QDK Quick Start Guide

Tutorial to Build Your Own QPKG

Agenda

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- Install QDK
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What is QDK

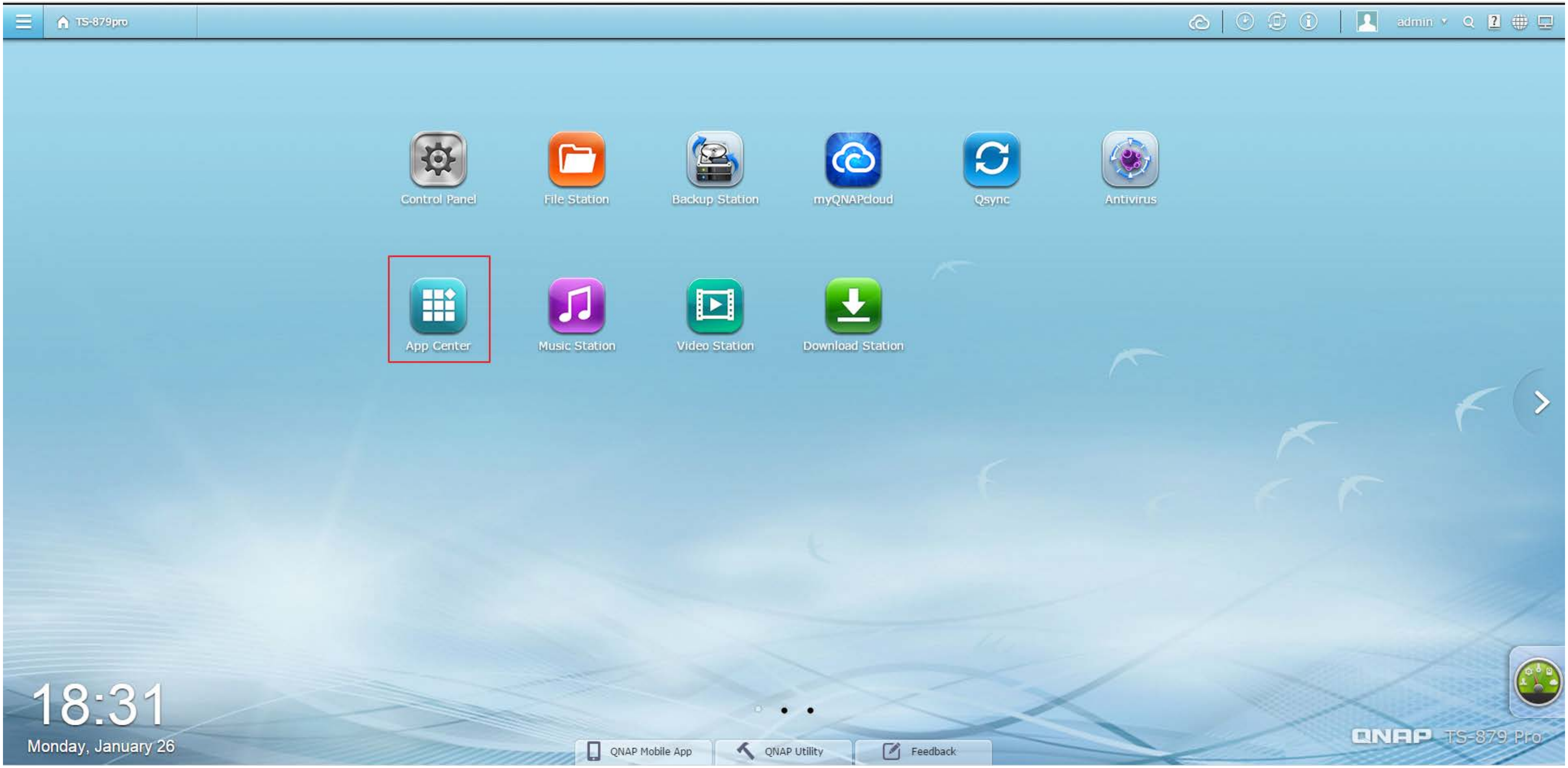
- QDK is used to build QPKG files/applications for QNAP Turbo NAS.
- QDK started out as a simple modification of the first official release of the QPKG SDK, but now supersedes it.
- License: GPL

