

Chapter 22: Configuration of the fnkits Product Distribution Node

This chapter describes the **UPS/UPD** configuration on the Computing Division's central product distribution node, *fnkits.fnal.gov*.¹ Information is provided for both the **KITS** distribution database and the server's local database.

22.1 UPS Configuration for KITS Database

The **KITS** database on the *fnkits.fnal.gov* node has a fairly minimal configuration file, typical for distribution databases:

- The database is configured to allow all registered nodes to read and use the products in it.
- Statistics are not collected for any products.
- Locations are defined for product instances, the **UPS** initialization files and the **UPD** configuration file.

For reference, we list the contents of the `dbconfig` file for **KITS** (minus the comments):

```
FILE = DBCONFIG
AUTHORIZED_NODES = *
PROD_DIR_PREFIX = /ftp/products
STATISTICS =
SETUPS_DIR = /fnal/etc
UPD_USERCODE_DIR = /fnal/ups/db/.updfiles
```

1. Other names used for this server are: *fnkits*, *kits*, *kits.fnal.gov*, *upd*, and *upd.fnal.gov*.

22.2 UPS Configuration for local Product Database

The local database on the *fnkits* node is maintained at `/fnal/ups/db`. The `dbconfig` file for this database is typical for databases on user nodes, where products are unwound and available for use. This file happens to contain all the information that the `dbconfig` file for the `KITS` distribution database does, except that the product area, defined by `PROD_DIR_PREFIX`, is different. In addition to this content, there are definitions of target directories for various product information files (e.g., man pages).

For reference, we list the contents of the `dbconfig` file for the local database (minus the comments):

```
FILE = DBCONFIG
AUTHORIZED_NODES = *
PROD_DIR_PREFIX = /fnal/ups
STATISTICS =
MAN_TARGET_DIR = /fnal/ups/man
CATMAN_TARGET_DIR = /fnal/ups/catman
INFO_TARGET_DIR = /fnal/ups/Info
HTML_TARGET_DIR = /fnal/ups/htmldocs
NEWS_TARGET_DIR = /fnal/ups/news
SETUPS_DIR = /fnal/etc
UPD_USERCODE_DIR = /fnal/ups/db/.updfiles
```

In particular, notice that `UPD_USERCODE_DIR` is set to the same value in both files. This indicates that the databases share a **UPD** configuration.



Soon after the release of this document (mid-2000), the local database on *fnkits* will point to its own **UPD** configuration.

22.3 UPD Configuration

22.3.1 updconfig File Organization

The **UPD** configuration for both the `KITS` distribution database (`/ftp/upsdb`) and the database used for locally installed products (`/fnal/ups/db`) is contained in the same file, `${UPD_USERCODE_DIR}/updconfig`.¹ `${UPD_USERCODE_DIR}` is defined to be `/fnal/ups/db/.updfiles` in the `dbconfig` files for both databases.

The `dbconfig` file includes several stanzas, each of which pertains to a category of product. The product-matching criterion for each stanza is an option which indicates the category. The categories are: `default` (no option), `local`, `fermitools`, `proprietary`, `fnalonly`, and `usonly`. For example, the `GROUP:` section of the stanza for `default` products is empty, the one for `proprietary` contains the `options` line:

```
group:
    options = "proprietary"
```

1. This is changing mid-2000; the local database will have a separate **UPD** configuration file.

and so on. The contents of the `COMMON:` sections for each category, namely the location and file name definitions and any actions, are listed in sections 22.3.4 *Location and File Name Definitions* and 22.3.5 *Pre- and Postdeclare ACTIONS*.

