

# Chapter 8: Installing Products using FTP

This chapter describes how to download a product using **FTP**, install it, and declare it to a local **UPS** database. Anonymous **FTP** is available on *fnkits*, and may be available on other **UPS** product distribution nodes. **FTP** does not take advantage of the local node's **UPD** configuration. It can be used only to retrieve products; it is left to the installer to unwind and declare them. Furthermore, if the table file and/or the `ups` directory is (are) not included the tar file, each must be retrieved separately.

**FTP** is not recommended for installations into the usual local product area; **UPD** is designed and configured specifically for this purpose and should be used instead. **FTP** is more suited to product installations into non-standard locations on your node, e.g., into your own area for use just by you.

On *fnkits*, **FTP** is most useful for off-site users who want to download FermiTools products, which are located under the `/pub` directory in the `KITS` database. You do not need to be a registered user to obtain the FermiTools products.

## 8.1 “Quick and Dirty” Download of Product from KITS

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### 8.1.1 Download Areas

Products are arranged (via symlinks) in several different file hierarchies to make browsing easier:

- The `ftp://ftp.fnal.gov/products/` directory contains products organized by product name and version.
- The `ftp://ftp.fnal.gov/KITS/` hierarchy contains products organized by operating system.
- The `ftp://ftp.fnal.gov/pub/` hierarchy contains the FermiTools products which are available to the general public.

## 8.1.2 Register your Node

First, verify that your node is registered to obtain products from *fnkits*. If not, complete the product distribution registration form at [http://www.fnal.gov/cd/forms/upd\\_registration.html](http://www.fnal.gov/cd/forms/upd_registration.html). If you only want to access FermiTools products (which includes all products located under the `/pub` directory), registration is not required.

## 8.1.3 Download a Product

If you go to one of the web pages listed above, and select a product/version/flavor, you will find yourself at the download page for that product. The files listed here generally include the archive file containing the product (e.g., `<product>_<version>_<flavor>.tar` or `zip`), the archive file of the product's `ups` directory (e.g., `<...>.ups.tar`), and a table file (e.g., `<product...>.table`), as shown here for **UPS**:

```
ups_v4_6_SunOS+5.table
ups_v4_6_SunOS+5.table.old
ups_v4_6_SunOS+5.tar
ups_v4_6_SunOS+5.ups.tar
```

For the installation of a product for use in a **UPS** environment, you need all three (the old table file is not needed). Click on a file to download it. See section 8.3.4 *Unwind the Files into your Products Area* for information on unwinding them in the proper order.

If you're downloading the **UPS** product itself, see the instructions at [ftp://ftp.fnal.gov/products/bootstrap/current/manual\\_install.html](ftp://ftp.fnal.gov/products/bootstrap/current/manual_install.html) for installation instructions, or see Chapter 14: *Installing UPS and UPD from Bootstrap*.

## 8.1.4 Declare the Product to your Database

If the product is installed in your machine's standard **UPS** area in the standard way, you should be able to use the `ups declare` command with only the following options and arguments to declare the product:

```
% ups declare <product> <version> -r /path/to/prod/root/dir/ \
  -c -f <flavor> -m <table_name>.table
```

If you need more information, see section 4.4 *Declaring an Instance Manually* and/or 23.5 *ups declare*.

## 8.2 UPS Product Components to Download

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One of the features of **UPS/UPD** v4 is that it allows product developers to update certain portions of a product without cutting an entire new release of the product.<sup>1</sup> Specifically, a developer can update any file within a product's `ups` directory and reissue the `ups` directory tar file, and/or update and reissue a product's table file independently of the product tar file. The disadvantage this feature presents is that you must download these elements separately when using **FTP** to install a product.

The files that are commonly found within a product's `ups` directory include:

- a `README` file which provides information about the product such as origin, developer, support level, and so on
- unformatted man pages (under `ups/toman/man`)
- formatted man pages (under `ups/toman/catman`)
- an `INSTALL_NOTE` file, when needed, with instructions for installers
- (sometimes) a table file<sup>2</sup>

## 8.3 Installing Products from `fnkits.fnal.gov`

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First, verify that your node is registered to obtain products from *fnkits*. If not, complete the product distribution registration form at [http://www.fnal.gov/cd/forms/upd\\_registration.html](http://www.fnal.gov/cd/forms/upd_registration.html).



