# FMC Linux Setup

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Worker Nodes and Control Nodes

FMC consists, at present, of 16 server processes. In a typical farm setup, among these processes:

- The 11 Monitor Servers (`coalSrv(8)`, `cpuinfoSrv(8)`, `cpustatSrv(8)`, `fsSrv(8)`, `irqSrv(8)`, `memSrv(8)`, `osSrv(8)`, `nifSrv(8)`, `psSrv(8)`, `smartSrv(8)` and `tcpipSrv(8)`) have to run on *each* farm node;
- The Message Logger Server (`logSrv(8)`) and the Task Manager Server (`tmSrv(8)`) and the Configuration Manager Server (`cmSrv(8)`) also have to run on *each* farm node;
- The Power Manager Server (`ipmiSrv(8)`) and the Process Controller Server (`pcSrv(8)`) need not to run on each farm node: they can run instead on a *reduced* number of nodes (**Control Nodes**) which control the other nodes (**Worker Nodes**).

In order for this 16 servers to work an additional server process is needed — the **DIM Name Server** — which must be in execution on a node hereinafter referred as `DIM_DNS_NODE`. Concerning the configuration of the DIM network communication layer, refer to the documents in http://dim.web.cern.ch/dim/.

Furthermore, in the FMC setup choice, consider that the **Power Manager** (`ipmiSrv(8)`) is able to switch on and off the other nodes, but it is not able to switch on and off the node on which it is running.
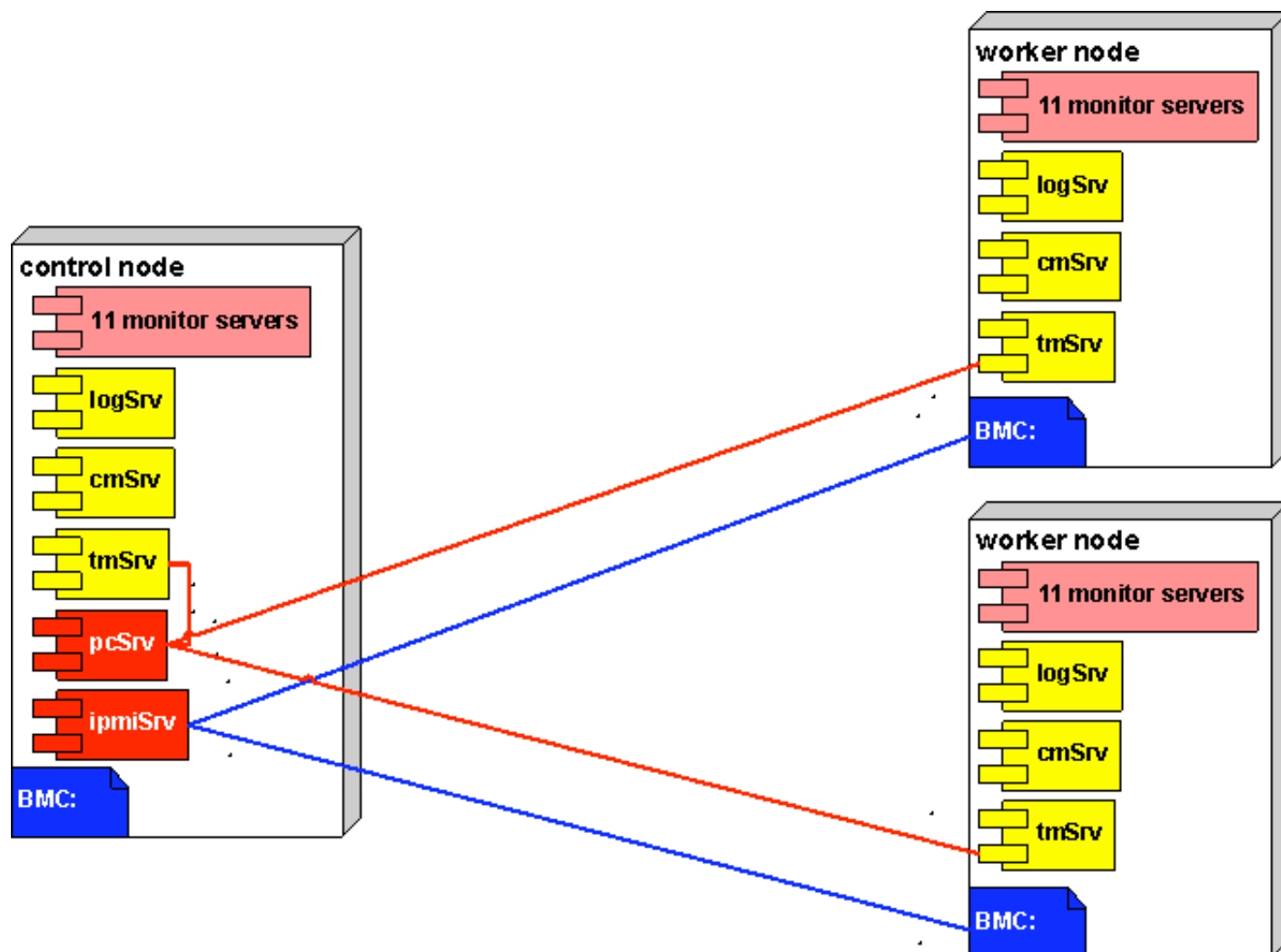
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Worker Node Setup