22.3.2 The Recognized Product Categories

<code>default</code>	The <code>default</code> category is the most commonly used, and is for regular products added to the <code>KITS</code> database (<code>/ftp/products</code> or <code>/ftp/KITS</code>) for distribution to any on-site or registered off-site node ¹ . The products are set to group <code>upd</code> , and group-read-only. No option is associated with the default.
<code>local</code>	(This will be dropped mid-2000.) The <code>local</code> category is for products installed (using <code>upd install</code>) into the local database, <code>ftp/ups/db</code> , for use on the <code>fnkits</code> node itself (as opposed to those added to <code>KITS</code> for distribution). For these products, the <code>-O local</code> option must be included in the <code>upd install</code> command. (Used only by the <code>fnkits</code> system managers.)
<code>fermitools</code>	<code>fermitools</code> products are locally-developed and supported software packages (which are not available elsewhere, generally) that we make available to the public via our FermiTools program ² . These products are installed in the <code>KITS</code> database, are world-readable, and have a symlink hierarchy under <code>/ftp/pub</code> . The <code>/ftp/pub</code> hierarchy has been created with the same structure as <code>/ftp/KITS</code> .
<code>proprietary</code>	The <code>proprietary</code> category includes products for which Fermilab has a limited number of licenses. These products are installed in the <code>KITS</code> database, and made accessible only to special groups.
<code>fnalonly</code>	The <code>fnalonly</code> category is for products accessible only to the <code>fnal.gov</code> domain. They are installed in the <code>KITS</code> database, set to group <code>fnalonly</code> , and are group-read-only.

1. See the **Product Distribution Platform Registration Request** form at http://www.fnal.gov/cd/forms/upd_registration.html

2. For more information on FermiTools, see <http://www.fnal.gov/fermitools/>.

`usonly` US-only (United States only) products are accessible only to U.S. government (`.gov`) and military (`.mil`) domains. In general, these are products for which distribution to other countries is illegal. They are installed in the `KITS` database, set to group `usonly`, and are group-read-only.

22.3.3 Matching Product Categories to `updconfig` Stanzas

When adding a product belonging to any of the categories `fermitools`, `proprietary`, `fnalonly` or `usonly`, do not specify the corresponding option via the `-O` flag on the `upd addproduct` command line. Instead, first fill out and submit the **Special UPD Product Registration** form (at <http://fnkits.fnal.gov/specialprod.html>) identifying the product and its category. After you receive a confirmation via email, add the product as you would a “default” product (see Chapter 18: *Making Products Available For Distribution*). The option corresponding to your selected category gets set automatically in order to invoke the proper stanza in the `updconfig` file.

22.3.4 Location and File Name Definitions

All Product Categories (except local)

The following location and file name definitions are shared by the stanzas for the product categories `default`, `usonly`, `fnalonly`, `proprietary`, and `fermitools`:

```
UPS_THIS_DB = /"ftp/upsdb"
UNWIND_PROD_DIR="/ftp/products/${UPS_PROD_NAME}/${UPS_PROD_V
ERSION}/

${UPS_PROD_FLAVOR}/${UPS_PROD_NAME}_${UPS_PROD_VERSION}_${UP
S_PROD_FLAVOR}
  ${UPS_PROD_QUALIFIERS}"
UNWIND_UPS_DIR = "${UNWIND_PROD_DIR}/ups"
UNWIND_TABLE_DIR =
"/ftp/products/${UPS_PROD_NAME}/${UPS_PROD_VERSION}/
  ${UPS_PROD_FLAVOR}"
UNWIND_ARCHIVE_FILE = "${UNWIND_PROD_DIR}.${SUFFIX}"
UPS_TABLE_FILE="${UPS_PROD_NAME}_${UPS_PROD_VERSION}_${UPS_P
ROD_FLAVOR}
  ${UPS_PROD_QUALIFIERS}.table"
UPS_TABLE_DIR = "${UNWIND_TABLE_DIR}"
UPS_PROD_DIR = "${UNWIND_PROD_DIR}"
```

```
UPS_UPS_DIR = "ups"
```

After the mid-2000 change, we expect a few of these values to change, as follows:

```
UNWIND_PROD_DIR="/ftp/products/${UPS_PROD_NAME}/${UPS_PROD_V
ERSION}/

${UPS_PROD_FLAVOR}/${UPS_PROD_NAME}_${UPS_PROD_VERSION}_${UP
S_PROD_FLAVOR}
  ${UPS_PROD_QUALIFIERS}"
UNWIND_UPS_DIR = "${UPS_PROD_DIR}/ups"
UNWIND_TABLE_DIR = "${UPS_TABLE_DIR}"
UPS_TABLE_DIR
"/ftp/products/${UPS_PROD_NAME}/${UPS_PROD_VERSION}/
  ${UPS_PROD_FLAVOR}"
```

