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Home (/) » Articles (/articles) » Linux (/articles/linux) » Here

## Linux Network Configuration

This article covers network configuration on Linux, with specific reference to the information needed for the RHCSA EX200 (<http://www.redhat.com/training/courses/ex200/examobjective>) and RHCE EX300 (<http://www.redhat.com/training/courses/ex300/examobjective>) certification exams.

Remember, the exams are hands-on, so it doesn't matter which method you use to achieve the result, so long as the end product is correct.

- Networking Files
- system-config-network-tui
- Network Connections

Related articles.

- NIC Channel Bonding in RHEL 5 & 6 (CentOS & Oracle Linux) ([nic-channel-bonding](#))
- Routing IP Traffic on Linux ([routing-ip-traffic-on-linux](#))

- Use iptables to Implement Packet Filtering and Configure Network Address Translation (NAT) (use-iptables-to-implement-packet-filtering-and-configure-nat)

## Networking Files

The `/etc/sysconfig/network` file holds top-level networking configuration, including the hostname and gateway settings.

```
# cat /etc/sysconfig/network
NETWORKING=yes
HOSTNAME=rhce1.localdomain
GATEWAY=192.168.122.1
#
```

The `/etc/sysconfig/network-scripts/ifcfg-eth0` file holds the network configuration for the `eth0` adapter. If you have multiple network adapters, you would expect additional configuration files (`eth1`, `eth2` etc.). The following example contains the configuration for a DHCP adapter.

```
# cat /etc/sysconfig/network-scripts/ifcfg-eth0
DEVICE="eth0"
NM_CONTROLLED="yes"
ONBOOT=yes
TYPE=Ethernet
BOOTPROTO=dhcp
DEFROUTE=yes
IPV4_FAILURE_FATAL=yes
IPV6INIT=no
NAME="System eth0"
UUID=5fb06bd0-0bb0-7ffb-45f1-d6edd65f3e03
HWADDR=52:54:00:91:6A:B3
PEERDNS=yes
PEERROUTES=yes
#
```

The following example is for a static IP address.

```
# cat /etc/sysconfig/network-scripts/ifcfg-eth0
DEVICE=eth0
NM_CONTROLLED=yes
ONBOOT=yes
TYPE=Ethernet
BOOTPROTO=none
DEFROUTE=yes
IPV4_FAILURE_FATAL=yes
IPV6INIT=no
NAME="System eth0"
UUID=5fb06bd0-0bb0-7ffb-45f1-d6edd65f3e03
HWADDR=52:54:00:91:6a:b3
PEERROUTES=yes
IPADDR=192.168.122.89
NETMASK=255.255.255.0
GATEWAY=192.168.122.1
DNS1=192.168.122.1
USERCTL=no
#
```

The `/etc/hosts` file contains information for local name resolution.

```
# cat /etc/hosts
127.0.0.1      localhost localhost.localdomain localhost4 localhost4.localdoma
192.168.122.89 rhce1.localdomain rhce1
#
```

The `/etc/resolv.conf` file is used to configure the location of the DNS servers to be used for name resolution. There can be multiple `"nameserver"` lines, one for each nameserver.

```
# cat /etc/resolv.conf
# Generated by NetworkManager
search localdomain
nameserver 192.168.122.1
#
```

The `/etc/sysconfig/network-scripts` directory contains a number of network related scripts and commands. The `ifdown` and `ifup` commands are used to stop and start the specified network adapters.

```
# ifdown eth0
Device state: 3 (disconnected)
# ifup eth0
Active connection state: activated
Active connection path: /org/freedesktop/NetworkManager/ActiveConnection/5
#
```

The current network settings are displayed using the `ifconfig` command.