In this setup only the **Message Logger Server**, the **Task Manager Server** and the **Configuration Manager Server** are started on the current node (by the System V start-up scripts `/etc/rc.d/init.d/fmc`). The 11 **Monitor Servers** are then started on the current node by the **Process Controller Server** running on the **Control Node** which controls the current node.

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Unauthenticated Worker Node Setup

- Install the RPM:
  `ipmitool-1.8.9-1.slc4`.
- Download:
  `dim-v17r7-1.RHEL4.i386.rpm` (32 bit)
  or
  `dim-v17r7-1.RHEL4.x86_64.rpm` (64 bit)
  from http://lhcb-daq.web.cern.ch/lhcb-daq/online-rpm-repo/index.html and install it.
- Download:
  `FMC-X.X.X-X.RHEL4.i386.rpm` (32 bit)
  or
  `FMC-X.X.X-X.RHEL4.x86_64.rpm` (64 bit)

from http://lhcb-daq.web.cern.ch/lhcb-daq/online-rpm-repo/index.html or
`/afs/cern.ch/lhcb/project/web/online/online-rpm-repo/slc4X/`.

- Type:
  `rpm -ivh FMC-X.X.X-X.RHEL4.i386.rpm` (32 bit)
  or
  `rpm -ivh FMC-X.X.X-X.RHEL4.x86_64.rpm` (64 bit).
- Create the user:
  `online`.
- Edit the text file
  `/etc/sysconfig/dim`
  as described in [this link](#) to define the DIM Name Server node.
- Edit the text file
  `/etc/sysconfig/fmc`
  as described in [this link](#) to choose the FMC Servers to be started by the System V start-up
  scripts as follows:

```
# ----------------------------------------------------------------------
LOG_SRV=yes                                       # Message Logger Server
TM_SRV=yes                                        # Task Manager Server
CM_SRV=yes                                        # Configuration Manager Server
PC_SRV=no                                         # Process Controller Server
IPMI_SRV=no                                       # Power Manager Server
# ----------------------------------------------------------------------
LOG_ARGS="-S 200"
TM_ARGS="-p 2 -u online -U root --no-auth"
CM_ARGS=""
PC_ARGS="-u online -g online --no-auth"
IPMI_ARGS="-t 0"
# ----------------------------------------------------------------------
```

- Edit the text file:
  `/etc/cmSrv.conf`
  as described in [this link](#) to set-up the Configuration Manager file access configuration.
- Edit the text file
  `/etc/cmSrv.allow`
  as described in [this link](#) to set-up the Configuration Manager user@host access configuration.
- To start FMC tools immediately, type:
  `service fmc start`
- To start automatically the FMC tools at each bootstrap, type:
  `chkconfig --levels 345 fmc on`
  `chkconfig --levels 0126 fmc off`

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Authenticated Worker Node Setup

- Install the RPM:
  `ipmitool-1.8.9-1.slc4`.
- Download:
  `dim-v17r7-1.RHEL4.i386.rpm` (32 bit)
  or
  `dim-v17r7-1.RHEL4.x86_64.rpm` (64 bit)
  from http://lhcb-daq.web.cern.ch/lhcb-daq/online-rpm-repo/index.html and install it.
- Download:
  `FMC-X.X.X-X.RHEL4.i386.rpm` (32 bit)
  or
  `FMC-X.X.X-X.RHEL4.x86_64.rpm` (64 bit)
  from http://lhcb-daq.web.cern.ch/lhcb-daq/online-rpm-repo/index.html or

