

# MX-ONE 7.x: Running Management Applications with dual stack

INSTALLATION INSTRUCTION



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# CONTENTS

<b>1</b>	<b>HOW TO FORCE IPV4 FOR MANAGEMENT APPLICATIONS WHEN RUNNING THE SERVER WITH DUAL STACK.....</b>	<b>1</b>
1.1	PURPOSE	1
1.2	BACKGROUND	1
1.3	PREREQUISITES	1
1.4	SOLUTION	1
1.5	STEP-BY-STEP INSTRUCTION	2
1.6	THE RESULT	4
1.7	PM AS STAND ALONE	4
1.7.1	PM AS STAND-ALONE IN SAME DOMAIN (AS SNM/SN)	5
1.7.2	PM AS STAND-ALONE IN OTHER DOMAIN	7
1.8	MODIFICATIONS IN THE DOMAIN INFRASTRUCTURE	7

# 1 HOW TO FORCE IPV4 FOR MANAGEMENT APPLICATIONS WHEN RUNNING THE SERVER WITH DUAL STACK

This document is an optional addition to the installation instructions for the MiVoice MX-ONE 7.x management applications, when the server uses dual stack, i.e. supports both IPv6 and IPv4.

## 1.1 PURPOSE

The purpose of this document is to describe how to get Provisioning Manager (PM, former MP), and Service Node Manager (SNM, former MTS) (Jboss) to work properly in a dual stack environment, i.e. where the server is installed to support both IPv4 and IPv6. PM and SNM will currently not work in a pure IPv6 environment.

The described solution is also valid for name addressing of PM as a true standalone server in a pure IPv4 environment. I.e. when PM is installed on a server that is not part of the MiVoice MX-ONE Server (with no Service Node installed).

## 1.2 BACKGROUND

The default behavior of a SLES 12 being configured with dual stack is that it will always respond with its IPv6 address when being addressed with FQDN, i.e. a Fully Qualified Domain Name, instead of an IP address. As Jboss version 4.2.2 does not support IPv6, the applications PM and SNM will therefore not work when using FQDN.

We will still be able to use the applications by addressing them with the IP address, but this has a couple of severe implications. First it is not expected that users should need to remember IP addresses instead of host/domain names. Secondly any server running SSL will make browsers present a certificate error as a CA certificate always is issued for the servers FQDN and not the actual IP address.

## 1.3 PREREQUISITES

Before applying the solution described in this document, make sure that the installation of the master server (LIM 1) is finished. Any new installation of the MX-ONE Service Node, as well as upgrade of the same, will recover that the steps below must be overseen again.

## 1.4 SOLUTION

The solution for this problem is to use the internal infrastructure that is created when installing the master server (LIM 1) in the system. At this point we will configure a DNS to manage the internal communication between all components within the system. We need to provide minimum 3 IP addresses:

1. LIM 1 (lim1)
2. DNS server (dnsmaster)
3. System Database server (Cassandra)

By also adding a fourth IP address for the management application(s) we can internally control that any access will be directed to an IPv4 address:

4. Management Application server (snm)

We call it "snm" (or the former name "mts") in DNS as SNM always resides on LIM 1. It may be so that also PM will be installed on LIM 1, and in that case addressing e.g. mts.mxone.our.corporate.local will automatically lead to access to PM. In case this is not desirable, it is of course possible for an IT

administrator to add another alias in the parent domain and e.g. add a record for “manager.mxone.our.corporate.local” and point that towards “snm” (or “mts”).

## 1.5 STEP-BY-STEP INSTRUCTION

As we currently not yet have any support for this solution in the install scripts, we have to do everything manually. Here follows a guideline how it can be done.

### 1. Assign a new IP address to eth0 for alias “snm”

This could be done by command “ip addr add” or “ifconfig”, but to get it persistent it is better to edit the configuration file:

```
WBM45:/ # vi /etc/sysconfig/network/ifcfg-eth0
```

```
BOOTPROTO='static'
STARTMODE='auto'
NAME='VMXNET3 Ethernet Controller'
BROADCAST=''
ETHTOOL_OPTIONS=''
IPADDR='192.0.2.50/24'
MTU='1400'
NAME=''
NETWORK=''
REMOTE_IPADDR=''
USERCONTROL='no'
IPADDR_0='db8::50/64'
LABEL_0='v6_neteth0'
IPADDR_dnsmaster='db9::51/64'
LABEL_dnsmaster='dnsmaster'
IPADDR_ldapmaster='db8::52/64'
LABEL_ldapmaster='ldapmaster'
IPADDR_1='192.0.2.53/24'
IPADDR_mts='192.0.2.53/24'
LABEL_mts='mts'
```

