

# **HSI/HTAR Build and Installation**

**Hierarchical Storage Interface, Version 9.1, 30 April 2020**

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# Chapter 1. Overview

The general steps for building and installing the HSI/HTAR interface is similar to other software packages. They are as follows, and provide the general organization of this document:

1. Obtain HSI/HTAR source tree
2. Run `./Configure` (see Appendix A)
3. Perform installation of client and server

---

## Chapter 2. HSI/HTAR Source Tree

The source code for the HSI/HTAR client can be obtained from several sources and in different formats. Perhaps the most typical is a tarball. The following command shows how to unpack a tarball.

```
tar -xvzf <hsi version #>.tar.gz
```

The resulting source tree should look similar to the one below.

```
-rwxr-x--- 1 user42 users 63239 Mar 8 2017 Compile
-rwxr-x--- 1 user42 users 284314 Mar 8 2017 Configure
-rw-r----- 1 user42 users 10116 Mar 8 2017 Makefile
drwxr-x--- 2 user42 users 4096 Jan 31 08:55 api_extensions
drwxr-x--- 2 user42 users 4096 Mar 28 2017 code_templates
drwxr-x--- 3 user42 users 4096 Jan 27 09:51 config
drwxr-x--- 7 user42 users 4096 Mar 28 2017 hsi
drwxr-x--- 5 user42 users 4096 Mar 28 2017 htar
drwxr-x--- 2 user42 users 4096 Mar 28 2017 include
drwxr-x--- 2 user42 users 4096 Jan 27 09:55 lib
drwxr-x--- 4 user42 users 4096 Mar 28 2017 misc
drwxr-x--- 6 user42 users 4096 Mar 8 2017 ndapi
```

---

# Chapter 3. Client Build Configuration

Build configuration is primarily done through a Perl script called **Configure**. To run the **Configure** script, change directory into the HSI/HTAR source tree, and do the following:

```
cd <hsi version #>
./Configure
```

This script will present the user with questions to answer regarding their build system's configuration. The questions are grouped into various sections, with section headers that explain the nature of the questions that follow. An example of running this script is given in the appendix.

Note: If a site plans to use SU/SUDO feature, the COMBO authentication method must be enabled during the Configuring Authentication Method Items step.

Towards the end of the questions posed by **Configure**, the following will be seen:

```
Writing Makefile include file (config/hsi_pkg_includes)
Creating symlink (config/mach_compile_flags) for linux
... Removing existing symlink
Would you like to edit the configuration file? (yes/no) [no]:
Would you like to compile now? (yes/no) [yes]:
```

This indicates that the configuration is done, and the build is beginning.

The build configuration is stored or preserved in the following files, after the initial run of **Configure**:

```
<hsi version #>/config/hsi_pkg_includes
<hsi version #>/config/globus_makefile_defs
```

These files constitute the build configuration. They are read on subsequent runs of **Configure**, so that previous answers are retained. Once created, these files can be used to automate the configuration and build process, if needed.

It is not necessary to run **Configure**, and reconfigure the build if a subsequent rebuild is desired. Simply run:

```
./Compile
```

After a build, the client executables are located at:

```
<hsi version #>/hsi/src/hsi
<hsi version #>/htar/src/htar
```

---

## Chapter 4. Client Installation

To install the client, move these executables to an appropriate destination directory; for example, to `/usr/local/bin` or `/opt/bin` or `/usr/local/apps/hsi`. Typically wrapper scripts are used to run the HSI/HTAR clients. This allows for the setting and management of the HSI/HTAR runtime environment. An example of a wrapper script can be found in:

```
<hsi version #>/hsi/templates/hsi.wrapper.template
```



---

# Chapter 5. Server Build

The steps involved with configuring the build for the HSI/HTAR Server are the same as the HSI/HTAR Client, except the answer to the following question will be 2 or 3.

```
Would you like to configure the HSI client packages, the server package,
both or neither?
```

```
Enter 1 : to configure just the client
      2 : to configure just the server
      3 : to configure both client and server
```

```
Enter selection:
```

This question will only appear from **Configure** if the HSI/HTAR source tree contains the HSI/HTAR server source code in `<hsi version #>/ndapi/ndserver`.

