Building NiDB

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1   Commit Changes to Source Control

NiDB source code is maintained using git, on http://github.com/gbook/nidb. Prior to committing changes to github, perform the following, assuming the git repository directory is `/nidbgit`:

1. Copy in all **web** files (usually from `/var/www/html`) into `/nidbgit/src/web`
2. Copy NiDB source code to `/nidbgit/src/nidb`
3. Update GDCM (not usually necessary) in `/nidbgit/src/gdcm`
4. Export SQL schema to `/nidbgit/src/setup`
    a. Using phpMyAdmin, export nidb database (export schema only, no data)
5. Set version number in the following locations (`year.month.buildno` format. Example 2020.6.502)
    a. src/nidb/nidb.h
    b. src/nidb/build.sh
    c. src/setup/nidb.el7.spec
    d. src/setup/nidb.el8.spec

1.1   `git` Source Code Structure

```
/doc
/src
        /gdcm - compiled into nidb
        /nidb - main source code
        /old - unused
        /qcmodules - copied to /nidb/bin/qcmodules
        /setup - contains all setup scripts, SQL schema, crontab, etc
        /smtp - compiled into nidb
        /web - copied to /var/www/html
/tools - copied to /nidb/bin
        /dcm4che
        /mricron
```

2   Basic Build

2.1   Prerequisites

2.1.1   System Packages – CentOS 7

Install development tools and cmake3 as follows. EPEL release is required for cmake3

```
yum install epel-release
yum group install 'Development Tools'
yum install cmake3
```

2.1.2   System Packages – CentOS 8
Install development tools and cmake3 as follows.

```
yum group install 'Development Tools'
yum install cmake3
```

2.1.3   Qt
Qt 5.12.8 libraries and the corresponding MySQL driver are required to build NiDB. Preparing the Qt build environment is only needed once. Prepare the Qt build environment as follows.

1. Download Qt open-source from https://www.qt.io/download-open-source.
2. Run chmod 777 qt-unified-linux-x64-x.x.x-online.run
3. Run ./qt-unified-linux-x64-x.x.x-online.run to launch the installer.
4. An account with Qt is required to be able to install any of the Qt components
5. On the components screen, select the checkboxes for *Qt 5.12.8* → *Desktop gcc 64-bit* and *Sources*. After installing Qt, note the location of **qmake** for use later in the build script. The default path to qmake should be ~/Qt/5.12.8/gcc_64/bin/qmake

2.1.3.1   MySQL/MariaDB Driver – CentOS 8
After version 5.12.3, Qt stopped including binary SQL drivers, so this driver must be built manually.

```
cd ~/Qt/5.12.8/Src/qtbase/src/plugins/sqldrivers
~/Qt/5.12.8/gcc_64/bin/qmake sqldrivers.pro
make
make install
```

2.1.3.2   MySQL/MariaDB Driver – CentOS 7
After version 5.12.3, Qt stopped including binary SQL drivers, so this driver must be built manually. There is a bug in the Makefile that adds unsupported warning flags, that must be removed to allow compilation.

```
yum install mariadb-devel
cd ~/Qt/5.12.8/Src/qtbase/src/plugins/sqldrivers
~/Qt/5.12.8/gcc_64/bin/qmake sqldrivers.pro
gedit mysql/Makefile # remove the two instances of "-Wdate-time"
gedit sqlite/Makefile # remove the two instances of "-Wdate-time"
make
make install
```

The libqsqlmysql.so should be now be in ~/Qt/5.12.8/gcc_64/plugins/sqldrivers.

2.2   Build
Make sure Qt 5.12.8 is installed and the MySQL driver is built! Perform the following commands to build NiDB. The qmake path argument to the build.sh is optional, it is only required if the path to qmake is not ~/Qt/5.12.8/gcc_64/bin/qmake

```
wget https://github.com/gbook/nidb/archive/master.zip
unzip master.zip
```

```
mv nidb-master nidb
cd ~/nidb
./build.sh /path/to/qmake #optional argument
```

NiDB binaries will be located in `nidb/bin`.

3   RPM Installer Build

- Prepare the system and Qt build environment as described in section 2.1.

Setup the RPM build environment, by performing the following

```
yum group install 'Development Tools'
yum install rpm-build
yum install rpmdevtools
```

Build the RPM by performing the following. `rpmbuild` will create an `rpmbuild` directory in the home directory.

```
cd ~
rpmdev-setuptree
wget https://github.com/gbook/nidb/archive/master.zip
unzip master.zip
mv nidb-master/* rpmbuild/SOURCES/
cp rpmbuild/SOURCES/src/setup/nidb.el8.spec rpmbuild/SPECS/
cd rpmbuild/SPECS
```

Edit the nidb.spec file and change the line containing build.sh (approximately line 18) to reflect the correct path to **qmake**. The QA_RPATH variable below is necessary to prevent errors related to library paths.

For CentOS 8

```
QA_RPATHS=$((0x0002|0x0010)) rpmbuild -bb nidb.el8.spec
```

`.rpm` file should be `~/rpmbuild/RPMS/x86_64/nidb-xxxx.x.xx-1.el8.x86_64.rpm`

For CentOS 7

```
QA_RPATHS=$((0x0002|0x0010)) rpmbuild -bb nidb.el7.spec
```

`.rpm` file should be `~/rpmbuild/RPMS/x86_64/nidb-xxxx.x.xx-1.el7.x86_64.rpm`

4   Installing a Pre-built RPM

To install the .rpm, use the following command. EPEL release is required to provide repo for ImageMagick.

```
yum install epel-release
yum --nogpgcheck localinstall nidb-xxxx.x.xx-1.el8.x86_64.rpm
```