### 2. Restart the network

```
WBM45:/ # rcnetwork restart
```

```

Shutting down network interfaces:
  eth0    device: VMware VMXNET3 Ethernet Controller
done
Shutting down service network . . . . .
done
Hint: you may set mandatory devices in /etc/sysconfig/network/config
Setting up network interfaces:
  eth0    device: VMware VMXNET3 Ethernet Controller
  eth0    IP address: 192.0.2.50/24
          IP address: db8::50/64
          IP address: 192.0.2.53/24
          IP address: db8::51/64
          IP address: db8::52/64
  eth0: mts IP address: 192.0.2.53/24
Setting up service network . . . . .
done

```

### 3. Update DNS settings

```
WBM45:/ # vi /var/lib/named/master/mxone.our.corporate.local
```

```

mxone.our.corporate.local.      172800 IN SOA
    dnsmaster.mxone.our.corporate.local. root.dnsmaster.mxone.our.corporate.local.
    2014090202 3600 604800 3600
mxone.our.corporate.local.      172800 IN NS
    dnsmaster.mxone.our.corporate.local.
lim1.mxone.our.corporate.local. 172800 IN A   192.0.2.50
wbm45.mxone.our.corporate.local. 172800 IN A   192.0.2.50
wbm45.mxone.our.corporate.local. 172800 IN AAAA db8::50
wbm45.mxone.our.corporate.local. 172800 IN AAAA db8::50
ldapmaster.mxone.our.corporate.local. 172800 IN AAAA db8::52
mts.mxone.our.corporate.local.  172800 IN A   192.0.2.53

```

**IMPORTANT:** Increase the version number (marked with red above). Otherwise the changes will not take effect. Don't forget the dot after FQDN.

```
WBM45:/ # vi /var/lib/named/master/2.0.192.in-addr.arpa
```

```

2.0.192.in-addr.arpa      172800 IN SOA dnsmaster.mxone.our.corporate.local.
root.dnsmaster.mxone.our.corporate.local. 2014090202 3600 604800 3600
2.0.192.in-addr.arpa      172800 IN NS  dnsmaster.mxone.our.corporate.local.
50                          172800 IN PTR lim1.mxone.our.corporate.local.
53                          172800 IN PTR mts.mxone.our.corporate.local.

