INSTALLATION MANUAL

SERVER TOOLS

Scientific   Linux

➔ Scientific Linux is an Operating System developed by Fermilab as a sponsored project. It is primarily used by the High Energy and High Intensity Physics community.

Scientific Linux Installation Steps

1. Insert and Boot your system with Scientific Linux Live media or .iso file of your choice and start installation process.
2. You will boot directly into the live environment from where you can tour and test the flavor of Scientific   Linux(SL)   and you may choose to install it on Hard Drive from there itself.
3. Select Keyboard layout   and click on 'Next'.
4. Select Storage   device of   your choice and click 'Next'.
5. Storage device warning, click on 'yes,   discard any data'.   This will remove all the data from storage if any.
6. Provide Hostname and click on 'Next'.
7. Select your nearest time zone and click on 'Next'.
8. Set root password and click on 'Next'.
9. Disk   partitioning, select your choice and click on 'Next'.
10. Select 'Write changes to disk'   which will format storage device'.
11. Creating ext4 file   system.
12. Started copying   live images file to hard   drive.
13. Installation   completed, remove CD/DVD if   any from drive.
14. Next, restart the   the system.
15. Follow Post Installation wizard   to complete installation process.
16. Fill user details and click on 'Forward'
17. Set date and time and click on 'Finish'.
18. User login prompt, supply recently created password to get in.

EPICS Base

➜ EPICS Base is the core of EPICS, comprising the build system and tools, common and OS-interface libraries, Channel Access client server libraries, static and runtime database routines, the database processing code, and standard record, device and driver support.

EPICS Base Installation Steps

1. Download EPICS Base from http://www.aps.anl.gov/epics/base/R3-14/12.php
2. Execute the following commands:
   $] cd /lib64
   $] mkdir epics
   $] cd epics
   $] tar –zxvf /*path to the base.tar.gz file*/
   $] cd base-3.14.12
   $] sudo make
   $] ln –s /lib64/epics/base-3.14.12 /lib64/epics/base
   $] sudo gedit ~/.bash_profile
   - define EPICS_BASE environment variable

RE2C

➜ Re2c is a lexer generator for C/C++
➜ Its key features are:
   - Very fast lexers
   - Flexible API
   - Warns you when your code is bad and suggests a fix
   - Auto-generated tests

RE2C Installation Steps

1. Download version re2c-0.16.tar.gz (http://re2c.org/install/install.html)
2. mkdir /lib64/epics/base/support
3. cd /lib64/epics/base/support
4. mkdir modules
5. cd modules
6. cd /lib64/epics/base/support/modules
7. tar -zxvf /root/Downloads/re2c-0.16.tar.gz
8. ./configure –prefix=/lib64/epics/base/modules/support
9. Sudo make
10. Sudo make install

Sequencer

➔ Sequencer defines State Notation Language(SNL) and provides an implementation, consisting of the SNL compiler and runtime systems.
➔ The SNL is a domain specific programming language that smoothly integrates with and depends and builds on EPICS base.

Sequencer Installation Steps

1. Download version seq-2.1.8.tar.gz(http://www-csr.bessy.de/control/SoftDist/sequencer/Installaion.html#download)
2. cd /lib64/epics/base/modules/support
3. tar -zxvf /root/Downloads/seq-2.1.8.tar.gz
4. cd seq-2.1.8/configure
5. vi RELEASE set EPICS_BASE=/lib64/epics/base
   a. save and exit
6. vi CONFIG_SITE configure where the re2c tool is installed
7. make

ASYN Driver

➔ ASYN driver is a general purpose facility for interfacing device specific code to low level communication drivers.
➔ Primary target for ASYN driver is for EPICS IOC device support.

ASYN Driver Installation Steps

1. Download asyn4-25 (http://www.aps.anl.gov/epics/modules/soft/asyn)
2. cd /lib64/epics/base/modules/support
3. tar –zxvf /*path to asyn.tar.gz*/
4. cd configure
5. vi RELEASE(define the path for EPICS base)
6. cd ..
7. Make

CLIENT TOOLS

MEDM(Motif Editor and Display Manager)

➔ MEDM is a Motif graphical user interface for designing and implementing control screens, called displays, that consist of a collection of graphical objects that display and/or change the values of EPICS process variables. The supported objects include buttons, meters, sliders, text displays/entries, and graphs. It has two modes of operation, EDIT and EXECUTE. Displays are created and edited in EDIT mode, and they are run in EXECUTE mode.

EPICS MEDM Installation Steps

Download and Install /extensions directory.
package(https://www.aps.anl.gov/epics/download/extensions/index.php)

    1.1) Extract the extensions.tar.gz into epics folder.
    1.2) Download the EPICS MEDM compressed tar ball
    (http://www.aps.anl.gov/epics/extensions/medm/index.php).
    1.3) Extract the MEDM.tar.gz in extensions/src folder.
        $$cd /lib64/epics/extensions/src
        $$tar -zxvf arg1
   arg1=path to casr_20150512.tar.gz file
    1.4) $$sudo make

STRIP Tool

➔ StripTool is a Motif application that allows you to view the time evolution of one or more process variables on a strip chart. It is designed to work with EPICS and is maintained as an EPICS Extension. There are two main windows: The Controls Dialog and the Graph. The Controls Dialog allows you to specify and modify the process variable name and the graph parameters corresponding to each curve that is plotted.

