

Specifications to build a qNova service

Who:

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What is the project

Goal:

Build a working NOVA system with all its components on a DietPi running Debian Buster.

Challenge:

- <https://github.com/DataSoft/Nova/blob/master/README> refers to an install script at <https://raw.githubusercontent.com/DataSoft/Nova/master/debian/novaInstallHelper.sh>.
- The README file asserts “This script has only been tested on the most recent stable version of Ubuntu”.
- DataSoft last updated these files in 2016, the most recent stable version of Ubuntu was 12.04.
- The supporting infrastructure components have evolved since then.

Deliverable:

- Revise novaInstallHelper.sh so that running it on a DietPi server running Buster will install a working Nova server.
- You might add other scripts to “pre-install” some of the infrastructure as packages, see Appendix: install_nodejs_vLTS.sh as an example.
- Your deliverables must be bash scripts and supporting content. The supporting content may be input to the bash scripts, such as diff files intending to patch downloaded content.

NOTICES:

1. We expect your work to update the install script to result in installation of new versions of server/service infrastructure or change the locations from which the script installs the server/service. If you propose to change infrastructure (i.e. replace apache with nginx), you

must first discuss your proposal with us before proceeding. Otherwise, we expect only updates of infrastructure referenced by novaInstallHelper.sh.

2. We have a very strong preference for software installed by packages instead of source code (delivered by tarballs or git cloning) and compilation. Where possible we expect you to find a repository source of reliable Debian packaging and script the assimilation of that repository into your deliverable; see see Appendix: install_nodejs_vLTS.sh as an example.

Where

You must use DietPi Buster as your reference platform. Download a system image from <https://dietpi.com/#download>.

You may do the work on either:

- Raspberry Pi: click **Raspberry Pi** from <https://dietpi.com/#download>; We suggest you use a RaspberryPi 4 Model B.
- A virtual x86_64: click **PC/VM** from <https://dietpi.com/#download> and choose an appropriate image to download and use.

Regardless of where you do the work, our acceptance your work will include running your script on our RaspberryPi 4 Model B running DietPi Buster.

Revisions we've already seen:

NodeJS

- novaInstallHelper.sh calls for version nodejs v0.8.5.
- current LTS version is v12.19.0, see Appendix: install_nodejs_vLTS.sh.
- Update novaInstallHelper.sh to not recursively chown nodejs, see Appendix: modify_novaInstallHelper.sh, line 30.

Other Software to install

- Replace debian package **libcurl3** with **libcurl4**, see Appendix: modify_novaInstallHelper.sh, line 28.
- Add debian package libev-dev, see Appendix: modify_novaInstallHelper.sh, lines 25 and 29.
- Download libv8-convert-20120219.tar.gz from new location, see Appendix: modify_novaInstallHelper.sh, lines 32-35.

Update the DataSoft Nova source code to use LibBoostV3:

The compilation of Nova fails at

/usr/local/src/nova/Nova/NovaLibrary/src/HoneydConfiguration/HoneydConfiguration.cpp with

```
g++ -I../NovaLibrary/src/ -O0 -g3 -Wall -c -fmessage-length=0 -pthread -std=c++0x -fPIC -MMD -MP
-MF"src/HoneydConfiguration/HoneydConfiguration.d" -MT"src/HoneydConfiguration/HoneydConfiguration.d"
-o"src/HoneydConfiguration/HoneydConfiguration.o"
"../src/HoneydConfiguration/HoneydConfiguration.cpp"
```

In file included from /usr/include/boost/filesystem.hpp:15,

from ../src/HoneydConfiguration/HoneydConfiguration.h:32,

from ../src/HoneydConfiguration/HoneydConfiguration.cpp:19:

```
/usr/include/boost/filesystem/config.hpp:16:5: error: #error Compiling Filesystem version 3 file with
BOOST_FILESYSTEM_VERSION defined != 3
```

```
# error Compiling Filesystem version 3 file with BOOST_FILESYSTEM_VERSION defined != 3
```

```
^~~~~
```

DataSoft asserts “#define BOOST_FILESYSTEM_VERSION 2” 6 times in its source code.

You will need to:

1. Change those 6 instances of “#define BOOST_FILESYSTEM_VERSION 2” to “... 3”,
2. Revise the code using libboost classes and libraries to compile with “#define BOOST_FILESYSTEM_VERSION 3”, and
3. **Verify that all of the code using libboost classes and libraries behaves correctly. You must revise any code that does not behave correctly.**

After all the above, you will then be ready to find the next problem in compiling and installing NOVA.

