

System Access, Repositories, and Network Configuration

This work documents the configuration and validation of core Linux services required for secure access, reliable package management, and stable network functionality on a CentOS Stream-based system.

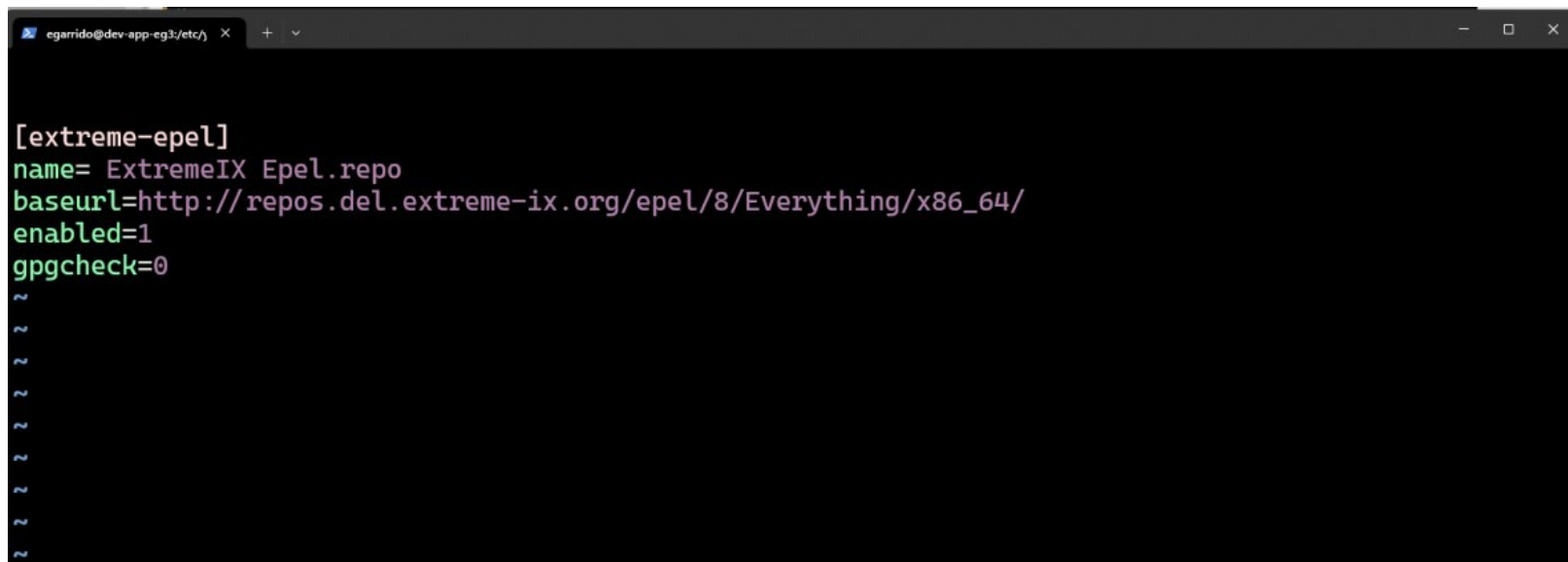
SSH access and firewall rules are verified to ensure secure and persistent remote connectivity. External repositories are added and validated, with connectivity checks confirming successful access to external mirrors and proper DNF repository loading. Package installation testing confirms repository health and dependency resolution.

Network configuration is finalized by validating DNS resolver settings managed by NetworkManager, including search domains and redundant name servers to ensure consistent hostname resolution across the environment.

Result:

A production-ready system with secure remote access, functional package repositories, confirmed external connectivity, and reliable DNS resolution.

This configuration shows a custom EPEL repository definition being added to the system package manager. The repository is enabled and points to an external mirror providing additional packages not included in the default distribution repositories. This setup extends package availability for the system while maintaining compatibility with the underlying OS architecture.

A terminal window with a dark background and light-colored text. The window title bar shows 'cgarrido@dev-app-eg3/etc/' and standard window controls. The terminal content shows the configuration for a repository named 'extreme-epel'. The configuration includes the repository name, base URL, enabled status, and GPG check status. There are several tilde characters at the bottom of the terminal.

```
[extreme-epel]
name= ExtremeIX Epel.repo
baseurl=http://repos.del.extreme-ix.org/epel/8/Everything/x86_64/
enabled=1
gpgcheck=0
~
~
~
~
~
~
~
~
~
~
~
```