```

**IMPORTANT:** version number and dot (see previous note).

#### 4. Restart the DNS

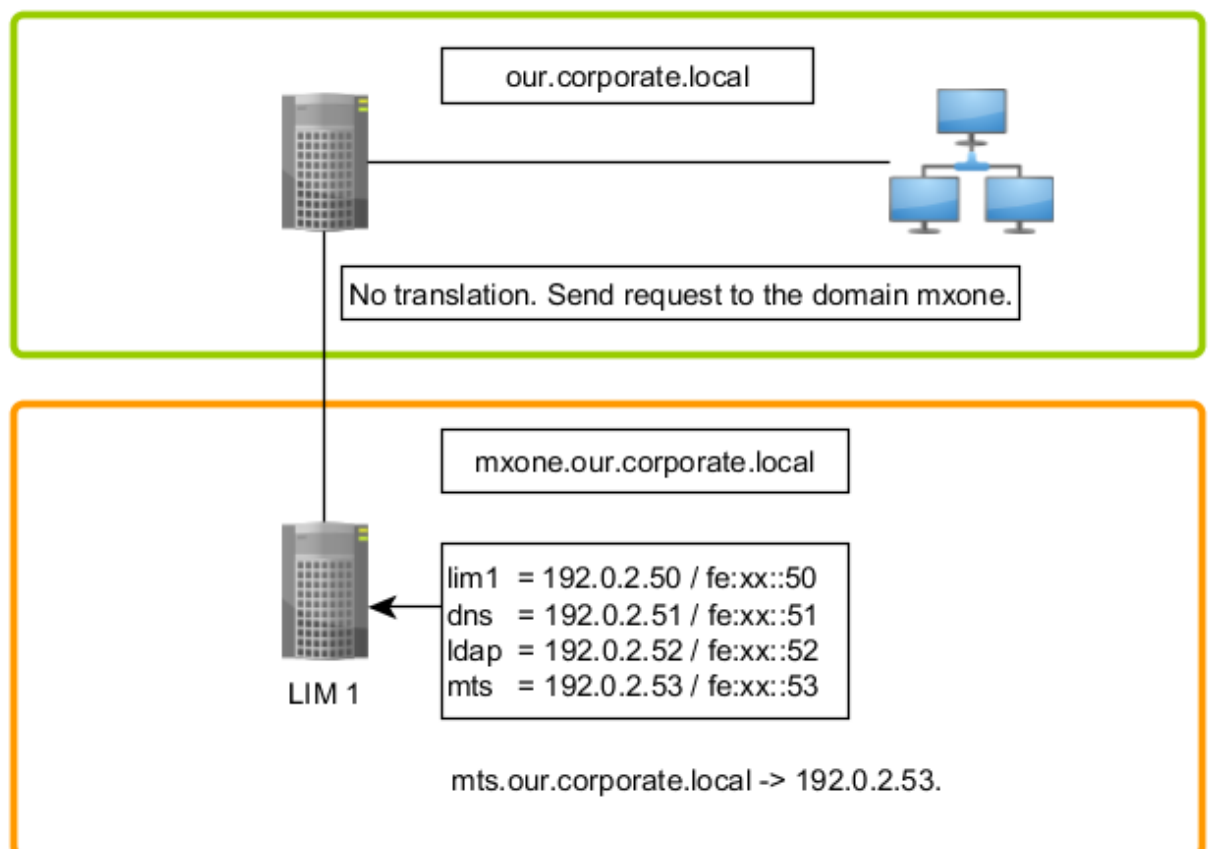
```
WBM45:/ # rncmd restart
Shutting down name server BIND
Starting name server BIND
done
```

done

## 1.6 THE RESULT

The MiVoice MX-ONE installation is done in a sub-domain (mxone) to the corporate domain.

To be able to address the SNM or PM with a FQDN, and still “force” IPv4, we need to define an additional IP address that here has got the label “mts”. Now we will reach the application with the “address” `http(s)://mts.mxone.our.corporate.local`. The full request is sent down to domain mxone, and the local DNS takes care of translating it to the defined IPv4 address 192.0.2.53.



**Figure 1-1. Resulting configuration.**

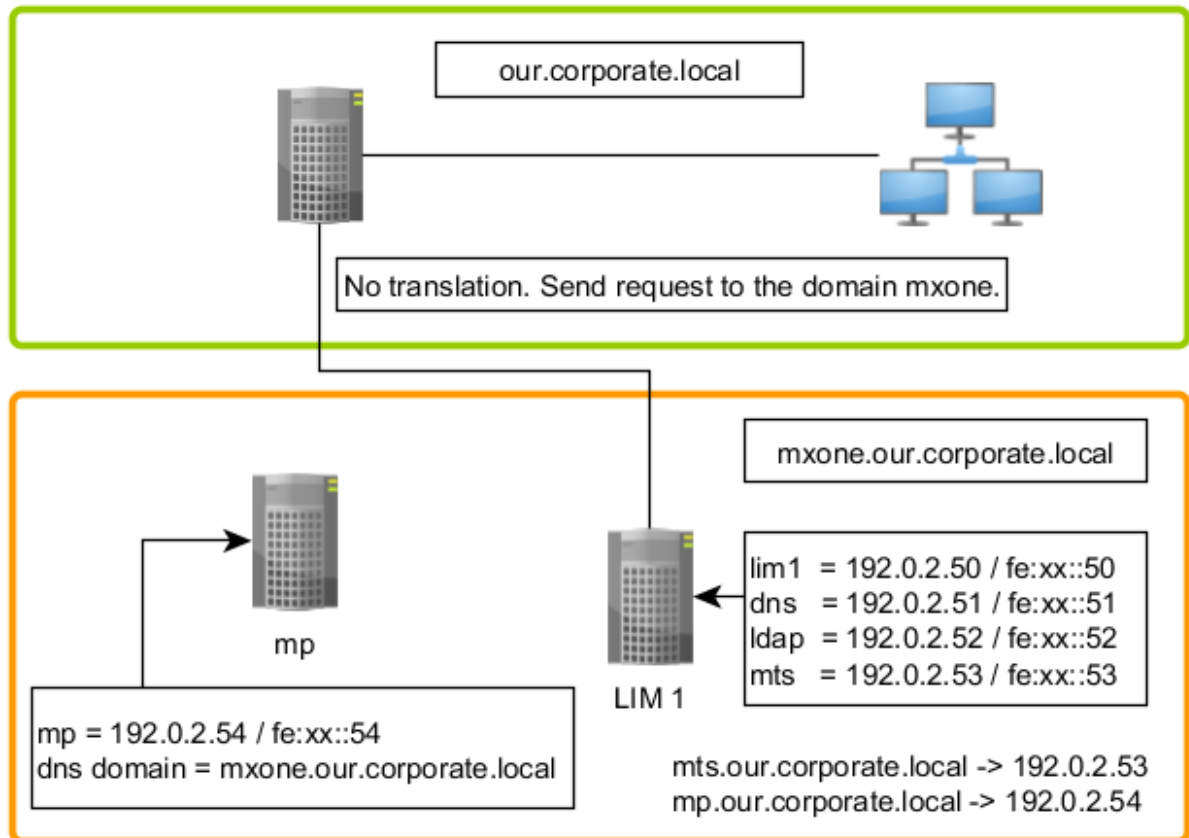
The choice of label “mts” is here done as an example only. SNM (former MTS) is always installed on LIM 1. If PM also is installed on LIM 1, it will be PM that replies on the FQDN request described above.