1. Please notify us of what you find. One email per day with all your findings of the day will be sufficient.
2. **You must script all solutions.**
3. **You must verify that all your changes allow NOVA to behave correctly.**

Appendix

1. open a terminal window with a shell running as root,
2. for each box of the below code boxes:
 1. copy the contents of these boxes,
 2. paste into the terminal window, and
 3. press <enter>.

install_nodejs_vLTS.sh

```
1 #!/bin/bash
2 # getting a packaged nodejs LTS version:
3 # ref: https://github.com/nodesource/distributions/blob/master/README.md
4 #####
5
6 time (
7   set -x
8   if curl -sL https://deb.nodesource.com/setup_lts.x > node_setup_lts.sh
9   bash node_setup_lts.sh
10  nsPkgVer=$(apt-cache show nodejs | awk '/Version: .*nodesource/ {print $2}')
11  if [[ -n "$nsPkgVer" ]]; then
12    apt-get install -y nodejs=$nsPkgVer
13  else
14    echo node LTS version not availble from nodesource,\
15    review https://github.com/nodesource/distributions/blob/master/README.md
16  fi
17 # end of scriptlet
18 ) 2>&1 | tee /var/tmp/nodejsInstall.$(date +%Y%m%d.%H%M%S).log
```

modify_novaInstallHelper.sh

```
1 #!/bin/bash
2 # get, modify, and run novaInstallHelper.sh from DataSoft
3 #
4 # NOTE:
5 #     Some of the modifications to novaInstallHelper.sh will
6 #     modify some of the content downloaded by novaInstallHelper.sh
7 #####
8 time (
9     set -x
10    nodeVerNew=$(node --version)
11    nodeVerOld="v0.8.5"
12    export BUILDDIR=/usr/local/src/nova
13    [[ -d $BUILDDIR ]] || mkdir -p $BUILDDIR
14    cd $BUILDDIR
15
16    wget https://raw.githubusercontent.com/DataSoft/Nova/master/debian/novaInstallHelper.sh
17
18    # update novaInstallHelper.sh to:
19    # - replace pkg "libcurl3" with "libcurl4"
20    # - append pkgs2append
21    # - comment out chown of node-$ media and source
22    # - update Nova/Quasar/getDependencies.sh (this is immediately after `cd
23    ${BUILDDIR}/Nova/Quasar`)
24    # - - appending "-e" to "#! /bin/bash"
25    # - - current download path for libv8-convert-20120219.tar.gz
26    pkgs2append="libev-dev"
27    tsNIH=$(date -d@$(stat -c %Y $BUILDDIR/novaInstallHelper.sh) +%Y%m%d.%H%M%S)
28    sed -i.$tsNIH \
29        -e '/^apt-get -y install/s/ libcurl3 / libcurl4 /' \
30        -e '/^apt-get -y install/s/$/ "'$pkgs2append'"/' \
31        -e '/chown .* node-'"$nodeVerOld"/s/^/##/' \
32        -e '/bash getDependencies.sh/i \
33            tsGD=$(date -d@$(stat -c %Y ./getDependencies.sh) +%Y%m%d.%H%M%S) \
34            url_broke="http://v8-juice.googlecode.com/files/libv8-convert-
35            20120219.tar.gz" \
36            url_works="https://storage.googleapis.com/google-code-archive-
37            downloads/v2/code.google.com/v8-juice/libv8-convert-20120219.tar.gz" \
38            sed -i.$tsGD -e "1s/$/ -e/;
39            s,$url_broke,$url_works,; /^if .*$nodeVerOld/,^fi/s/^/##/" ./getDependencies.sh' \
40            $BUILDDIR/novaInstallHelper.sh
41
42    # these happen inside ${BUILDDIR}/Nova/Quasar/getDependencies.sh
43    # git clone git://github.com/DataSoft/Honeyd.git
44    # git clone git://github.com/DataSoft/Nova.git
45    export HONEYD_SOURCE=$BUILDDIR/Honeyd
46    export NOVA_SOURCE=$BUILDDIR/Nova
47
48    bash novaInstallHelper.sh
49
50    # end of install
51) 2>&1 | tee /var/tmp/novaInstall.$(date +%Y%m%d.%H%M%S).log
```