**Configure network teaming between two RHEL systems.**

**Presentation**

There are several ways to configure network teaming in **RHEL 7**:

* using the **nmtui** command and a **T**ext **U**ser **I**nterface,
* using the **nmcli** command at the **C**ommand **L**ine **I**nterface,
* using the graphical interface,
* through direct changes in the network configuration files.

For the rest of this tutorial, it is the **nmcli** option that has been chosen because it’s the quickest method and arguably the least prone to errors.

**Prerequisites**

To put into practice this tutorial, you need two VM and access to their respective console.  
Each VM has been installed with a base distribution (minimal distribution should work but was not tested). Each VM’s got two network interfaces called **eth0** and **eth1**.

Install the **teamd** package:

# **yum install -y teamd**

If a previous network configuration was set up, remove it on both VM:

# **nmcli con show**

NAME UUID TYPE DEVICE

Wired connection 1 f32cfcb7-3567-4313-9cf3-bdd87010c7a2 802-3-ethernet eth1

System eth0 257e9416-b420-4218-b1eb-f14302f20941 802-3-ethernet eth0

# **nmcli con del f32cfcb7-3567-4313-9cf3-bdd87010c7a2**

# **nmcli con del 257e9416-b420-4218-b1eb-f14302f20941**

**Teaming Configuration**

Execute the following steps at the console of both VM.

Create the teaming interface:

# **nmcli con add type team con-name myteam0 ifname team0 config '{ "runner": {"name": "loadbalance"}}'**

team0 config '{ "runner": {"name": "loadbalance"}}'

[10655.288431] IPv6: ADDRCONF(NETDEV\_UP): team0: link is not ready

[10655.306955] team0: Mode changed to "loadbalance"

Connection 'myteam0' (ab0a5f7b-2547-4d4f-8fc8-834030839fc1) successfully added.

Note1: If you don’t specify **con-name myteam0**, the teaming interface will be named **team-team0**.  
Note2: Examples of configuration are available in the **/usr/share/doc/teamd-\*/example\_configs**. You can also get some examples through **man teamd.conf**.

Now, the file **/etc/sysconfig/network-scripts/ifcfg-myteam0** contains the main following lines:

**DEVICE=team0**

**TEAM\_CONFIG="{ \"runner\": {\"name\": \"loadbalance\"}}"**

**DEVICETYPE=Team**

**NAME=myteam0**

**ONBOOT=yes**

Add an **IPv4** configuration:  
In **RHEL 7.0**:

# **nmcli con mod myteam0 ipv4.addresses "192.168.1.10/24 192.168.1.1"**

# **nmcli con mod myteam0 ipv4.method manual**

From **RHEL 7.1** on:

# **nmcli con mod myteam0 ipv4.addresses 192.168.1.10/24**

# **nmcli con mod myteam0 ipv4.gateway 192.168.1.1**

# **nmcli con mod myteam0 ipv4.method manual**

Note: If you don’t specify any IP configuration, both VM will get their ip address and gateway through **DHCP** by default.

Add the **eth0** interface to the teaming interface:

# **nmcli con add type team-slave con-name team0-slave0 ifname eth0 master team0**

[10707.777803] team0: Port device eth0 added

[10707.779146] IPv6: ADDRCONF(NETDEV\_CHANGE): team0: link becomes ready

Connection 'team0-slave0' (a9a5b612-aad6-48b0-a097-88db35c898d3) successfully added.

Note1: If you don’t specify **con-name team0-slave0**, the teaming slave interface will be named **team-slave-eth0**.  
Note2: The file **/etc/sysconfig/network-scripts/ifcfg-team0-slave0** has been created with the following main lines:

**NAME=team0-slave0**

**DEVICE=eth0**

**ONBOOT=yes**

**TEAM\_MASTER=team0**

**DEVICETYPE=TeamPort**

Add the **eth1** interface to the teaming interface:

# **nmcli con add type team-slave con-name team0-slave1 ifname eth1 master team0**

[10750.419419] team0: Port device eth1 added

Connection 'team0-slave1' (e468dce3-a032-4088-8173-e7bee1bd4ad5) successfully added.

Note1: If you don’t specify **con-name team0-slave1**, the teaming slave interface will be named **team-slave-eth1**.  
Note2: The file **/etc/sysconfig/network-scripts/ifcfg-team0-slave1** has been created with the following main lines:

**NAME=team0-slave1**

**DEVICE=eth1**

**ONBOOT=yes**

**TEAM\_MASTER=team0**

**DEVICETYPE=TeamPort**

Activate the teaming interface:

# **nmcli con up myteam0**

[10818.800169] team0: Port device eth1 removed

[10818.803399] team0: Port device eth0 removed

[10818.939884] team0: Port device eth1 added

[10818.941069] IPv6: ADDRCONF(NETDEV\_CHANGE): team0: link becomes ready

[10818.971887] team0: Port device eth0 added

[10819.932168] IPv6: team0: IPv6 duplicate address fe80::5054:ff:fe3f:860a detected!

Connection successfully activated (D-Bus active path: /org/freedesktop/NetworkManager/ActiveConnection/32)

Check the configuration:

# **nmcli con show**

NAME UUID TYPE DEVICE

team0-slave0 a9a5b612-aad6-48b0-a097-88db35c898d3 802-3-ethernet eth0

myteam0 ab0a5f7b-2547-4d4f-8fc8-834030839fc1 team team0

team0-slave1 e468dce3-a032-4088-8173-e7bee1bd4ad5 802-3-ethernet eth1

You can also use the **teamdctl** command to check the configuration state:

# **teamdctl team0 state**

setup:

runner: loadbalance

ports:

eth0

link watches:

link summary: up

instance[link\_watch\_0]:

name: ethtool

link: up

eth1

link watches:

link summary: up

instance[link\_watch\_0]:

name: ethtool

link: up

Or to dump the configuration:

# **teamdctl team0 config dump**

{

"device": "team0",

"ports": {

"eth0": {

"link\_watch": {

"name": "ethtool"

}

},

"eth1": {

"link\_watch": {

"name": "ethtool"

}

}

},

"runner": {

"name": "loadbalance",

"tx\_hash": [

"eth",

"ipv4",

"ipv6"

]

}

}

You can also get the ports status with the **teamnl** command:

# **teamnl team0 ports**

2: eth0: up 0Mbit HD

3: eth1: up 0Mbit HD

In addition, you can directly change the content of the files in the **/etc/sysconfig/network-scripts** directory but you need to apply the following command afterwards:

# **nmcli con reload**

Source: [RHEL 7 Networking Guide](https://access.redhat.com/documentation/en-US/Red_Hat_Enterprise_Linux/7/html/Networking_Guide/ch-Configure_Network_Teaming.html) and **nmcli-examples** man page.

**Exam Tip**

If you don’t remember all the details the day of the exam, get the information in the **nmcli-examples** and **teamd.conf** man pages or in the **/usr/share/doc/teamd-\*/example\_ifcfgs** and **/usr/share/doc/teamd-\*/example\_ifcfgs** directories.