In addition to the server source code, the build process needs to have access to HPSS API libraries, usually found in `/opt/hpss/lib`. It will fail if these are not found. After a successful build, the HSI/HTAR server executable is created and called **HSIGWD** (HSI Gateway Daemon). It is located at:

```
<hsi version #>/ndapi/ndserver/hpss_hsigwd.<hsi version #>.
```

If the Kerberos authentication was configured, there will be an additional executable called:

```
<hsi version #>/ndapi/ndserver/hsigwd_kchild.<hsi version #>.
```

---

# Chapter 6. Server Installation

The HSI/HTAR server is invoked via **xinetd**. It needs to run on a machine that has access to an HPSS instance's configuration files, typically found in `/var/hpss/etc`. The machine also has to have runtime access to the HPSS API libraries, typically located in `/opt/hpss/lib`.

The following steps need to be completed in order to run/access the HSI/HTAR server. Some example commands are given with each step. They are typically run as root. Some examples of the various system configuration files needed for a server installation can be found at `<hsi version #>/misc/templates`.

1. Configure the server log. Create the `ndapi` log directory based on the HSI configuration. The default location of `HSIGWD_LOG_DIR` is `/var/hpss/ndapi`.

```
cd /hsihtar_src/8.3/config
root@elayne > grep HSIGWD_LOG_DIR hsi_pkg_includes
HSIGWD_LOG_DIR = /var/hpss/ndapi
#If /var/hpss/ndapi does not exist create it
root@elayne > mkdir /var/hpss/ndapi
```

Modify the syslog utility configuration as needed, and restart the syslog service.

```
If using rsyslog, in /etc/rsyslog.conf, add lines 75, 76, 77, 78

72 # Save boot messages also to boot.log

73 local7.*                                /var/log/boot.log

74

75 # For hsihtar:

76 local1.*                                /var/hpss/ndapi/ndapi.log

77 local2.*                                /var/hpss/ndapi/hgs.log

78 local3.*                                /var/hpss/ndapi/xferlog

79

systemctl restart rsyslog.service
```

2. Configure `/etc/services`. In `/etc/services` make sure port 1217 exists for the HPSS HSI Gateway. If not, one line will have to be added:

```
#Check for port 1217
root@elayne > grep 127 /etc/services
root@elayne >
#If the grep returns empty or no match then add the following line
root@elayne > vi /etc/services
hpss-ndap    1217/tcp          # HPSS HSI Gateway
```

3. Configure the **xinetd** service and restart. Copy the template from HSI/HTAR source tree `<hsi version>/misc/templates/xinetd.d` to `/etc/xinetd.d/<services entry>`. Modify as needed. Make sure the name of the **xinetd** script matches the entry in `/etc/services` (`hpss-ndapi`):

```

root@elayne > cp /hsihtar_src/8.3/misc/templates/xinetd.d /etc/xinetd.d/hpss-ndapi
# Make sure line 14 service matches /etc/services entry of hpss-ndapi
# Revise line 25 to the directory of your hpss_hsigwd.8.3.0 executable
# Review and modify as necessary
root@elayne > cat /etc/xinetd.d/hpss-ndapi
 14 service hpss-ndapi
    15 {
    16     flags          =NODELAY,KEEPALIVE
    17 # --- Uncomment one of the following if desired.  Default is normally use both
    18     flags          += IPv4
    19 # flags          += IPv6
    20     port           = 1217
    21     protocol       = tcp
    22     socket_type    = stream
    23     wait           = no
    24     user           = root
    25     server         = /hsihtar_src/8.3/ndapi/ndserver/hpss_hsigwd.8.3.0
    28     log_on_failure += USERID
    29     disable        = no
    30 # hsigwd settings
    31     umask          = 022
    32     instances      = UNLIMITED
    33     server_args    = -d -f /var/hpss/ndapi/ndapi.log -Pftp -phpssftp -V1mb
    34     per_source     = UNLIMITED
    35
    36 # Add GLOBUS runtime library path (needed for gsichild)
    37 # Note that the path should be set to $GLOBUS_LOCATION/lib, but since
    38 # xinetd doesn't expand environment variables, the actual path must be
    39 # specified.
    40     env            = LD_LIBRARY_PATH=/opt/hpss/lib:/usr/local/globus/globus_2.
    41
    42 # Set the default network family if running the unxserver.  This should be alr
    43 # the HPSS gateway, either in the compile-time definitions, or in the env.conf
    44 # env            +=HPSS_NET_FAMILY=ipv4_only
    45
    46
    47 # xinetd logging
    48 # log_type        = FILE /var/hpss/ndapi/xinet.log
    49 # log_on_success  = PID HOST EXIT DURATION
    50 # log_on_failure  = HOST ATTEMPT
    51 }
#Restart xinetd.service
root@elayne > systemctl restart xinetd.service
# Check status and make sure it's active
root@elayne > systemctl status xinetd.service
* xinetd.service - Xinetd A Powerful Replacement For Inetd
   Loaded: loaded (/usr/lib/systemd/system/xinetd.service; enabled; vendor preset: ena
   Active: active (running) since Fri 2020-06-12 15:06:41 CDT; 6 days ago
   Process: 51763 ExecStart=/usr/sbin/xinetd -stayalive -pidfile /var/run/xinetd.pid $E