If you only want to access FermiTools products (which includes all products located under the `/pub` directory), registration is not required.

The naming conventions and file hierarchy on *fnkits* have been constructed to make finding and downloading product files relatively easy. We show the procedure by way of an example, using the (fictional) product **sister**, version `v1_0`, for flavor `Linux+2`. For the local database we use `/fnal/ups/db` and we take the local product area to be `/fnal/ups/products`.

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1. In versions of **UPS/UPD** prior to v4, `KITS` contained one tar file per product. If anything in the product changed, it required adding a brand new tar file of the whole product to `KITS`.

2. Since the table file may get updated separately from the other `ups` directory files, the copy maintained in the `ups` directory is not always the most recent one.

## 8.3.1 Download the Files from fnkits

## 8.3.2 Download Areas

Products are arranged (via symlinks) in several different file hierarchies to make browsing easier:

- The `ftp://ftp.fnal.gov/products/` directory contains products organized by product name and version.
- The `ftp://ftp.fnal.gov/KITS/` hierarchy contains products organized by operating system.
- The `ftp://ftp.fnal.gov/pub/` hierarchy contains the FermiTools products which are available to the general public.

You can click to download, or use the traditional **ftp** command as described below.

## 8.3.3 Run ftp

In order to download the product files from the server, first change to an appropriate directory and run **FTP** to the machine, e.g.,:

```
% cd /usr/tmp
% ftp fnkits.fnal.gov
```

Provide the username *anonymous*, and use your `<username>@<nodename>` as the password.

Once you're logged on, you need to find the product you want. If you know the product's name, version, and flavor, you can just **cd** to the appropriate directory. If not, you may need to browse a bit. The product pathnames are listed in section 5.3.2 *Product Pathnames for FTP Access*. Products are arranged (via symlinks) in several different file hierarchies to make browsing easier:

- The `/products` directory contains products organized by product name and version.
- The `/KITS` hierarchy contains products organized by operating system.
- The `/pub` hierarchy contains the FermiTools products which are available to the general public.

We want to install the product **sister** version 1\_0 for the flavor Linux+2, so we **cd** to the appropriate directory under `/products` and list the directory contents (this shows typical contents for products on *fnkits*):

```
ftp> cd /products/sister/v1_0/Linux+2
ftp> ls -l
```

```
drwxr-xr-x    4 100          kits           512 Sep 10 19:53
sister_v0_1_Linux+2
-rw-rw-r-x    1 100          kits           1538 Sep 10 19:53
sister_v0_1_Linux+2.table
-rw-r--r-x    1 100          kits           9687040 Aug 19 21:05
sister_v0_1_Linux+2.tar
-rw-rw-r-x    1 100          kits           60928 Sep 10 19:53
sister_v0_1_Linux+2.ups.tar
```

The directory `sister_v0_1_Linux+2` contains the unwound `ups` directory files (to allow you to browse, read and/or download individually any of the files it contains). `sister_v0_1_Linux+2.table` is the table file, `sister_v0_1_Linux+2.tar` is the complete product tar file, and `sister_v0_1_Linux+2.ups.tar` is a separate tar file of the `ups` directory.

Set the mode to “binary”, and **get** the two tar files:

```
ftp> binary
ftp> get sister_v0_1_Linux+2.tar
ftp> get sister_v0_1_Linux+2.ups.tar
```

Then set the mode to “ascii”, and get the table file:

```
ftp> ascii
ftp> get sister_v0_1_Linux+2.table
```

and exit:

```
ftp> bye
```

### 8.3.4 Unwind the Files into your Products Area

You need to unwind/copy the product files on your local node in the right order to ensure that:

- the individually-downloaded table file takes precedence over any previously existing table file as well as over one which may be contained within the product tar file
- the product’s `ups.tar` file contents take precedence over any previously existing `ups` directory contents as well as over that which is contained within the product tar file.

