Inspection and maintenance tools

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Continued operation

The following tools described can help you in pinpointing issues.

`Note: This is just a primer.`

Divide them into categories

- General tools
- Disk
- Network
- Debug

General tools

These are tools that are used for general inspection, such as

- system state
- process monitoring
- service control

ps

`ps - report process status`

Memory usage

To check if the system has enough memory available to run processes

Service management

Processes on Linux/Unix are owned by the `init` process, which primary role is to start processes according to a script from `/etc/inittab` or `/etc/init.d`

Service management

`systemctl` is a linux command to control the `systemd` system and service manager.

Service files

The files used by `systemd` to start a service process are located in `/usr/lib/systemd/system`.

Disk commands

- basic commands
- preparation tools
- mapping
- consistency check

Disk free

`df` - report file system disk space usage

Disk usage

`du` - estimate file space usage

fdisk

Hard disks can be divided into one or more logical disks called partitions. This division is described in the partition table found in sector 0 of the disk.

`fdisk` is a command-line utility that provides disk partitioning functions.

LVM

The Logical Volume Manager (LVM) provides logical volume management for the Linux kernel.

Network

- connectivity
- diagnostic

ifcfg-ethX

On CentOS / RHEL and Fedora systems you can configure networm interfaces using a network configuration file.

iproute2

`iproute2` is a collection of userspace utilities for controlling and monitoring various aspects of networking in the Linux kernel, including routing, network interfaces, tunnels, traffic control, and network-related device drivers.

Persistent static routes

For CentOS / RHEL and Fedora a persistent static route can be configured via a network configuration file.

arping

`arping` is a tool for discovering and probing hosts on a computer network. It probes hosts on the attached network link by sending Link Layer frames using ARP request method addressed to a host identified by its MAC address of the network interface.

ping

`ping` is a small utitlity to measure the reachability and round-trip time for a message to be sent and echoed back by a destination host. It uses a ICMP Echo Request message for this.

traceroute (tracepath)

`traceroute` is a network diagnostic tool for displaying the route and measuring transit delays of packets on an IP network. This can help identify incorrect routing table definitions.

tcpdump

`tcpdump` is a common command line packet analyzer. It allows the user to display TCP/IP and other packets being transmitted or received.

iftop

`iftop` is a command-line monitoring tool that shows a list of network connections and their bandwidth usage.

brctl

`brctl` is used to set up, maintain, and inspect the ethernet bridge configuration in the linux kernel.

lsof

`lsof - list open files`

strace

`strace - trace system calls and signals`

Debugging

Debugging is a the process of finding and resolving defects that prevent correct operation of a computer process.

pdb

`pdb` is an interactive source code debugger for Python programs, offered as a module.

gdb

GNU Debugger. The standard debugger for the GNU operating system.