Download QDK

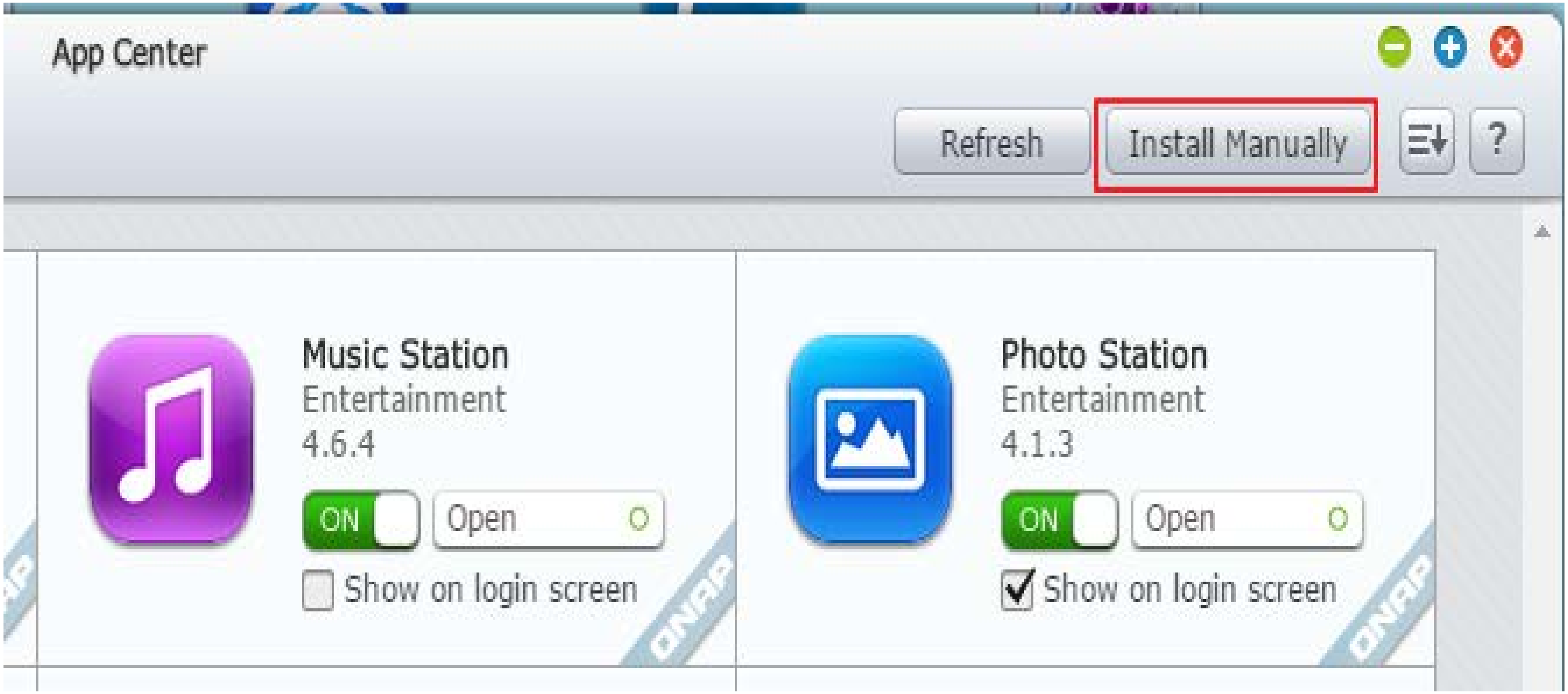
- To download QDK:
  - http://wiki.qnap.com/wiki/QPKG_Development_Guidelines#Downloads
  - http://download.qnap.com/Storage/Utility/QDK_2.2.4.zip