## 1.7 PM AS STAND ALONE

When PM is installed on another server as stand-alone, the scenario may need another solution.

### 1.7.1 PM AS STAND-ALONE IN SAME DOMAIN (AS SNM/SN)

As long as PM is part of the domain “mxone”, we could still basically use the same solution. The only difference is that PM is represented with an IP address on another server/interface, rather than be represented as an alias on the same interface as LIM 1.



**Figure 1-2. PM stand-alone in same domain.**

The DNS settings for the PM server should be modified. This can be done in Yast or directly in the configuration file `/etc/resolv.conf`.

```
mpstandalone:/ # vi /etc/resolv.conf
```

```
search mxone
nameserver 192.0.2.50
nameserver <some other possible nameserver needed>
```

The domain we belong to is “mxone”.

The nameserver stated is the IP address “representing” the domain, here the server where LIM1 and SNM is installed and where the local DNS is running.

Restart the network configuration.

```
mpserver:/ # rcnetwork restart
```

In the LIM1 server, modify DNS settings in the same way as it was done for SNM in previous chapter.

```
WBM45:/ # vi /var/lib/named/master/mxone.our.corporate.local
```

```
mxone.our.corporate.local.      172800 IN SOA
    dnsmaster.mxone.our.corporate.local. root.dnsmaster.mxone.our.corporate.local.
    2014090203 3600 604800 3600
mxone.our.corporate.local.      172800 IN NS
    dnsmaster.mxone.our.corporate.local.
lim1.mxone.our.corporate.local. 172800 IN A    192.0.2.50
wbm45.mxone.our.corporate.local. 172800 IN A    192.0.2.50
wbm45.mxone.our.corporate.local. 172800 IN AAAA db8::50
wbm45.mxone.our.corporate.local. 172800 IN AAAA db8::50
ldapmaster.mxone.our.corporate.local. 172800 IN AAAA db8::52
mts.mxone.our.corporate.local.  172800 IN A    192.0.2.53
mp.mxone.our.corporate.local.   172800 IN A    192.0.2.54
```

```
WBM45:/ # vi /var/lib/named/master/2.0.192.in-addr.arpa
```

```
2.0.192.in-addr.arpa      172800 IN SOA dnsmaster.mxone.our.corporate.local.
root.dnsmaster.mxone.our.corporate.local.2014090203 3600 604800 3600
2.0.192.in-addr.arpa      172800 IN NS  dnsmaster.mxone.our.corporate.local.
50                          172800 IN PTR lim1.mxone.our.corporate.local.
53                          172800 IN PTR mts.mxone.our.corporate.local.
54                          172800 IN PTR mp.mxone.our.corporate.local.
```

**IMPORTANT:** Increase the version number (marked with red above). Otherwise the changes will not take effect. Don't forget the dot after FQDN