```

4. Copy the HPSS.conf template to /var/hpss/etc and modify it as needed.

```
cat <hsi version #>/misc/templates/HPSS.conf.template >> /var/hpss/etc/HPSS.conf
```

5. Create the COS list used by HSI, and move it into /var/hpss/etc. Note that /opt/hpss/bin/lshpss needs to be on the machine that the make\_cos.pl runs on, as that script calls **lshpss**.

```
<hsi version #>/hsi/templates/make_cos.pl
```

```
cp cos /var/hpss/etc
```

---

# Appendix A. Example run of Configure

The following is a sample run of **Configure** for configuring and building HSI/HTAR Client software.

```
Starting...

Searching for ar...../usr/bin/ar

Searching for chmod...../bin/chmod

Searching for cp...../bin/cp

Searching for echo...../bin/echo

Searching for ln...../bin/ln

Searching for make...../usr/bin/make

Searching for mkdir...../bin/mkdir

Searching for ranlib...../usr/bin/ranlib

Searching for rm...../bin/rm

Welcome to the HSI Package Installation script.

To cancel this script at any time, enter <ctrl-c>.

This script will allow you to customize most default options, as well as
allowing you to specify or override pathnames for default settings.
You can enter a shell command prefixed by the "!" character any time you are
prompted to enter something from the terminal. For example, at the prompt:
    Hit <enter> to continue:

You might enter
    !/bin/ksh

After successful execution of this script, a "config" directory will be
created if it doesn't already exist, and the file "config/hsi_pkg_includes"
will be created. To start over, simply remove the file and rerun Configure.
If the file is present when this script is started, the values in it will be
used as defaults for the current execution of this script.

You will be given an opportunity at the end of the script to edit the
configuration file, and also to compile the package. If you choose not to
compile after configuring, you can run the "Compile" script at a later time.

Press <enter> to continue

OS is LINUX machine type is x86_64, compflags=compflags.linux_x86_64
-----
Configuring client for linux
-----
searching for compiler "cc"...found [/usr/bin/cc]
Enter compiler to be used [/usr/bin/cc]:
(/usr/bin/cc is gcc in disguise)
+++++
Configuring ENCRYPTION/DECRYPTION CIPHER METHODS
```

## Example run of **Configure**

+++++

In the next screen, you will specify which encryption/decryption ciphers will be enabled when the client and server are built.

Note that only methods which are supported in the server will be used, even if other methods are supported in the client.

If the package is being built for use at a single site, then it's best to just specify the same set of methods for both the client and server (you may have to check with your HPSS administrator if you are building HSI on a client machine and you do not know which cipher(s) to enable).

If you are building the client part of the package and expect to use the same executable to connect to multiple HPSS systems, then you should enable all of the cipher methods that will be supported at any of the HPSS sites.

Note that OpenSSL is required for all cipher types except the "garble" algorithm.

Press <enter> to continue to the next screen:

-----  
Note: Enter "no" below if you would like an explanation of each method, as well as an option to enable/disable it.

You can just enter "yes" to use the default settings.

----- Default Cipher Method Settings -----

GARBLE cipher..... enabled  
AES cipher..... enabled  
Blowfish cipher..... enabled  
3DES cipher..... enabled

Use above settings? (yes/no) [yes]: no

+++++  
The "GARBLE" cipher is a relatively weak encryption mechanism that uses a time-based algorithm for encryption/decryption. It is very fast, but is not recommended for environments where strong security is required.

Enable "GARBLE" cipher? (yes/no) [yes]: no

Enable "GARBLE" cipher? (yes/no) [yes]: no

Package will be built with GARBLE cipher disabled

+++++  
The "AES" cipher is an implementation of the Rijndael encryption algorithm as specified in FIPS-197.

Enable "AES" cipher? (yes/no) [yes]:

Package will be built with AES cipher enabled

+++++  
The "blowfish" cipher is a block cipher designed by Bruce Schneier of "Applied Cryptography" fame. This algorithm has a good security margin and is the fastest block cipher provided by OpenSSL.