The `UPS_ARCHIVE_FILE` definition varies. Different **FTP** server port numbers with different permissions are used according to the product category. For default, `proprietary` and `fermitools` the value is:

```
UPS_ARCHIVE_FILE = ${UNWIND_ARCHIVE_FILE}
```

For `fnalonly`, it is:

```
UPS_ARCHIVE_FILE = ":9021${UNWIND_ARCHIVE_FILE}"
```

For `usonly`, it is:

```
UPS_ARCHIVE_FILE = ":8021${UNWIND_ARCHIVE_FILE}"
```

local

The location and file name definitions for `local` products are (again, this will be in a separate **UPD** configuration file after mid-2000):

```
UPS_THIS_DB= "/fnal/ups/db"
UNWIND_PROD_DIR=
"/fnal/ups/${UPS_PROD_NAME}/${UPS_PROD_VERSION}/${UPS_PROD_F
LAVOR}${UPS_PROD_QUALIFIERS}"
UNWIND_UPS_DIR= "${UNWIND_PROD_DIR}/ups"
UNWIND_TABLE_DIR = "${UPS_THIS_DB}/${UPS_PROD_NAME}"
UPS_TABLE_FILE= "${UPS_PROD_VERSION}.table"
UPS_PROD_DIR = "${UNWIND_PROD_DIR}"
UPS_UPS_DIR = "ups"
```

22.3.5 Pre- and Postdeclare ACTIONS

The stanzas for all categories of product except `local` include a **PREDECLARE** and a **POSTDECLARE** action.¹

- In each case, the **PREDECLARE** action includes a set of **execute** statements to **chmod/chgrp** the files to the right group id and permissions, and another set to symlink files under `/ftp/KITS` to

provide the old-style (UPS/UPD v3) KITS hierarchy¹ of KITS/Flavor/product/version. In addition, `fermitools` includes commands to send notification email.

- The POSTDECLARE action makes a convenience tar file of the `ups` directory for users downloading via **ftp**.

The **execute** statements in each stanza are similar, but not identical. We first list them for the default case, and then list the differences for the other product categories relative to the default.

The stanza for `local` products contains no actions.

PREDECLARE Action for default Products

The PREDECLARE action for the `default` product category fixes group permissions:

```
action = predeclare
Execute("chgrp upd ${UNWIND_TABLE_DIR}/*", NO_UPS_ENV)
Execute("chmod o-rwx ${UNWIND_TABLE_DIR}/*", NO_UPS_ENV)
Execute("chmod a+r ${UNWIND_TABLE_DIR}/*.table", NO_UPS_ENV)
```

and makes old-KITS compatible hierarchy files:

```
Execute("test
/ftp/KITS/${UPS_BASE_FLAVOR}/${UPS_PROD_NAME}/${UPS_PROD_VER
SION}          ||          mkdir          -p
/ftp/KITS/${UPS_BASE_FLAVOR}/${UPS_PROD_NAME}/${UPS_PROD_VER
SION}", NO_UPS_ENV)
```

```
Execute("cd
/ftp/KITS/${UPS_BASE_FLAVOR}/${UPS_PROD_NAME}/${UPS_PROD_VER
SION};
rm          -f
${UPS_PROD_NAME}_${UPS_PROD_VERSION}_${UPS_PROD_FLAVOR}${UPS
_PROD_QUALIFIERS}.*", NO_UPS_ENV)
```

```
Execute("cd
/ftp/KITS/${UPS_BASE_FLAVOR}/${UPS_PROD_NAME}/${UPS_PROD_VER
SION}; /usr/bin/ln -fs ${UNWIND_PROD_DIR}.* . ||
true", NO_UPS_ENV)
```

PREDECLARE Action for FermiTools Products

The PREDECLARE action is the same as for the `default` products except for the changes noted here.