STRIP Tool Installation Steps

1.1) Download the Stripl Tool 2.5.17 compressed tar ball
(http://www.aps.anl.gov/epics/extensions/StripTool/index.php)
1.2) Extract the StripTool2_5_17_0.tar.gz in extensions/src folder.
1.3) make

Alarm Handler

➔ The Alarm Handler is one of the major EPICS OPI Client applications, and is designed to provide an effective overview of any outstanding alarm conditions reported by the control system and also give the ability to manage the alarms in detail.

Alarm Handler Installation Steps

1.1)Download the Alarm Handler compressed tar ball
(http://www.aps.anl.gov/epics/extensions/alh/index.php).
1.2) Extract the alh_1_2_35.tar.gz in extensions/src folder.
        $$ cd /lib64/epics/extensions/src
        $$ sudo tar -xvzf arg1
   arg1=path to casr_20150512.tar.gz file
1.3) $$ sudo make

caQtDM

➔ caQtDM is a package based on Qt developed at PSI as a successor of MEDM, a well known package used in the EPICS community for building synoptic displays. The caQtDM package uses the standard Qt GUI (Qt designer) for designing synoptic displays, containing all the controls graphical elements necessary to visualize and control a facility. Qt designer uses the custom widgets designed for this purpose and writes a description file (.ui file) that will be used by the synoptic viewer caQtDM.

CaQtDM Installation Steps

1.1) Download the CaQtDM 4.1.3 compressed tar (http://epics.web.psi.ch/software/caqtdm/#2_Chapter).

1.2) Extract the caqtdm-4.1.3.tar.gz in extensions/src folder.

      $$ cd /lib64/epics/extensions/src

      $$ sudo tar -xvzf arg1

  arg1=path to casr_20150512.tar.gz file

1.3) Download and install Qt-5.

      $$sudo yum groupinstall "Development Tools"

      $$sudo yum install glibc-devel.x86_64

      $$tar xvjf gcc-4.8.1.tar.bz2

      $$cd gcc-4.8.1

      $$./contrib/download_prerequisites

      $$cd ..

      $$mkdir objdir

      $$cd objdir

      $$$PWD/../gcc-4.8.1/configure —prefix=$HOME/gcc-4.8.1

      $$make

      $$sudo make install

      $$sudo mv /usr/lib64/libstdc+".so.6 /usr/lib64/libstdc.so.6.backup

      $$sudo cp -P /lib64/gcc-4.8.1/lib64/libstdc.so.6 /usr/lib64

      $$sudo cp /lib64/gcc-4.8.1/lib64/libstdc.so.6.0.18 /usr/lib64/

      $$sudo ldconfig -v

      $$sudo ./qt-linux-opensource-5.1.1-x86_64-offline.run

      $$sudo gedit /etc/profile.d/qt5.sh

          PATH=/lib64/Qt5.1.1/5.1.1/gcc_64/bin:$PATH

          export PATH

      $$. /etc/profile.d/qt5.sh

      $$which qmake

      $$sudo gedit /usr/share/applications/DigiaQtOpenSource-qtcreator.desktop

      Comment out or remove the line "Path=/root"

      Save and close DigiaQtOpenSource-qtcreator.desktop

1.4) Download and install Qwt.

- Download Qwt 6.1.1 compressed zip file ([https://sourceforge.net/projects/qwt/files/qwt)](https://sourceforge.net/projects/qwt/files/qwt)
- Extract qwt-6.1.1.zip in extensions/src folder.

    $$ cd /lib64/epics/extensions/src

    $$ sudo unzip arg1

    arg1=path to casr_20150512.tar.gz file
- $$ qmake-qt5 qwt.pro
- $$ sudo make install
- $$ sudo make

1.5) ./caQtDM_BuildAll
1.6) ./caQtDM_Install

CASR

➔ The caSaveRestore family of tools are intended to provide a facility to backup and restore process variable values.

CASR Installation Steps

1.1) Download the CASR compressed tar (http://www.aps.anl.gov/epics/extensions/casr/index.php).
1.2)$$ cd /lib64/epics/extensions/src
1.3) Extract the casr_20150512.tar.gz in extensions/src folder.

    $$ tar -zxvf arg1

    arg1=path to casr_20150512.tar.gz file
1.4) $$ sudo make

CA Watcher

➜ CA Watcher is a program which supervises EPICS variables. The user can receive warnings if desired. These warnings can be sounds on the local computer, SMS or emails. All detected alarm states including values are visible in a table and can be stored for further usage.

CA Watcher Installation Steps

1.1)Download the CA Watcher jar file
http://www-csr.bessy.de/control/SoftDist/CA_Watcher
1.2) Copy the CA_Watcher.jar in extensions/src folder .
   $$ sudo cp /home/user/Downloads/cawatcher.jar /lib64/epics/extensions/src

Creating Aliases for short

1)sudo gedit ~/.bash_rc
2)Add following aliases
   $alias medm=/lib64/epics/extensions/bin/linux-x86_64/medm
   $alias alh=/lib64/epics/extensions/bin/linux-x86_64/alh
   $alias strip_tool=/lib64/epics/extensions/bin/linux-x86_64/StripTool
   $alias casr=/lib64/epics/extensions/bin/linux-x86_64/casr
   $alias casave=/lib64/epics/extensions/bin/linux-x86_64/casave -asciiin req1.req -asciiout sanp1.snap -log log.read.log -d
   $alias medm_file=/lib64/epics/extensions/src/medm3_1_9/newDisplay.adl
   $alias carestore=/lib64/epics/extensions/bin/linux-x86_64/carestore -asciiin snap1.snap