Install QDK

- Install “QDK_2.2.4.qpkg” in NAS UI



Install QDK



App Center

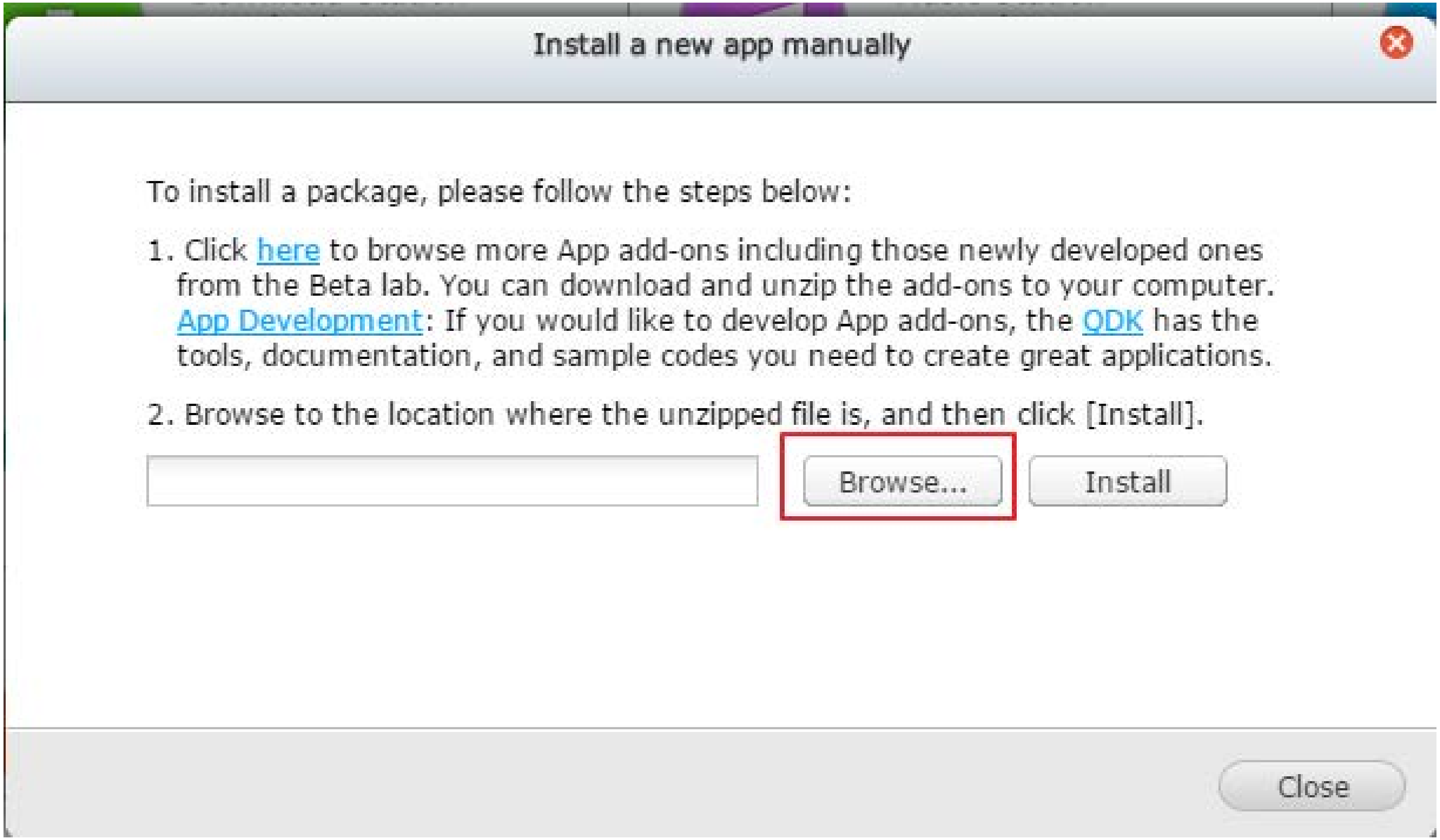
Music Station
Entertainment
4.6.4

□ Show on login screen

Photo Station
Entertainment
4.1.3

☑ Show on login screen

Install QDK



Install a new app manually

To install a package, please follow the steps below:

1. Click here to browse more App add-ons including those newly developed ones from the Beta lab. You can download and unzip the add-ons to your computer. App Development: If you would like to develop App add-ons, the QDK has the tools, documentation, and sample codes you need to create great applications.

2. Browse to the location where the unzipped file is, and then click [Install].

Build Your Own QPKG (1/5)

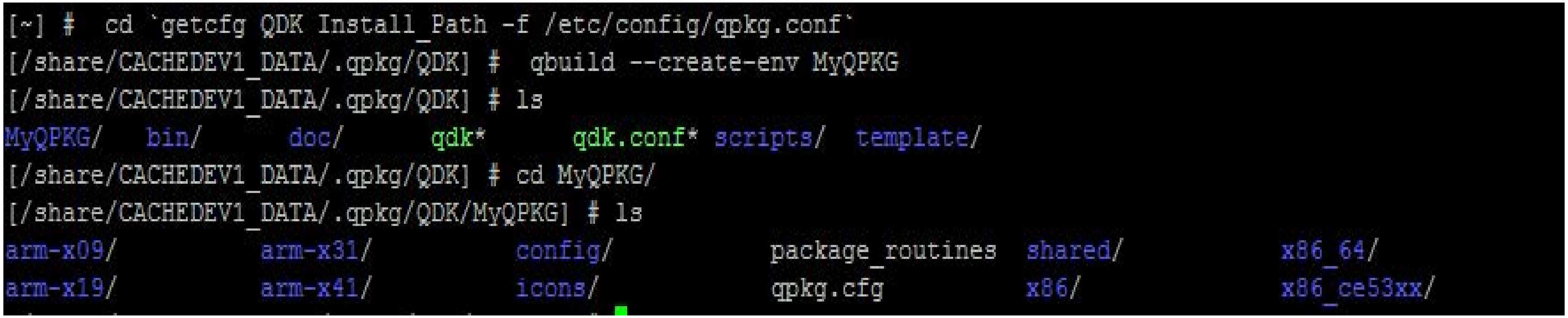
- Generate environment for QPKG
  - Use SSH client to connect to your NAS
  - Issue below commands to create an environment of your own QPKG (assuming to-be-built QPKG name is “MyQPKG”)

```
[~] ln -s /bin/sh /bin/bash
[~] cd `getcfg QDK Install_Path -f /etc/config/qpkg.conf`
[/share/HDA_DATA/.qpkg/QDK] # qbuild --create-env MyQPKG
```