`/afs/cern.ch/lhcb/project/web/online/online-rpm-repo/slc4X/`.
- Type:
  `rpm -ivh FMC-X.X.X-X.RHEL4.i386.rpm` (32 bit)
  or
  `rpm -ivh FMC-X.X.X-X.RHEL4.x86_64.rpm` (64 bit).
- Create the user:
  `online`.
- Edit the text file
  `/etc/sysconfig/dim`
  as described in [this link](#) to define the DIM Name Server node.
- Edit the text file
  `/etc/sysconfig/fmc`
  as described in [this link](#) to choose the FMC Servers to be started by the System V start-up
  scripts as follows:

```
# -------------------------------------------------------------------------
LOG_SRV=yes                                 # Message Logger Server
TM_SRV=yes                                  # Task Manager Server
CM_SRV=yes                                  # Configuration Manager Server
PC_SRV=no                                   # Process Controller Server
IPMI_SRV=no                                 # Power Manager Server
# -------------------------------------------------------------------------
LOG_ARGS="-S 200"
TM_ARGS="-p 2 -u online -U root"
CM_ARGS=""
PC_ARGS="-u online -g online"
IPMI_ARGS="-t 0"
# -------------------------------------------------------------------------
```

- Edit the text file:
  `/etc/cmSrv.conf`
  as described in [this link](#) to set-up the Configuration Manager file access configuration.
- Edit the text file
  `/etc/cmSrv.allow`
  as described in [this link](#) to set-up the Configuration Manager user@host access configuration.
- Edit the text file
  `/etc/tmSrv.allow`
  as described in [this link](#) to set-up the Task Manager user@host access configuration.
- To start FMC tools immediately, type:
  `service fmc start`
- To start automatically the FMC tools at each bootstrap, type:
  `chkconfig --levels 345 fmc on`
  `chkconfig --levels 0126 fmc off`

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Control Node Setup

In this setup **all** the FMC servers are started on the current node. The **Message Logger Server**, the **Task Manager Server**, the **Configuration Manager Server**, the **Power Manager Server** and the **Process Controller Server** are started by the System file start-up script (`/etc/rc.d/init.d/fmc`). The 11 **Monitor Servers** are then started by the Process Controller Server running on the current node.

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Unauthenticated Control Node Setup

- Install the RPM:
  `ipmitool-1.8.9-1.slc4`.
- Download:
  `dim-v17r7-1.RHEL4.i386.rpm` (32 bit)
  or
  `dim-v17r7-1.RHEL4.x86_64.rpm` (64 bit)
  from http://lhcb-daq.web.cern.ch/lhcb-daq/online-rpm-repo/index.html and install it.
- Download:
  `FMC-X.X.X-X.RHEL4.i386.rpm` (32 bit)
  or
  `FMC-X.X.X-X.RHEL4.x86_64.rpm` (64 bit)
  from http://lhcb-daq.web.cern.ch/lhcb-daq/online-rpm-repo/index.html or
  `/afs/cern.ch/lhcb/project/web/online/online-rpm-repo/slc4X/`.
- Type:
  `rpm -ivh FMC-X.X.X-X.RHEL4.i386.rpm` (32 bit)
  or
  `rpm -ivh FMC-X.X.X-X.RHEL4.x86_64.rpm` (64 bit).
- Create the user:
  `online`.
- Edit the text file
  `/etc/sysconfig/dim`
  as described in this link to define the DIM Name Server node.
- Edit the text file
  `/etc/sysconfig/fmc`
  as described in this link to choose the FMC Servers to be started by the System V start-up
  scripts as follows:

```
# ------------------------------------------------------------------------
LOG_SRV=yes                                   # Message Logger Server
TM_SRV=yes                                    # Task Manager Server
CM_SRV=yes                                    # Configuration Manager Server
PC_SRV=yes                                    # Process Controller Server
IPMI_SRV=yes                                  # Power Manager Server
# ------------------------------------------------------------------------
LOG_ARGS="-S 200"
TM_ARGS="-p 2 -u online -U root --no-auth"
CM_ARGS=""
PC_ARGS="-u online -g online --no-auth"
IPMI_ARGS="-t 0"
# ------------------------------------------------------------------------
```