## Example run of **Configure**

```
Enable "blowfish" cipher? (yes/no) [yes]: no
Package will be built with blowfish cipher disabled

+++++
The "3DES" cipher (also commonly referred to as "triple-DES") is the most widely
popular variant of DES ("Data Encryption Standard"). This is probably the most
conservative symmetric cipher available, due to the wide scrutiny of DES, but is also
the slowest algorithm available.

Enable "3DES" cipher? (yes/no) [yes]: no
Package will be built with 3DES cipher disabled

OpenSSL will be required
+++++
Configuring AUTHENTICATION METHOD Items
+++++

In the next screen, you will specify which authentication methods will be
enabled when the client and server are built. Note that only methods which
are supported in the server will be used, even if other methods are supported
in the client.

If the package is being built for use at a single site, then it is best to just
specify the same set of methods for both the client and server (you may have to
check with your HPSS administrator if you are building HSI on a client machine
and you do not know which authmethod(s) should be enabled for your site).*

If you are building the client part of the package and expect to use the same
executable to connect to multiple HPSS systems, then you should enable all of
the auth methods that will be supported at any of the HPSS sites.

Press <enter> to continue to the next screen:*

NOTE:
    If you are planning on using RSA Securid fobs, you must enable
    the COMBO authmethod, below.
-----
Note: Enter "no" below if you would like an explanation of
      each method, as well as an option to enable/disable it.

You can just enter "yes" at this point to use the default settings.
----- Default Authmethod Settings -----

COMBO authmethod..... disabled
GLOBUS GSI authmethod..... disabled
IDENT authmethod..... disabled
KERBEROS authmethod..... enabled
KEYTAB authmethod..... enabled
LOCAL authmethod..... disabled
MUNGE authmethod..... disabled
PAM authmethod..... enabled

Use above settings? (yes/no) [yes]: no
+++++
The "COMBO" authmethod allows users to authenticate by entering a username and
password (these are NOT sent in plaintext across the network). This method
is often enabled for use by administrators.

Notes:
```

## Example run of **Configure**

---

1. As of HPSS 7.4.3, sites should consider PAM support instead of enabling this option. If both are enabled, then PAM authentication will be used instead of this option.

2. Either this option or PAM must be enabled when building the HSIKWD server if RSA Securid one-time-password checking is to be used.

Enable "COMBO" authmethod? (yes/no) [no]:  
Package will be built with COMBO authmethod disabled

++++  
The "IDENT" authmethod allows users to authenticate automatically without requiring a password, if they are running on trusted machines which support the IDENT protocol. This authmethod is currently implemented for the LLNL variant of IDENT, and probably is not useful at other sites.

Enable "IDENT" authmethod? (yes/no) [no]: yes  
Package will be built with IDENT authmethod enabled

++++  
The "GLOBUS GSI" authmethod allows users to authenticate automatically without requiring a password, after they use the GLOBUS "grid-proxy-init" command to create a GLOBUS proxy. This method requires the GLOBUS package to be installed, and the GLOBUS packages for the client and server must be at a compatible level. (Check with the local GLOBUS administrator if need be). The user's Globus certificate DN must also be added to the grid-mapfile on the HSIKWD server machine.

Enable "GLOBUS GSI" authmethod? (yes/no) [no]:  
Package will be built with GLOBUS GSI authmethod disabled

++++  
The "KERBEROS" authmethod allows users to automatically authenticate without requiring a password, after they use the Kerberos "kinit" command to create a ticket-granting ticket. This method requires the Kerberos package to be installed. Both MIT and Heimdal Kerberos are recognized, although Heimdal Kerberos has not yet been tested.

This method must be enabled in order to enable the "keytab" authentication method for use with kerberos-style keytabs. It is not required if you are planning to enable the "keytab" authentication method just for unix-style keytabs.

Enable "KERBEROS" authmethod? (yes/no) [yes]:  
Package will be built with KERBEROS authmethod enabled

++++  
The "KEYTAB" authmethod allows users to authenticate automatically without requiring a password, after they either use the kerberos <ktutil> or the <hpss\_unix\_keytab> program (if using unix authentication) to extract a "keytab" file containing their encrypted password. This method requires the Kerberos authmethod to be enabled if using kerberos-style keytabs.