  - A folder named “MyQPKG” is then generated

```
[/share/HDA_DATA/.qpkg/QDK] # ls
MyQPKG/   bin/      qdk*      scripts/  template/
[/share/HDA_DATA/.qpkg/QDK] # cd MyQPKG/
l[/share/HDA_DATA/.qpkg/QDK/MyQPKG] # ls
arm-x09/  arm-x31/   build/   icons/   qpkg.cfg    x86/   x86_ce53xx/
arm-x19/  arm-x41/   config/  package_routines  shared/        x86_64/
```

Screenshot



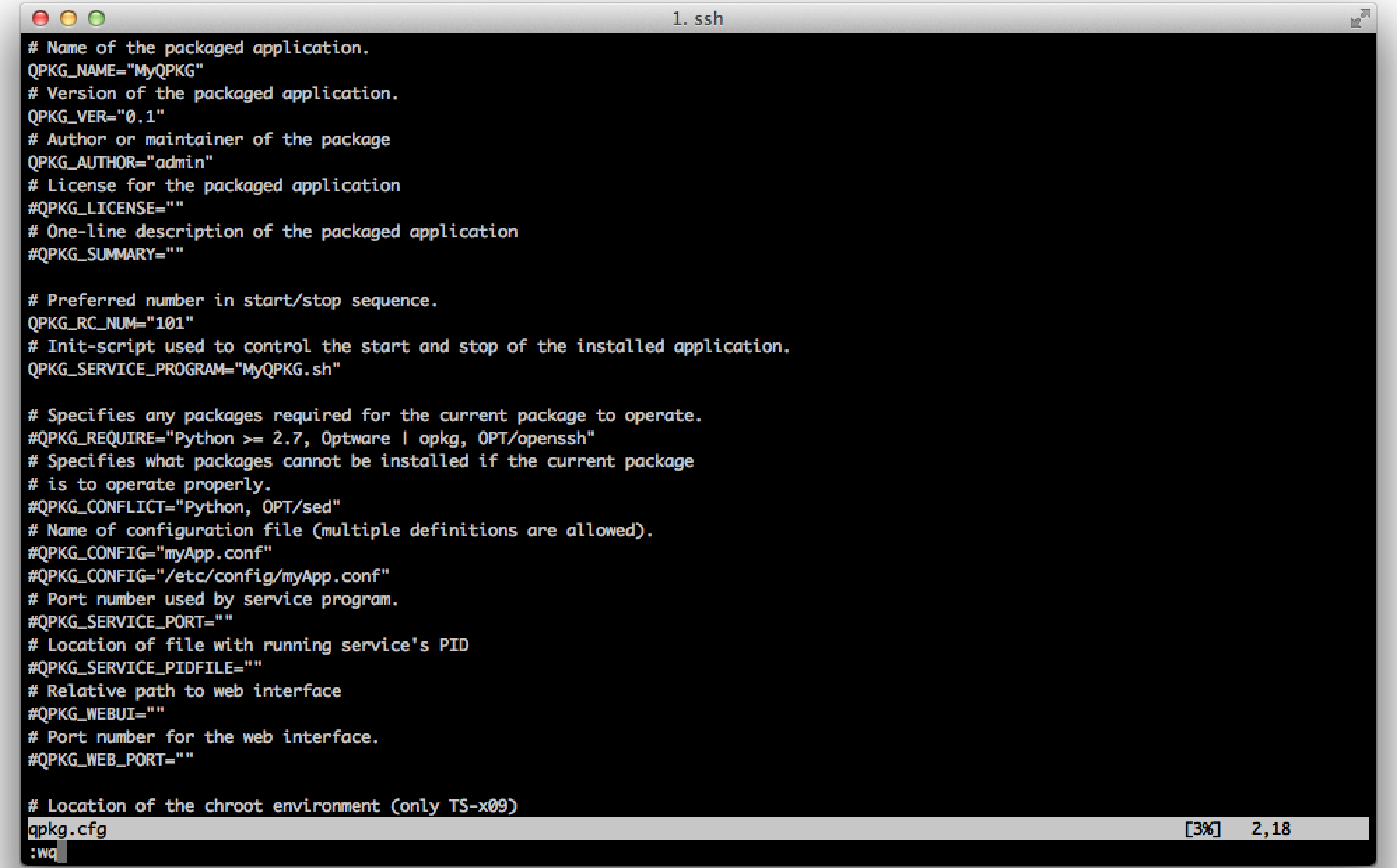
```
[~] #  cd `getcfg QDK Install_Path -f /etc/config/qpkg.conf`
[/share/CACHEDEV1_DATA/.qpkg/QDK] #  qbuild --create-env MyQPKG
[/share/CACHEDEV1_DATA/.qpkg/QDK] # ls
MyQPKG/   bin/      doc/      qdk*      qdk.conf* scripts/  template/
[/share/CACHEDEV1_DATA/.qpkg/QDK] # cd MyQPKG/
[/share/CACHEDEV1_DATA/.qpkg/QDK/MyQPKG] # ls
arm-x09/          arm-x31/          config/           package_routines  shared/           x86_64/
arm-x19/          arm-x41/          icons/            qpkg.cfg          x86/              x86_ce53xx/
```