- Edit the text file:
  `/etc/cmSrv.conf`
  as described in this link to set-up the Configuration Manager file access configuration.
- Edit the text file
  `/etc/cmSrv.allow`
  as described in this link to set-up the Configuration Manager user@host access configuration.
- Edit the text file
  `/etc/ipmiSrv.conf`
  as described in this link to define the default IPMI username and password and the per-node
  IPMI configuration.
- Edit the text file
  `/etc/pcSrv.conf`
  as described in this link to define the list of the worker nodes which have to be controlled by
  the Process Controller Server running on the current node. The list must include also the
  current node.
- Edit the text file
  `/etc/pcSrv.init`

as described in this link to check the Monitor Servers to be started on the controlled worker nodes by the Process Controller Server running on the current nodes.
- To start FMC tools immediately, type:
  `service fmc start`
- To start automatically the FMC tools at each bootstrap, type:
  `chkconfig --levels 345 fmc on`
  `chkconfig --levels 0126 fmc off`

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Authenticated Control Node Setup

- Install the RPM:
  `ipmitool-1.8.9-1.slc4`.
- Download:
  `dim-v17r7-1.RHEL4.i386.rpm` (32 bit)
  or
  `dim-v17r7-1.RHEL4.x86_64.rpm` (64 bit)
  from http://lhcb-daq.web.cern.ch/lhcb-daq/online-rpm-repo/index.html and install it.
- Download:
  `FMC-X.X.X-X.RHEL4.i386.rpm` (32 bit)
  or
  `FMC-X.X.X-X.RHEL4.x86_64.rpm` (64 bit)
  from http://lhcb-daq.web.cern.ch/lhcb-daq/online-rpm-repo/index.html or
  `/afs/cern.ch/lhcb/project/web/online/online-rpm-repo/slc4X/`.
- Type:
  `rpm -ivh FMC-X.X.X-X.RHEL4.i386.rpm` (32 bit)
  or
  `rpm -ivh FMC-X.X.X-X.RHEL4.x86_64.rpm` (64 bit).
- Create the user:
  `online`.
- Edit the text file
  `/etc/sysconfig/dim`
  as described in this link to define the DIM Name Server node.
- Edit the text file
  `/etc/sysconfig/fmc`
  as described in this link to choose the FMC Servers to be started by the System V start-up scripts as follows:

```
# -----------------------------------------------------------------------
LOG_SRV=yes                                     # Message Logger Server
TM_SRV=yes                                      # Task Manager Server
CM_SRV=yes                                      # Configuration Manager Server
PC_SRV=yes                                      # Process Controller Server
IPMI_SRV=yes                                    # Power Manager Server
# -----------------------------------------------------------------------
LOG_ARGS="-S 200"
TM_ARGS="-p 2 -u online -U root"
CM_ARGS=""
PC_ARGS="-u online -g online"
IPMI_ARGS="-t 0"
# -----------------------------------------------------------------------
```

- Edit the text file:
  `/etc/cmSrv.conf`
  as described in this link to set-up the Configuration Manager file access configuration.
- Edit the text file
  `/etc/cmSrv.allow`

as described in this link to set-up the Configuration Manager user@host access configuration.
- Edit the text file
  /etc/tmSrv.allow
  as described in this link to set-up the Task Manager user@host access configuration.
- Edit the text file
  /etc/ipmiSrv.conf
  as described in this link to define the default IPMI username and password and the per-node IPMI configuration.
- Edit the text file
  /etc/pcSrv.conf
  as described in this link to define the list of the worker nodes which have to be controlled by the Process Controller Server running on the current node. The list must include also the current node.
- Edit the text file
  /etc/pcSrv.init
  as described in this link to check the Monitor Servers to be started on the controlled worker nodes by the Process Controller Server running on the current nodes.
- Edit the text file
  /etc/pcSrv.allow
  as described in this link to set-up the Pocess Controller user@host access configuration.
- To start FMC tools immediately, type:
  service fmc start
- To start automatically the FMC tools at each bootstrap, type:
  chkconfig --levels 345 fmc on
  chkconfig --levels 0126 fmc off

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-- DomenicoGalli, 18 Nov 2008 – 09:38

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