 1 - Server
- Level 1 - Workstation

Description:

Mail Transfer Agents (MTA), such as sendmail and Postfix, are used to listen for incoming mail and transfer the messages to the appropriate user or mail server. If the system is not intended to be a mail server, it is recommended that the MTA be configured to only process local mail.

Rationale:

The software for all Mail Transfer Agents is complex and most have a long history of security issues. While it is important to ensure that the system can process local mail messages, it is not necessary to have the MTA's daemon listening on a port unless the server is intended to be a mail server that receives and processes mail from other systems.

Notes:

- *This recommendation is designed around the postfix mail server.*
- *Depending on your environment you may have an alternative MTA installed such as sendmail. If this is the case consult the documentation for your installed MTA to configure the recommended state.*

Audit:

Run the following command to verify that the MTA is not listening on any non-loopback address (`127.0.0.1` or `::1`)

Nothing should be returned

```
#  ss -lntu | grep -E ':25\s' | grep -E -v '\s(127.0.0.1|\[?::1\]?):25\s'
```

Remediation:

Edit `/etc/postfix/main.cf` and add the following line to the RECEIVING MAIL section. If the line already exists, change it to look like the line below:

```
inet_interfaces = loopback-only
```

Run the following command to restart `postfix`:

```
# systemctl restart postfix
```

CIS Controls:

Controls Version	Control	IG 1	IG 2	IG 3
v8	4.8 Uninstall or Disable Unnecessary Services on Enterprise Assets and Software Uninstall or disable unnecessary services on enterprise assets and software, such as an unused file sharing service, web application module, or service function.		●	●
v7	9.2 Ensure Only Approved Ports, Protocols and Services Are Running Ensure that only network ports, protocols, and services listening on a system with validated business needs, are running on each system.		●	●

2.2.18 Ensure nfs-utils is not installed or the nfs-server service is masked (Automated)

Profile Applicability:

- Level 1 - Server
- Level 1 - Workstation

Description:

The Network File System (NFS) is one of the first and most widely distributed file systems in the UNIX environment. It provides the ability for systems to mount file systems of other servers through the network.

Rationale:

If the system does not require network shares, it is recommended that the nfs-utils package be removed to reduce the attack surface of the system.

Impact:

Many of the `libvirt` packages used by Enterprise Linux virtualization are dependent on the `nfs-utils` package. If the `nfs-package` is required as a dependency, the `nfs-server` should be disabled and masked to reduce the attack surface of the system.

Audit:

Run the following command to verify `nfs-utils` is not installed:

```
# rpm -q nfs-utils

package nfs-utils is not installed
```

OR

If the nfs-package is required as a dependency, run the following command to verify that the `nfs-server` service is masked:

```
# systemctl is-enabled nfs-server

masked
```

Remediation:

Run the following command to remove `nfs-utils`:

```
# dnf remove nfs-utils
```

OR

If the nfs-package is required as a dependency, run the following command to stop and mask the `nfs-server` service:

```
# systemctl --now mask nfs-server
```

Additional Information:

Many of the libvirt packages used by Enterprise Linux virtualization are dependent on the nfs-utils package. If the nfs-package is required as a dependency, the nfs-server should be disabled and masked to reduce the attack surface of the system.

CIS Controls:

Controls Version	Control	IG 1	IG 2	IG 3
v8	4.8 Uninstall or Disable Unnecessary Services on Enterprise Assets and Software Uninstall or disable unnecessary services on enterprise assets and software, such as an unused file sharing service, web application module, or service function.		●	●
v7	9.2 Ensure Only Approved Ports, Protocols and Services Are Running Ensure that only network ports, protocols, and services listening on a system with validated business needs, are running on each system.		●	●

2.2.19 Ensure rpcbind is not installed or the rpcbind services are masked (Automated)

Profile Applicability:

- Level 1 - Server
- Level 1 - Workstation

Description:

The rpcbind utility maps RPC services to the ports on which they listen. RPC processes notify rpcbind when they start, registering the ports they are listening on and the RPC program numbers they expect to serve. The client system then contacts rpcbind on the server with a particular RPC program number. The rpcbind service redirects the client to the proper port number so it can communicate with the requested service.

Portmapper is an RPC service, which always listens on tcp and udp 111, and is used to map other RPC services (such as nfs, nlockmgr, quotad, mountd, etc.) to their corresponding port number on the server. When a remote host makes an RPC call to that server, it first consults with portmap to determine where the RPC server is listening.

Rationale:

A small request (~82 bytes via UDP) sent to the Portmapper generates a large response (7x to 28x amplification), which makes it a suitable tool for DDoS attacks. If rpcbind is not required, it is recommended that the rpcbind package be removed to reduce the attack surface of the system.

Impact:

Many of the libvirt packages used by Enterprise Linux virtualization, and the `nfs-utils` package used for The Network File System (NFS), are dependent on the `rpcbind` package. If the `rpcbind` package is required as a dependency, the services `rpcbind.service` and `rpcbind.socket` should be stopped and masked to reduce the attack surface of the system.

Audit:

Run the following command to verify `rpcbind` is not installed:

```
# rpm -q rpcbind

package rpcbind is not installed
```

OR

If the `rpcbind` package is required as a dependency, run the following commands to verify that the `rpcbind` and `rpcbind.socket` services are masked:

```
# systemctl is-enabled rpcbind

masked

# systemctl is-enabled rpcbind.socket

masked
```

Remediation:

Run the following command to remove `nfs-utils`:

```
# dnf remove rpcbind
```

OR

If the `rpcbind` package is required as a dependency, run the following commands to stop and mask the `rpcbind` and `rpcbind.socket` services:

```
# systemctl --now mask rpcbind
# systemctl --now mask rpcbind.socket
```

CIS Controls:

Controls Version	Control	IG 1	IG 2	IG 3
v8	4.8 Uninstall or Disable Unnecessary Services on Enterprise Assets and Software Uninstall or disable unnecessary services on enterprise assets and software, such as an unused file sharing service, web application module, or service function.		●	●
v7	9.2 Ensure Only Approved Ports, Protocols and Services Are Running Ensure that only network ports, protocols, and services listening on a system with validated business needs, are running on each system.		●	●

2.2.20 Ensure rsync is not installed or the rsyncd service is masked (Automated)

Profile Applicability:

- Level 1 - Server
- Level 1 - Workstation

Description:

The `rsyncd` service can be used to synchronize files between systems over network links.

Rationale:

Unless required, the `rsync` package should be removed to reduce the attack surface area of the system.

The `rsyncd` service presents a security risk as it uses unencrypted protocols for communication.

Note: If a required dependency exists for the `rsync` package, but the `rsyncd` service is not required, the service should be masked.

Impact:

There are packages that are dependent on the rsync package. If the rsync package is removed, these packages will be removed as well.

Before removing the rsync package, review any dependent packages to determine if they are required on the system. If a dependent package is required, mask the rsyncd service and leave the rsync package installed.

Audit:

Run the following command to verify that `rsync` is not installed:

```
# rpm -q rsync

package rsync is not installed
```

OR

Run the following command to verify the `rsyncd` service is masked:

```
# systemctl is-enabled rsyncd

masked
```

Remediation:

Run the following command to remove the `rsync` package:

```
# dnf remove rsync
```

OR

Run the following command to mask the `rsyncd` service:

```
# systemctl --now mask rsyncd
```

CIS Controls:

Controls Version	Control	IG 1	IG 2	IG 3
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