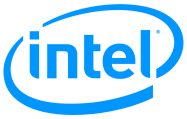
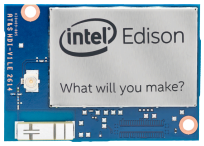
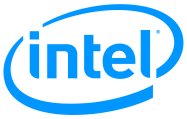
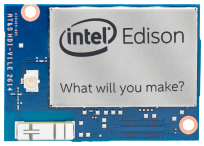




Intel® Edison Tutorial: Introduction to Opkg





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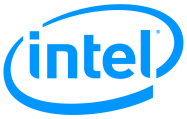
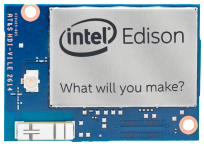




Introduction

This tutorial will guide users through the following tasks:

1. Examination of the opkg package management system
2. Updating the list of repositories queried by the opkg package management system
3. Installing the git version control system
4. Using the git version control system

Prerequisite Tutorials

Users should ensure they are familiar with the documents listed below before proceeding.

1. Intel Edison Tutorial – Introduction, Linux Operating System Shell Access
2. Intel Edison Tutorial – Introduction to Linux

List of Required Materials and Equipment

1. 1x Intel Edison Kit
2. 2x USB 2.0 A-Male to Micro-B Cable (micro USB cable)
3. 1x powered USB hub **OR** an external power supply
4. 1x Personal Computer
5. Access to a network with an internet connection

opkg

Opkg stands for Open PacKaGe Manaement; it is a lightweight package management system intended for use on Embedded Linux Operating Systems. Opkg is designed to work in a similar fashion to the popular **apt-get** package manager available in **Ubuntu**. A Package manager is a collection of software tools that automate the installing, upgrading, configuring and removing software programs on a computer in a consistent manner.

This tutorial will provide users with directions to install **git** using the **opkg** package manager.

1. Access the shell on your Intel Edison. For more information, please refer to the document labelled ***Intel Edison Tutorial – Introduction, Linux Operating System Shell Access and SFTP***.
2. Create a new directory labelled **tutorial3_examples** and navigate to it.

   $ mkdir ~/tutorial3_examples
   $ cd ~/tutorial3_examples

3. To display a list of all available opkg packages to standard output, use the **opkg list** command. Press **ctrl-C** to issue an interrupt that will terminate the listing process.

   $ opkg list

```
root@edison:~/tutorial3_examples# opkg list
alsa-conf-base - 1.0.27.2-r0
alsa-lib - 1.0.27.2-r0
alsa-states - 0.2.0-r4
alsa-utils-alsactl - 1.0.27.2-r0
alsa-utils-alsamixer - 1.0.27.2-r0
alsa-utils-amixer - 1.0.27.2-r0
alsa-utils-aplay - 1.0.27.2-r0
ap-mode-toggle - 0.1-r6
attr - 2.4.47-r0
attr-dev - 2.4.47-r0
autoconf - 2.69-r11
```

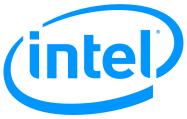
Figure 1: List of all available packages on opkg

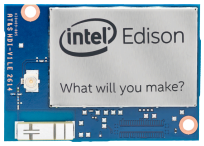
4. Print out all installed packages.

   $ opkg list-installed

```
root@edison:~/tutorial3_examples# opkg list-installed
alsa-conf-base - 1.0.27.2-r0
alsa-lib - 1.0.27.2-r0
alsa-states - 0.2.0-r4
alsa-utils-alsactl - 1.0.27.2-r0
alsa-utils-alsamixer - 1.0.27.2-r0
alsa-utils-amixer - 1.0.27.2-r0
alsa-utils-aplay - 1.0.27.2-r0
```

Figure 2: List of packages installed using opkg on the Intel Edison





5. Attempt to install **git** by issuing the command shown below.

   $ opkg install git

   Notice the error message.

6. This error occurs because the opkg package manager has not yet been configured to access to the files required to install git. Follow the steps outlined below to enable installation of git using opkg.

   $ vi /etc/opkg/base-feeds.conf

   Press [i] once you have opened the file in Vi.

7. Type the text shown below into the file labelled **base-feeds.conf**. For more information regarding the Vi editor, refer to the document labelled ***Intel Edison Tutorial – Introduction to Vim***.

   src/gz all http://repo.opkg.net/edison/repo/all
   src/gz edison http://repo.opkg.net/edison/repo/edison
   src/gz core2-32 http://repo.opkg.net/edison/repo/core2-32

8. Exit **vi** by pressing [Esc] followed by [Shift] + [:], [w], [q]

   When the string "**:wq**" is displayed on the bottom left corner of the Vi session, press [Enter].

9. To update the list of available packages, issue the **opkg update** command.

   $ opkg update

```
root@edison:~/tutorial3_examples# opkg update
Downloading http://iotdk.intel.com/repos/1.1/iotdk/all/Packages.
Updated list of available packages in /var/lib/opkg/all.
Downloading http://iotdk.intel.com/repos/1.1/iotdk/x86/Packages.
Updated list of available packages in /var/lib/opkg/x86.
Downloading http://iotdk.intel.com/repos/1.1/iotdk/i586/Packages.
Updated list of available packages in /var/lib/opkg/i586.
Downloading http://iotdk.intel.com/repos/1.1/intelgalactic/Packages.
Updated list of available packages in /var/lib/opkg/iotkit.
```

Figure 3: Output from issuing the command opkg update successfully

10. To check if opkg has access to the files required to install the **git** package, issue the command below.

    $ opkg list | grep git\ -

    NOTE: there is a space between the '\' and the '-' characters.

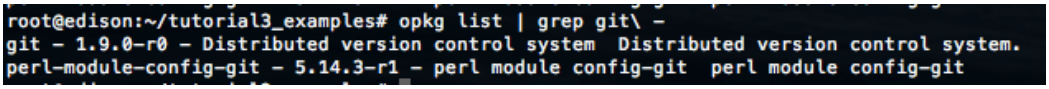


Figure 4: Sample output from the issued command if the git package is available

11. To install git, issue the command shown below.

    $ opkg install git

Figure 5: Standard output during the installation process of git

    git has been successfully installed.

    To learn more **opkg** commands, refer to the link below.
    http://wiki.openwrt.org/doc/techref/opkg.

12. To clone a **bitbucket** repository, issue the **git clone** command.

    $ git clone https://chrisIHbaek@bitbucket.org/chrisIHbaek/tutorial3_example.git

13. List all files and directories.

    $ ls

    Notice the directory labelled **tutorial3_example** is listed. It contains the contents from the online repository shown below.

    https://chrisIHbaek@bitbucket.org/chrisIHbaek/tutorial3_example.git

    $ cd tutorial3_example

14. Verify that the folder contains a file labelled **README**.

    $ ls

15. It is strongly advised that developers utilize **git**. It allows developers to have an online repository for both **version control** and **backup** purposes.