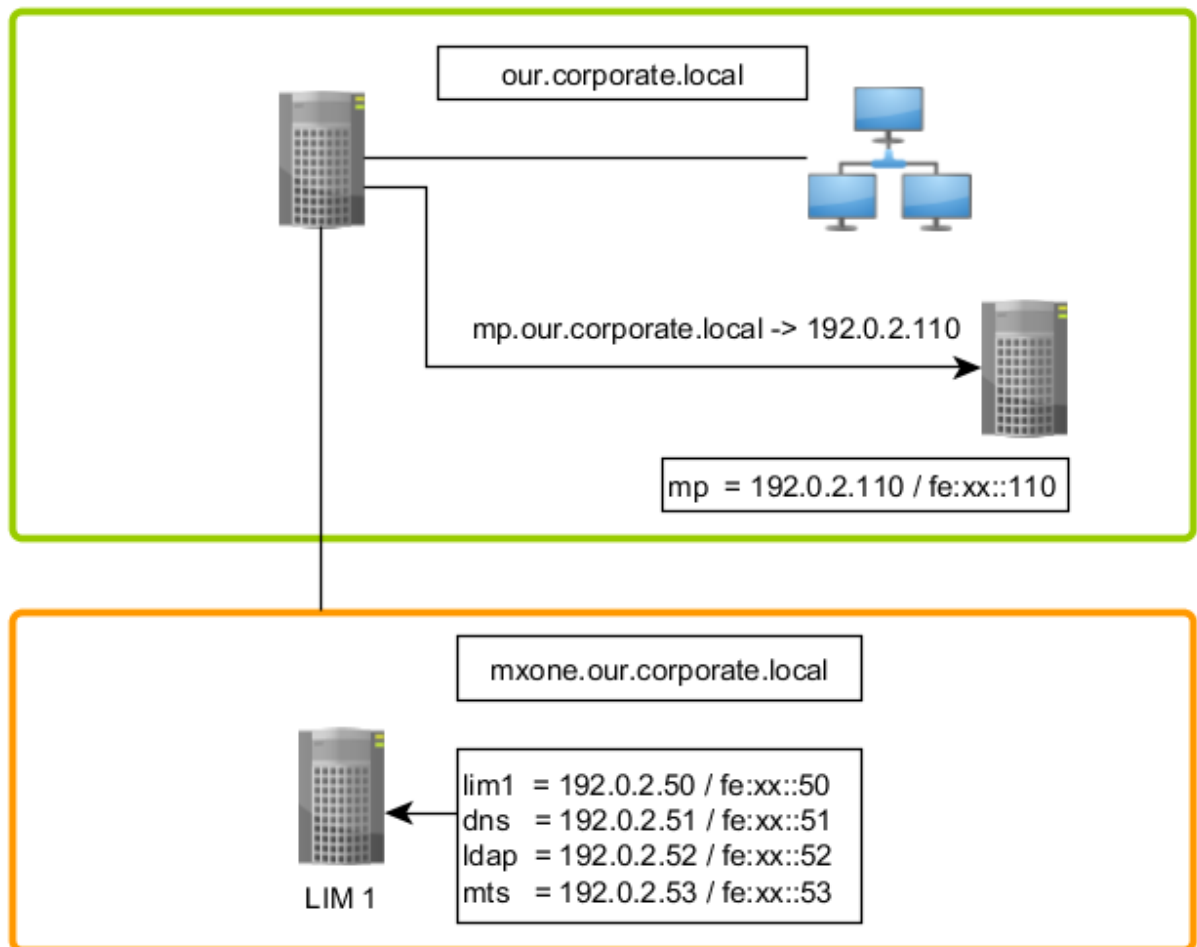
Restart the DNS service.

```
WBM45:/ # rcnamed restart
Shutting down name server BIND
Starting name server BIND
done
```

done

### 1.7.2 PM AS STAND-ALONE IN OTHER DOMAIN

If PM is installed on a server in another domain and also shall support more than one SNM and in different domains, the DNS modifications must be done in the corporate domain instead.



**Figure 1-3. PM stand-alone in other domain.**

Requests towards `mts.mxone.our.corporate.local` will still be sent down to sub-domain `mxone`.

## 1.8 MODIFICATIONS IN THE DOMAIN INFRASTRUCTURE

### IMPORTANT:

If/when any modifications that affects DNS are done in the domain infrastructure, the current DNS data will be overwritten. This could for example be when configuring a cluster, adding a server or upgrading the MX-ONE Service Node.

At every such modification it is important to re-check that the DNS settings as described in this document are still valid. If they are not, this procedure must be redone.