Build Your Own QPKG (2/5)

- Configure QPKG
  - Edit the content of qpkg.cfg
    - QPKG_NAME: Name of the QPKG
    - QPKG_VER: Version of the QPKG
    - QPKG_AUTHOR: Author of the QPKG

```
[/share/HDA_DATA/.qpkg/QDK/MyQPKG] # vi qpkg.cfg

# Name of the packaged application.
QPKG_NAME="MyQPKG"
# Version of the packaged application.
QPKG_VER="0.1"
# Author or maintainer of the package
QPKG_AUTHOR="admin"
```

Screenshot

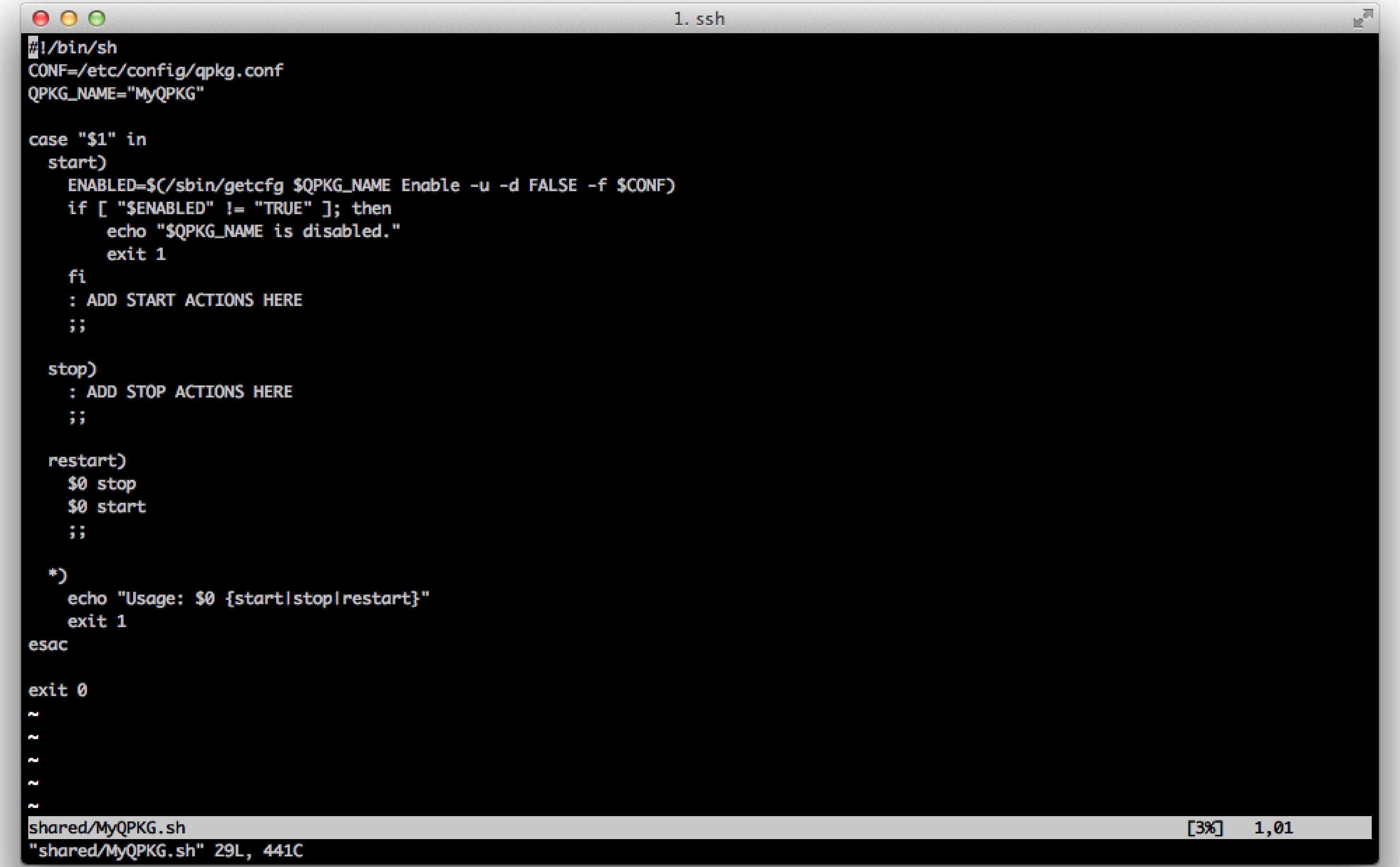


```
# Name of the packaged application.
QPKG_NAME="MyQPKG"
# Version of the packaged application.
QPKG_VER="0.1"
# Author or maintainer of the package
QPKG_AUTHOR="admin"
# License for the packaged application
#QPKG_LICENSE=""
# One-line description of the packaged application
#QPKG_SUMMARY=""

# Preferred number in start/stop sequence.
QPKG_RC_NUM="101"
# Init-script used to control the start and stop of the installed application.
QPKG_SERVICE_PROGRAM="MyQPKG.sh"

# Specifies any packages required for the current package to operate.
#QPKG_REQUIRE="Python >= 2.7, Optware | opkg, OPT/openssh"
# Specifies what packages cannot be installed if the current package
# is to operate properly.
#QPKG_CONFLICT="Python, OPT/sed"
# Name of configuration file (multiple definitions are allowed).
#QPKG_CONFIG="myApp.conf"
#QPKG_CONFIG="/etc/config/myApp.conf"
# Port number used by service program.
#QPKG_SERVICE_PORT=""
# Location of file with running service's PID
#QPKG_SERVICE_PIDFILE=""
# Relative path to web interface
#QPKG_WEBUI=""
# Port number for the web interface.
#QPKG_WEB_PORT=""

# Location of the chroot environment (only TS-x09)
qpkg.cfg                                                                                          [3%]   2,18
:wq
```