This involves first unwinding the product tar file, then the `ups` directory, and finally copying the table file to its correct location. This procedure is illustrated below.



Note: From a technical standpoint, you are not required to follow any file naming/location conventions laid out in your system’s `updconfig` file, if any, since you are not using **UPD** for the installation.

First make the product root directory:

```
% cd /fnal/ups/products
% mkdir -p sister/v0_1/Linux+2
```

Change to the product root directory and unwind the product tar file:

```
% cd sister/v0_1/Linux+2
% tar xvf /usr/tmp/sister_v0_1_Linux+2.tar
```

Now change to the product’s `ups` directory (or make one if it doesn’t exist) and unwind the product’s `ups.tar` tar file:

```
% cd ups
% tar xvf /usr/tmp/sister_v0_1_Linux+2.ups.tar
```

Finally, change to the directory in which you want to put the table file and copy it in. Here we use the product directory under the database (the other commonly used location is under the product's `ups` directory).

```
% cd /fnal/ups/db/sister
% cp /usr/tmp/sister_v0_1_Linux+2.table ./sister.table
```

### 8.3.5 Declare the Product to your Database

You now need to declare the product instance to your **UPS** database<sup>1</sup>. Declaring a product instance is described in section 4.4 *Declaring an Instance Manually*.

To declare the downloaded product **sister** to our `/fnal/ups/db` database, we run the **ups declare** command as follows:

```
% ups declare sister v0_1 -f Linux+2 -z /fnal/ups/db \
  -r /fnal/ups/products/sister/v0_1/Linux+2 \
  -m sister.table
```

The `-U` and `-M` options are not included since we put the table file and `ups` directory in default locations where **UPS** will find them.

## 8.4 Installing Products from Other Product Distribution Nodes

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The procedure for downloading from any standard **UPS** product distribution node is basically the same as illustrated for *fnkits* in section 8.3 *Installing Products from fnkits.fnal.gov*. The **UPD** configuration of the server node will most likely be different however, which means that the product and its associated files may be organized differently than on *fnkits*. You may need to verify that your node is registered to obtain products from the server. Contact the server maintainer or other designated person for information regarding node/user registration.

### 8.4.1 Locate the Product Files on the Server

The most reliable way to determine the location of the product files is to use the **upd list** command, e.g.,:

```
% upd list -h <hostname> -K+:@prod_dir:@ups_dir:@table_file \
  sister v0_1 -f Linux+2
```

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1. ... unless you're not running **UPS** on your local node.

(We show the output on separate lines for readability:)

```
"/P/tar/sisterv0_1Linux+2.tar"  
"/P/ups/sisterv0_1Linux+2.ups.tar"  
"/P/table/sisterv0_1Linux+2.table"
```

In this example, files are organized on the server by type rather than by product:

- product tar files are stored under the `/P/tar` hierarchy
- product `ups` directory tar files are stored under the `/P/ups` hierarchy
- table files are stored under the `/P/table` directory.

## 8.4.2 Download the Files from the Server

Let's take *special.upd.host* as our server node. In order to download the product files from the server, first change to an appropriate directory and run **FTP** to the machine, e.g.,:

```
% cd /usr/tmp  
% ftp special.upd.host
```

Provide the username *anonymous*, and use your `<username>@<nodename>` as the password.

Once you're logged on, set the mode to "binary", and **get** the two tar files:

```
ftp> binary  
ftp> cd /P/tar  
ftp> get sister_v0_1_Linux+2.tar  
ftp> cd /P/ups  
ftp> get sister_v0_1_Linux+2.ups.tar
```

Then set the mode to "ascii", and get the table file:

```
ftp> ascii  
ftp> cd /P/table  
ftp> get sister_v0_1_Linux+2.table
```

and exit:

```
ftp> bye
```

## 8.4.3 Unwind the Files into your Products Area

Unwind the tar files and copy the table file as shown in section 8.3.4 *Unwind the Files into your Products Area*.

## **8.4.4 Declare the Product to your Database**

Declare them as shown in section 8.3.5 *Declare the Product to your Database*.

