



## SnIP Application Guide

# The “ipkg” Package Manager

### Revision History

Rev 0.1      11-6-2011    Initial Release.

## 1.0 SnIP Package Overview

The Satellite network Interface Processor or “SnIP” is a fairly complete Linux computer on a small card which can be installed into a PSM-500 series modem. It can serve as both a selectable data interface and an IP based monitor and control element for the modem independently.

Like the larger Linux implementations the SnIP has a package manager to permit easy software installation, removal and update. It uses a common embedded package manager named “ipkg”, which is similar in operation to the much larger and more competent Linux “rpm” and “apt-get” managers.

### What is a Package?

Packages are applications or groups of related applications that allow adding functions or updating software between major releases. For example there are “tcpdump” and “iperf” packages that contain these common Linux network test programs. They can be loaded and removed as needed for testing.

There are also update type packages that contain updated versions of standard built-in programs which can be used to install new features or keep the SnIP updated between major filesystem releases. These typically use a filesystem type numbering scheme to show their relevance. For example if the current major filesystem is 0.6.28, and we have some revised or new files in the modem control category that will appear in the next release (0.6.29) then there may exist a package named `modem-control_0.6.29-0` where the trailing `-0` indicates that it is the first implementation in that filesystem version.

Packages are created and stored on a special web-site maintained by Datum Systems. The SnIP accesses that site to determine what packages are currently available, and to download packages for installation. If SnIP does not have access to the web then a specific package can be provided by some other means and manually placed into a temporary directory for installation.

### Package Naming

Packages have a fairly long name consisting of 3 parts. First is the main package-name followed by the version number and last the ending is always “\_powerpc.ipk”. As an example we might have “***modem-control\_0.6.29-0\_powerpc.ipk***”. For most operations you only need the main title “modem-control”. If you want to force something other than the latest version you would add the version number. The trailing part is only shown and needed if you are transferring the file from one location to another.

### Why a Package Manager?

Package managers are software programs that make it easy to install and remove sets of programs in a Linux system. They take the guesswork out of what gets installed, removed and

updated. The package manager also keeps a small database of what is currently installed and what is available.

## **1.1 Equipment Setup**

To allow loading and installation of a package the SnIP must at least be connected to a LAN and have a valid IP address within that LAN. To get packages from the web the LAN must have a router or gateway to the web and the SnIP must be configured for that gateway address. A proper working DNS server address must also be configured. You will also need a computer on the same LAN which can access the SnIP either by telnet or web browser to control package loading.

## **2.0 Setup for Loading and Installing Packages from the Web**

You must have Internet web access from the SnIP to download and install packages. In most installations this means that the SnIP must be connected to a LAN which has a gateway to the web. Typically this might be a router in the local LAN which allows access to the web.

This is fairly easy to determine from a SnIP console or terminal session by pinging a known web site, for example "ping datumsystems.com".

Below are the two main methods for viewing and loading packages into the SnIP. Also listed is Method 3, which is manual load and installation of a package.

### **2.1 Method 1 - From a SnIP Console or Terminal Session**

You must first log into the SnIP. For example to setup a telnet session go into a command console on your PC type computer and type "telnet <SnIP IP Address> and log in using the root, datum user and password.

1. If you have web access then type the following
  - ipkg update
  - ipkg install <package-name> [this should install the latest version if more than one is available]
2. The package should download and install with a success message.

The first update process will fail if Internet access is not available. Fix the problem and return to load the package.

### **2.2 Method 2 - From the SnIP Web Server**

This method uses the SnIP's built-in web server to control and view packages available.

Open your favorite web browser on the computer connected to the same LAN as the SnIP. Go to the SnIP by putting its IP address in the browser address bar. A dialog box will pop up requesting authentication – supply it with the default user and password ("root", "datum").

1. Go to the SnIP>>Update page. The update check on the top of the page shows check-marks indicating if you have the required connections to access the web repository.
2. Click on the "SnIP Package Manager" link in the lower text portion of the page.
3. Click the Sync Package "yes" radio button and then the "Submit" button to update the SnIP's list of available packages. A list of available packages is then downloaded and shown. Locate the package that you wish to install. If multiple versions of the same package are listed you would normally select the latest of the versions shown.
4. Click the "Install" button on the left. The package should download and install and show a message of "Successfully Terminated".

#### **2.2.1 What if Web Page Check-marks Indicate a Problem.**

If the check-marks at the start of the SnIP>>Update page indicate a problem, the nature of the problem is indicated and should be taken care of before re-trying to download a package.

### **2.3 Method 3 – Manual Load and Install a Package into SnIPs**

If neither of the above methods is applicable it is still possible to manually install a package. The SnIP must still be on a LAN with a valid LAN IP address. Contact Datum Systems Support and the compressed package format can be emailed to you. You must then manually transfer the package to the SnIP using one of the file transfer programs available. These are typically scp or rsync or FTP from a Linux machine or WinSCP or FTP from a Windows machine. The package should be transferred into the /tmp directory which is volatile and will only exist until the next reboot. For example from a Linux based PC you might use the following:

```
scp modem-control_0.6.29-0_powerpc.ipk root@192.168.15.33:/tmp
```

Then from a console or terminal session on the SnIP:

```
ipkg install /tmp/modem-control_0.6.29-0_powerpc.ipk
```

The unpacking and installation should progress and give a success message.

All SnIP ipkg format packages end with the term “\_powerpc.ipk” following a standard format.

### **3.0 Using Certain Package Programs**

Many of the test programs intended for temporary use do not load into the standard directories in the root or user paths. Instead they will load into the /opt/bin or /opt/sbin directories. The program can then only be executed by using the full path, for example “.opt/bin/tcpdump”.

MAB

End of Document.