Build Your Own QPKG (3/5)

- Customize QPKG routines
  - Content of file “package_routines”
    - pkg_pre_install() : routines before install
    - pkg_install() : routines during install
    - pkg_post_install() : routines after install
    - PKG_PRE_REMOVE : routines before uninstall
    - PKG_MAIN_REMOVE : routines during uninstall
    - PKG_POST_REMOVE : routines after uninstall
  - Content of file “shared/MyQPKG.sh"
    - Start : routines when starting the QPKG
    - Stop : routines when stoping the QPKG

Screenshot



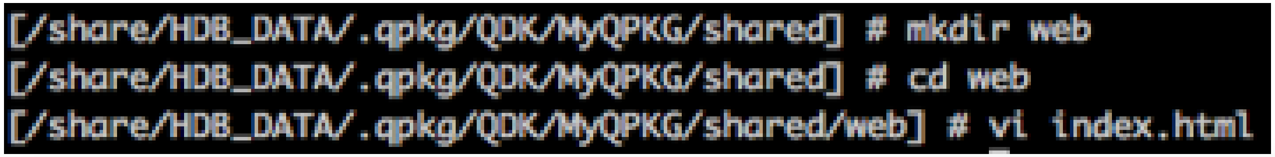
```
#!/bin/sh
CONF=/etc/config/qpkg.conf
QPKG_NAME="MyQPKG"

case "$1" in
  start)
    ENABLED=$(/sbin/getcfg $QPKG_NAME Enable -u -d FALSE -f $CONF)
    if [ "$ENABLED" != "TRUE" ]; then
        echo "$QPKG_NAME is disabled."
        exit 1
    fi
    : ADD START ACTIONS HERE
    ;;

  stop)
    : ADD STOP ACTIONS HERE
    ;;

  restart)
    $0 stop
    $0 start
    ;;

  *)
    echo "Usage: $0 {start|stop|restart}"
    exit 1
esac

exit 0
~
~
~
~
~
shared/MyQPKG.sh                                                                                                                    [3%]    1,01
"shared/MyQPKG.sh" 29L, 441C
```

Build Your Own QPKG (4/5)