This output verifies the currently enabled DNF repositories on the system. The default CentOS Stream 9 repositories (BaseOS, AppStream, and Extras) are active, along with a custom external EPEL repository. The repository list confirms that the package manager is correctly recognizing and loading the configured repositories, ensuring access to both core system packages and extended software sources.

```
egarrido@dev-app-eg3 yum.repos.d]$ sudo dnf repolist
Warning: failed loading '/etc/yum.repos.d/MariaDB.repo', skipping.
repo id                                repo name
ppstream                               CentOS Stream 9 - AppStream
baseos                                 CentOS Stream 9 - BaseOS
extras-common                          CentOS Stream 9 - Extras packages
extreme-epel                           del.extreme-ix
egarrido@dev-app-eg3 yum.repos.d]$
```

This step validates network connectivity and availability of the external EPEL repository source. An HTTP header check confirms the repository endpoint is reachable and properly redirects from HTTP to HTTPS, indicating correct server response and secure access. ICMP testing verifies consistent network connectivity to the repository host with zero packet loss, confirming that the system can reliably reach the external mirror for package retrieval.

```
egarrido@dev-app-eg3/etc/ x + v
[egarrido@dev-app-eg3 yum.repos.d]$ curl -I http://repos.del.extreme-ix.org/epel/8/Everything/x86_64/
HTTP/1.1 301 Moved Permanently
Server: nginx
Date: Sun, 28 Sep 2025 18:28:00 GMT
Content-Type: text/html
Content-Length: 162
Connection: keep-alive
Location: https://repos.del.extreme-ix.org/epel/8/Everything/x86_64/

[egarrido@dev-app-eg3 yum.repos.d]$ ping repos.del.extreme-ix.org
PING del-repos-1.vm.x3me.net (103.77.111.8) 56(84) bytes of data.
64 bytes from 103.77.111.8 (103.77.111.8): icmp_seq=1 ttl=46 time=314 ms
64 bytes from 103.77.111.8 (103.77.111.8): icmp_seq=2 ttl=46 time=311 ms
64 bytes from 103.77.111.8 (103.77.111.8): icmp_seq=3 ttl=46 time=306 ms
64 bytes from 103.77.111.8 (103.77.111.8): icmp_seq=4 ttl=46 time=306 ms
64 bytes from 103.77.111.8 (103.77.111.8): icmp_seq=5 ttl=46 time=306 ms
^C
--- del-repos-1.vm.x3me.net ping statistics ---
5 packets transmitted, 5 received, 0% packet loss, time 4002ms
rtt min/avg/max/mdev = 305.732/308.730/314.378/3.336 ms
[egarrido@dev-app-eg3 yum.repos.d]$
```

This step verifies that the configured DNF repositories are accessible and functional by querying the active repository list and performing a package installation check. The output confirms that the system successfully recognizes the default CentOS Stream repositories along with the external EPEL source. A test installation of the tmux package confirms repository availability and dependency resolution, indicating that the package management configuration is working as expected.

```
egarrido@dev-app-eg3: /etc/...  
[egarrido@dev-app-eg3 yum.repos.d]$ sudo dnf repolist  
Warning: failed loading '/etc/yum.repos.d/MariaDB.repo', skipping.  
repo id                                repo name  
appstream                              CentOS Stream 9 - AppStream  
baseos                                 CentOS Stream 9 - BaseOS  
extras-common                          CentOS Stream 9 - Extras packages  
extreme-epel                           del.extreme-ix  
[egarrido@dev-app-eg3 yum.repos.d]$ sudo dnf install -y tmux  
Warning: failed loading '/etc/yum.repos.d/MariaDB.repo', skipping.  
Last metadata expiration check: 0:02:00 ago on Sun 28 Sep 2025 02:30:57 PM EDT.  
Package tmux-3.2a-5.el9.x86_64 is already installed.  
Dependencies resolved.  
Nothing to do.  
Complete!  
[egarrido@dev-app-eg3 yum.repos.d]$
```

A screenshot of a terminal window with a dark background. The title bar at the top shows "egarrido@dev-app-eg3:/etc/" followed by standard window controls. The terminal displays the following text:

```
# Generated by NetworkManager  
search procore.prod1  
nameserver 10.1.15.13  
nameserver 10.1.15.15  
~  
~  
~  
~  
~  
~  
~  
~  
~  
~
```

The first line is a comment. The subsequent two lines are DNS search domain and nameserver configurations. The remaining lines are tilde symbols representing prompt characters.

Summary

This work validates secure system access, repository availability, and network configuration on a CentOS Stream–based server. SSH access and firewall rules are confirmed to support secure remote connectivity. External repositories are added and verified, with connectivity checks and package installation confirming proper DNF functionality and dependency resolution. DNS resolver settings managed by NetworkManager are validated to ensure reliable internal and external name resolution.

Outcome:

A stable, production-ready system with secure access, functional package management, verified external connectivity, and consistent DNS resolution.