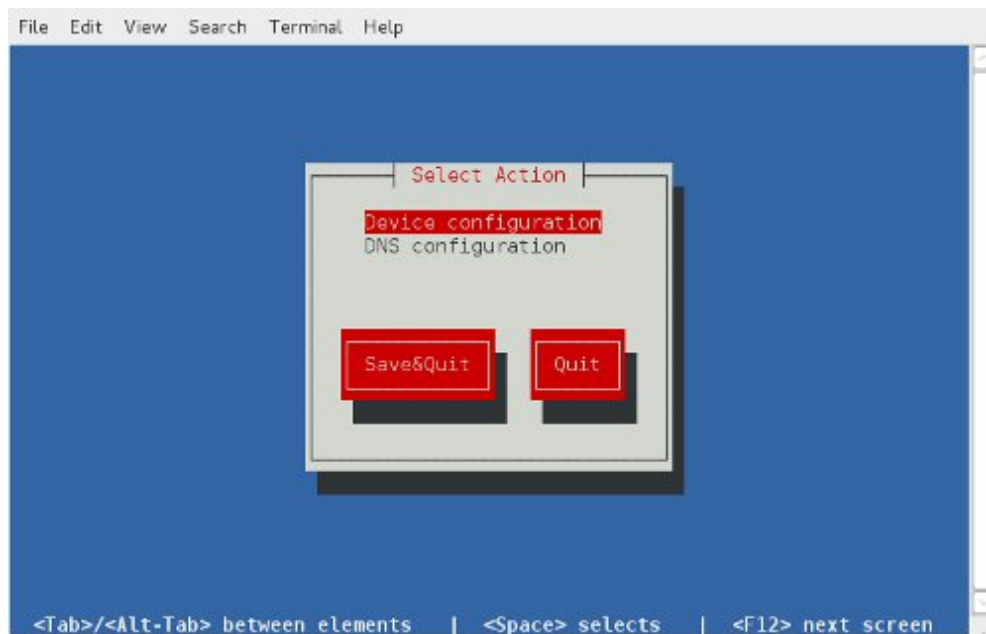
```
# ifconfig -a
eth0      Link encap:Ethernet  HWaddr 52:54:00:91:6A:B3
          inet addr:192.168.122.89  Bcast:192.168.122.255  Mask:255.255.255.0
          inet6 addr: fe80::5054:ff:fe91:6ab3/64 Scope:Link
          UP BROADCAST RUNNING MULTICAST  MTU:1500  Metric:1
          RX packets:13548 errors:0 dropped:0 overruns:0 frame:0
          TX packets:6144 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:1000
          RX bytes:2871500 (2.7 MiB)  TX bytes:824754 (805.4 KiB)
          Interrupt:11 Base address:0xe000

lo        Link encap:Local Loopback
          inet addr:127.0.0.1  Mask:255.0.0.0
          inet6 addr: ::1/128 Scope:Host
          UP LOOPBACK RUNNING  MTU:16436  Metric:1
          RX packets:48 errors:0 dropped:0 overruns:0 frame:0
          TX packets:48 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:0
          RX bytes:3230 (3.1 KiB)  TX bytes:3230 (3.1 KiB)

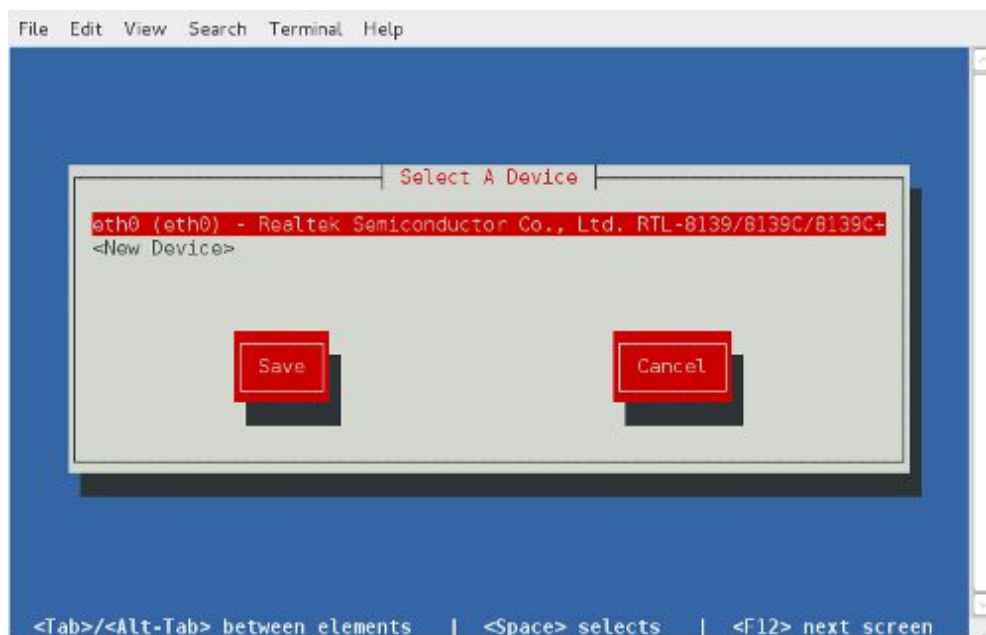
#
```

