



Require correct settings for ifcfg script for a /31 RFC3021 network connection

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Environment

- Red Hat Enterprise Linux (RHEL) 8
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Issue

- Unable to find assistance in creating a persistent point to point connection using a /31 network (see RFC 3021)
- Unable to use RFC3021 31-bit netmask in networking

Resolution

Ensure that the IP addresses assigned to both interfaces are in the same /31 network.

On RHEL 8, install the `network-scripts` package:

Raw

```
yum install network-scripts
```

Configure the address with the appropriate prefix, and a broadcast address outside the subnet, eg:

Raw

```
IPADDR=192.168.0.2
PREFIX=31
BROADCAST=192.168.0.255
```

NetworkManager is not capable of this as of RHEL 8.0, so either disable it entirely and use the network initscript:

Raw

```
systemctl stop NetworkManager
systemctl disable NetworkManager
chkconfig network on
service network start
```

or alternately, disable NetworkManager just for the interface in question:

Raw

```
NM_CONTROLLED=no
```

Root Cause

The IP addresses assigned to the interfaces were in different /31 networks:

Raw

```
192.168.0.2/31
192.168.0.1/31
```

They would need to be changed to either of the below sets:

Raw

```
192.168.0.0/31
192.168.0.1/31
```

Or

Raw

```
192.168.0.2/31
192.168.0.3/31
```

From [RFC 3021](#):

Raw

```
Using a 31-bit prefix length leaves only two numbering possibilities (see Section 2.1),
eliminating the use of a directed broadcast to the link (see Section 2.2.1). The limited
broadcast MUST be used for all broadcast traffic on a point-to-point link with a 31-bit
subnet mask assigned to it.
```

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