1. After mid-2000, some of the functions in the PREDECLARE actions move to a common POSTDECLARE action, namely the functions that make old-KITS compatible hierarchy files.

1. Currently nothing prunes old links or files from this hierarchy.

For `fermitools`, there is no **Execute ("chgrp...")** command. The first **chmod** command is **o+rx** rather than **o-rwx**:

```
Execute("chmod o+rx ${UNWIND_TABLE_DIR}/*", NO_UPS_ENV)
```

Also for `fermitools`, commands are included to send notification e-mail:

```
Execute("sh -c
\"dir=/ftp/pub/${UPS_PROD_NAME}/${UPS_PROD_VERSION}; test -d
\\$dir || mkdir -p \\$dir\"", NO_UPS_ENV)
```

```
Execute("sh -c
\"dir=/ftp/pub/${UPS_PROD_NAME}/${UPS_PROD_VERSION}; cd
\\$dir; /usr/bin/ln -sf ${UNWIND_PROD_DIR}.* .;
/usr/bin/ln -sf ${UNWIND_PROD_DIR}/README .\" || true",
NO_UPS_ENV)
```

```
Execute ("echo Fermitools product ${UPS_PROD_NAME}
${UPS_PROD_VERSION} -f ${UPS_PROD_FLAVOR} has been added to
fnkits | /bin/mail fermitools_support@fnal.gov",
NO_UPS_ENV)
```

PREDECLARE Action for proprietary, fnalonly and usonly Products

The PREDECLARE action is the same as for the `default` products except for the changes noted here.

For `proprietary` products, the **chgrp** command changes to:

```
Execute("chgrp `echo ${UPS_PROD_NAME} | sed -e
's/^vx.*/vx_dart/' | tr a-z A-Z` ${UNWIND_TABLE_DIR}/*",
NO_UPS_ENV)
```

For `fnalonly` and `usonly` products, the group used in the **chgrp** command changes to `FNALONLY` and `USONLY`, respectively:

```
Execute("chgrp FNALONLY ${UNWIND_TABLE_DIR}/*", NO_UPS_ENV)
```

and

```
Execute("chgrp USONLY ${UNWIND_TABLE_DIR}/*", NO_UPS_ENV)
```

POSTDECLARE Action for All Product Categories (except local)

The POSTDECLARE action makes a `${UNWIND_PROD_DIR}.ups.tar` tar file:

```
action = postdeclare
Execute("test -d \"${UNWIND_UPS_DIR}\" && cd
${UNWIND_UPS_DIR} && tar cf ${UNWIND_PROD_DIR}.ups.tar . ||
true", NO_UPS_ENV)
```

22.4 fnkits Server Maintenance

22.4.1 User Accounts and Group Ids

The *fnkits* Web and **FTP** server configuration files are owned by *oss*.

The Web server runs as *updadmin*. *updadmin* owns all of the **FTP**-served product files and the **KITS UPS** database, and therefore also the Web server logs.

Many group ids are used, see `/etc/ftpd/ftpgroups` on *fnkits* for the complete list.

22.4.2 Database and Configuration File Locations

The **KITS** distribution database is `/ftp/upsdb`.

The local database is under `/fnal/ups/db`.

The Web server configuration files are maintained under the `/fnal/www` directory.

The **FTP** configuration files live under `/etc/ftpd`, except for `usonly` and `fnalonly` products which are kept under `/etc/ftpd-usonly` and `/etc/ftpd-fnalonly`, respectively.

“Sanitized” versions of the configuration files (with hostnames and such trimmed) are available at `http://ftp.fnal.gov/`.

22.4.3 Web Server and FTP Log File Information

Logs are kept for roughly 30 days.

The Web server logs are kept in `/fnal/log/www`.

The **FTP** logs are kept under `/var/adm/ftpd`, except for `usonly` and `fnalonly` products which are kept under `/var/adm/ftpd-usonly` and `/var/adm/ftpd-fnalonly`, respectively.

The log summaries are maintained under `/fnal/www/kits/html/logs`, also accessible via `http://ftp.fnal.gov/logs`. They are prepared using the product **ftpweblog**.