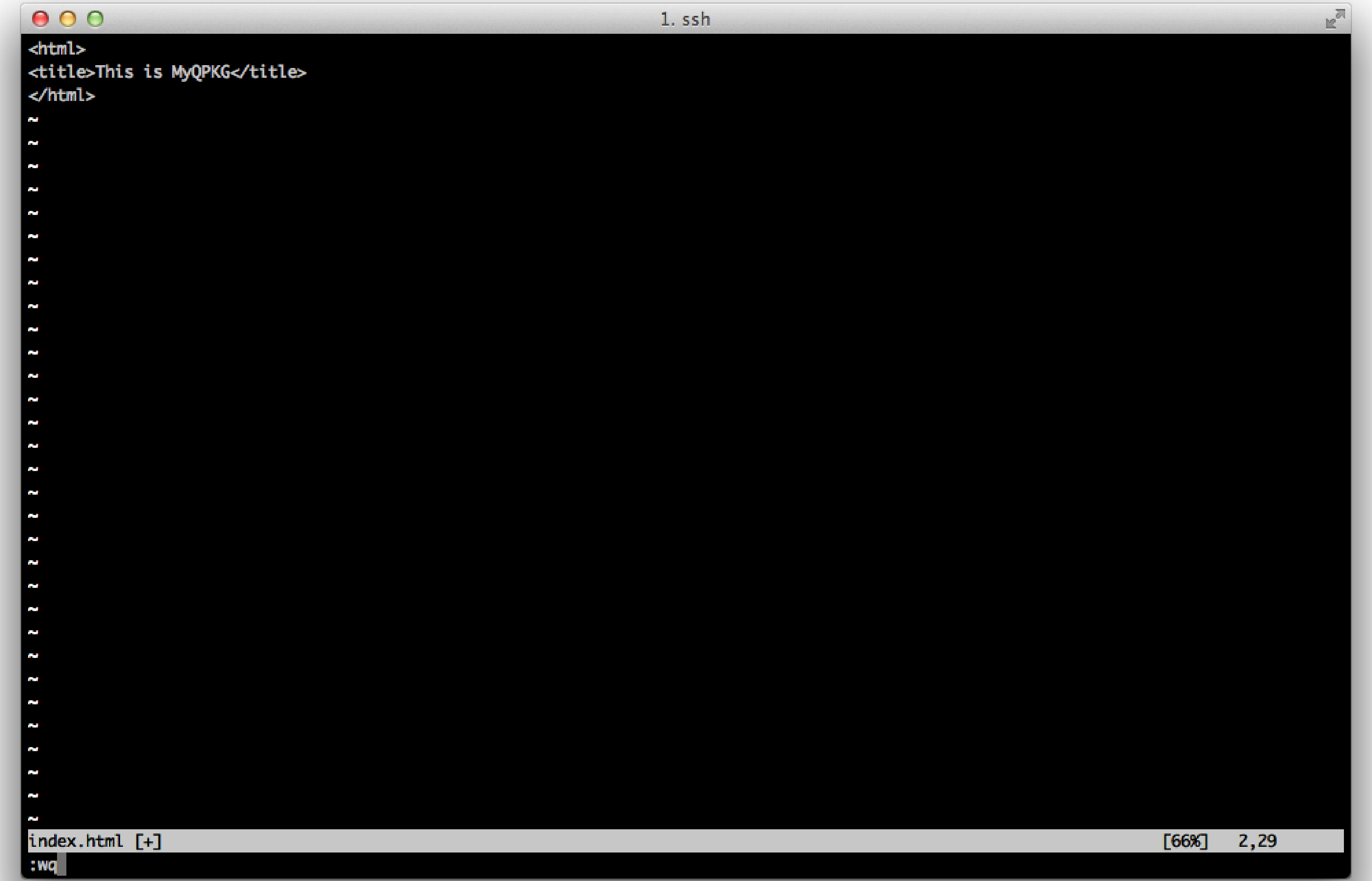
- Add files to QPKG
  - Put files in below folders for different purposes:
    - shared/: Platform-independent files and folders
    - arm-x09/ arm-x19/ arm-x31/ arm-x41(TS-x31+)/ x86/ x86_ce53xx/ x86_64/: Platform-dependent files and folders
    - icons/: icon files
    - config/: config files

```
[/share/HDA_DATA/.qpkg/QDK/MyQPKG] # ls
arm-x09/  arm-x31/   build/   icons/   qpkg.cfg     x86/   x86_ce53xx/
arm-x19/  arm-x41/   config/  package_routines  shared/   x86_64/
```

Screenshot



```
[/share/HDB_DATA/.qpkg/QDK/MyQPKG/shared] # mkdir web
[/share/HDB_DATA/.qpkg/QDK/MyQPKG/shared] # cd web
[/share/HDB_DATA/.qpkg/QDK/MyQPKG/shared/web] # vi index.html
```



```
<html>
<title>This is MyQPKG</title>
</html>
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~
~
~
index.html [+]                                                                                    [66%]    2,29
:wq
```

Build Your Own QPKG (5/5)