## system-config-network-tui

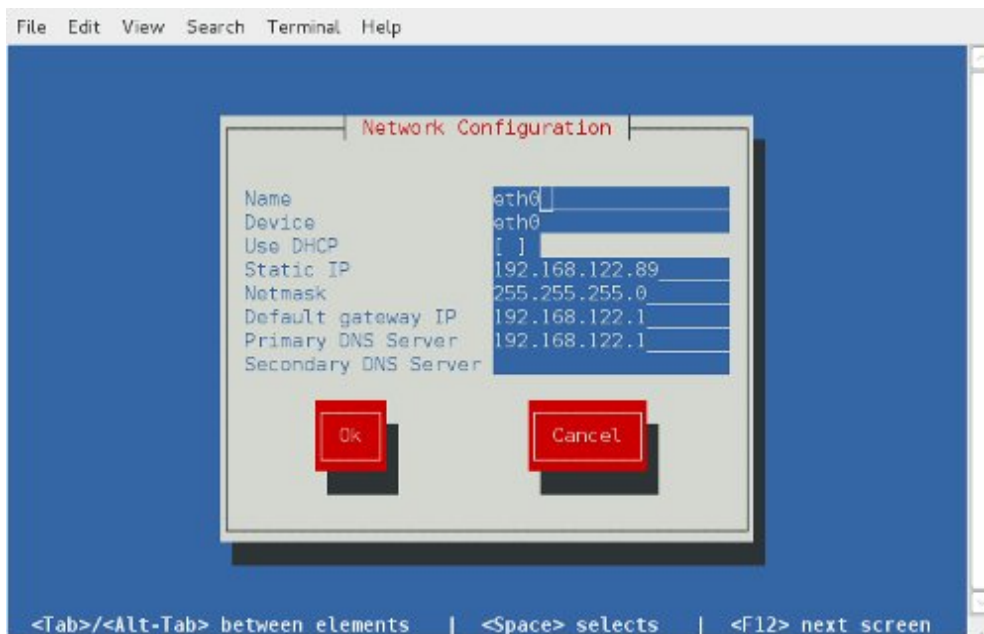
The `system-config-network-tui` and `system-config-network` commands start a text-based network configuration tool.