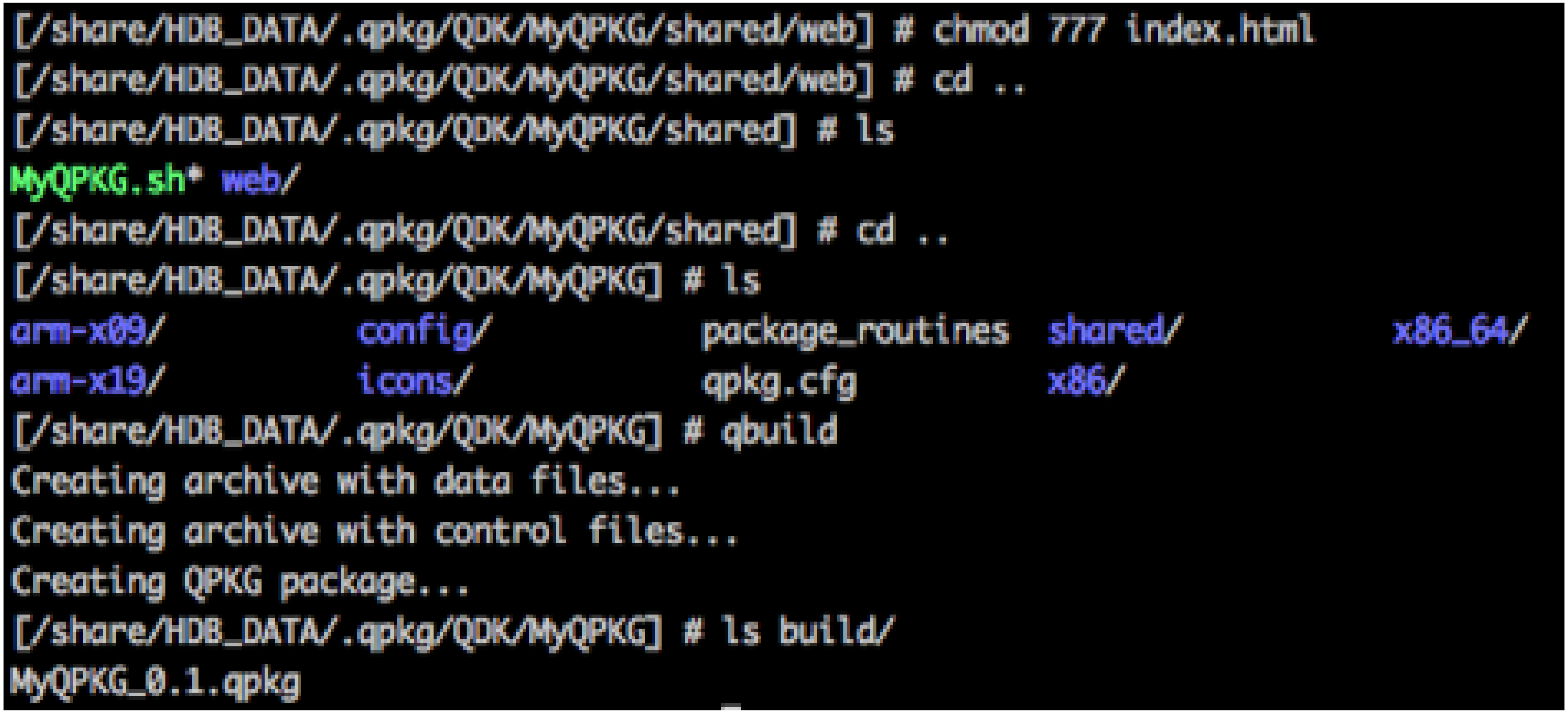
- Generate QPKG file
  - Use below command to build the QPKG file

```
[/share/HDA_DATA/.qpkg/QDK/MyQPKG] # qbuild
Creating archive with data files...
Creating archive with control files...
Creating QPKG package...
```

  - The QPKG file will be generated in the build folder

```
[/[/share/HDA_DATA/.qpkg/QDK/MyQPKG] # cd build/
[/share/HDA_DATA/.qpkg/QDK/MyQPKG/build] # ls
MyQPKG_0.1.qpkg
```

Screenshot



```
[/share/HDB_DATA/.qpkg/QDK/MyQPKG/shared/web] # chmod 777 index.html
[/share/HDB_DATA/.qpkg/QDK/MyQPKG/shared/web] # cd ..
[/share/HDB_DATA/.qpkg/QDK/MyQPKG/shared] # ls
MyQPKG.sh* web/
[/share/HDB_DATA/.qpkg/QDK/MyQPKG/shared] # cd ..
[/share/HDB_DATA/.qpkg/QDK/MyQPKG] # ls
arm-x09/          config/           package_routines  shared/           x86_64/
arm-x19/          icons/            qpkg.cfg          x86/
[/share/HDB_DATA/.qpkg/QDK/MyQPKG] # qbuild
Creating archive with data files...
Creating archive with control files...
Creating QPKG package...
[/share/HDB_DATA/.qpkg/QDK/MyQPKG] # ls build/
MyQPKG_0.1.qpkg
```

Learn More

- Learn more from QDK_2.0.pdf in below URL
  - http://files.qnap.com/download/Storage/QPKG/QDK_2.0_doc.zip