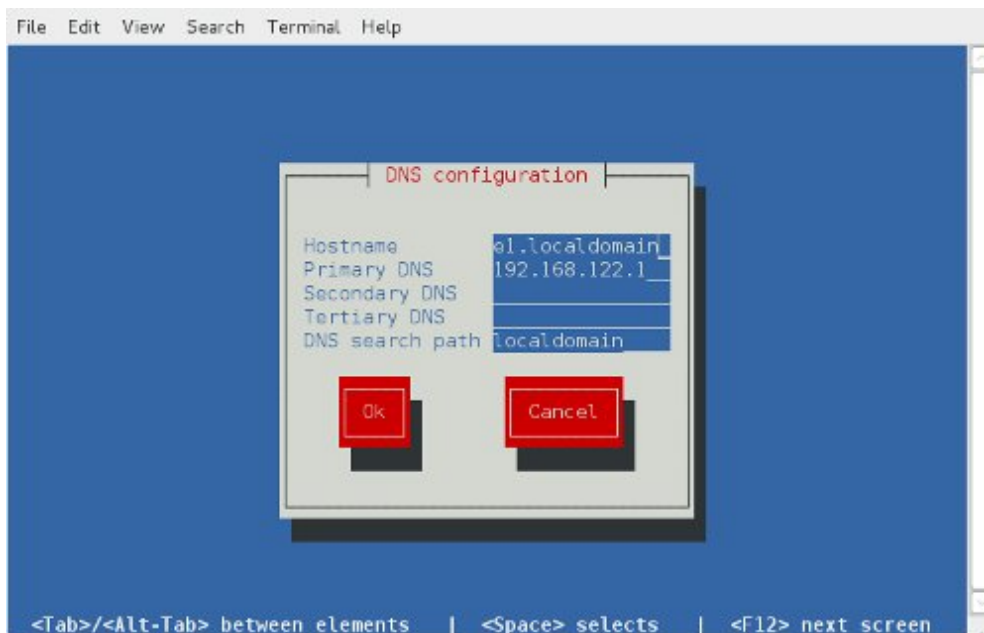
Navigate using the "tab", "arrow" and "return" keys. The "Device configuration" option gives a list of network devices.



Selecting the device allows you to edit the adapter's network configuration, which is saved to the `/etc/sysconfig/network-scripts/ifcfg-eth0` file.



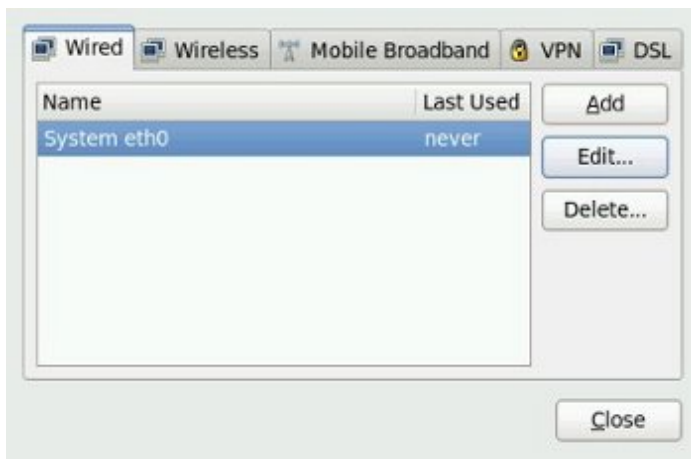
The "DNS configuration" option on the first screen allows you to modify the configuration in the `/etc/sysconfig/network` and `/etc/resolv.conf` files.



The network configuration can also be initiated using the `setup` command.

## Network Connections

The "Network Connections" dialog is available from the menu (System > Preferences > Network Connections) at the console.



Highlighting the device and clicking the "Edit" button allows you to view or alter the configuration of a device.



For more information see:

- RHEL6 Documentation ([https://access.redhat.com/site/documentation/en-US/Red\\_Hat\\_Enterprise\\_Linux/](https://access.redhat.com/site/documentation/en-US/Red_Hat_Enterprise_Linux/))
- Linux man pages (<http://linux.die.net/man/>)
- RHCSA and RHCE (articles-linux#rhcsa\_and\_rhce)
- NIC Channel Bonding in RHEL 5 & 6 (CentOS & Oracle Linux) (nic-channel-bonding)
- Routing IP Traffic on Linux (routing-ip-traffic-on-linux)
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Hope this helps. Regards Tim...

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