Enable "KEYTAB" authmethod? (yes/no) [yes]: no  
Package will be built with KEYTAB authmethod disabled



## Example run of **Configure**

```
+++++
The "LOCAL" authmethod is only useful when the HSI GW server runs on an AIX
platform. It allows the user to specify a username/password combo for a
local login on the server machine, that is, it requires that the user have an
account on the AIX server. The HPSS principal name that is used is the
user's account name on the AIX server.
```

```
Enable "LOCAL" authmethod? (yes/no) [no]:
Package will be built with LOCAL authmethod disabled
```

```
+++++
The "MUNGE" authmethod allows users to authenticate within a security domain
by obtaining a security context from a munge daemon that runs on the same
host as the client, and then sending the encrypted contents to the server,
which uses the munge daemon on its machine to decrypt the context, and
obtain the uid and gid of the user on the client machine.
```

```
Enable "MUNGE" authmethod? (yes/no) [no]:
Package will be built with MUNGE authmethod disabled
```

```
+++++
The "PAM" authmethod enables use of Pluggable Authentication Modules on
the HSI Gateway Server for Authentication. This in turn provides a variety
of possible site-defined mechanisms, such as passwords, RSA SecurID fobs,
etc. If available and configured on the HSI Gateway Server, it is
recommended that this method be enabled and COMBO method be disabled.
```

```
Enable "PAM" authmethod? (yes/no) [yes]: no
Package will be built with PAM_EOF authmethod disabled
```

```
+++++
                Configuring KERBEROS Items
+++++
```

Now you will enter the Kerberos service name that will be used for
obtaining a service ticket when authenticating with the HSI Gateway Process.
This same service name is used on both the client and server. It is usually
"ftp" or "host".

(Some sites also use "hpss\_hsigwd" or "hpss\_ndapid")

If you are using kerberized pftp, you will probably want to use "ftp"
for this.

If you are uncertain as to what to specify here, you should ask your
kerberos administrator to check the keytab entries in /etc/v5srvtab
on the machine that hosts the HSI Gateway Daemon process.

```
Kerberos service name: [ftp] host
Looking for kerberos base installation path...
Looks like the kerberos base path on this system is "/usr", and include path is
"/usr/include"
Use "/usr" as the base path? (no to specify your own) (yes/no) [yes]:
```

```
Checking which version of the crypto library to use...Using k5crypto
```

## Example run of **Configure**

```
Choosing whether to automatically run kinit if needed to obtain credentials...
Automatically run kinit if needed? (yes/no) [yes]:
kinit will automatically be run if needed to obtain credentials
Found kinit: /usr/bin/kinit
Looking for OpenSSL base installation path...
Looks like the OpenSSL base path on this system is "/usr"
Use "/usr" as the base path? (no to specify your own) (yes/no) [yes]:

+++++*
      Configuring API Library-Specific Items
+++++*

In the next screen you will be given the option of changing items that
are specific to the HSI Gateway Client API Library.

Once you have made all the changes that you wish to make (if any),
enter "a" at the prompt to continue.

Press <enter> to continue to the next screen:
If you wish to change an item, enter "c" followed by an optional
space and the item number, or just the item number.
For example:
    "2" or "c 2" or "c2"

If you would like to get help on an item, enter "h" followed by
an optional space and the number, for example:
    "h 3" or "h3"

-----
1 MAX_RESTRICTED_PORT .....65535
2 MIN_RESTRICTED_PORT .....0
3 NDAPI_DEFAULT_ADDR_FAMILY ...ipv4_only
4 NDAPI_DEFAULT_AUTH_TYPE ....KRB_PREEXIST,KERBEROS,IDENT
5 NDAPI_LOCAL_LOGFILE ...../dev/null
6 NDAPI_SERVER_HOST .....
7 NDAPI_SERVER_PORT .....1217
-----

[a=accept] [c N] or [N]->change item N [h N]->help for item N
Your choice: 6
NDAPI_SERVER_HOST Current setting: []
Enter new setting: hpss.lanl.gov
-----
1 MAX_RESTRICTED_PORT .....65535
2 MIN_RESTRICTED_PORT .....0
3 NDAPI_DEFAULT_ADDR_FAMILY ...ipv4_only
4 NDAPI_DEFAULT_AUTH_TYPE ....KRB_PREEXIST,KERBEROS,IDENT
5 NDAPI_LOCAL_LOGFILE ...../dev/null
6 NDAPI_SERVER_HOST .....hpss.lanl.gov
7 NDAPI_SERVER_PORT .....1217
-----

[a=accept] [c N] or [N]->change item N [h N]->help for item N
Your choice: 4
NDAPI_DEFAULT_AUTH_TYPE Current setting: [KRB_PREEXIST,KERBEROS,IDENT]
-----
Choose default auth method(s) to be used by the client library:
They will be tried in the order that you specify them.
```

## Example run of **Configure**

```
Hit <enter> by itself to terminate selection
Enter -1 to clear the list and start over

Current setting: []
(Hit <enter> by itself to terminate selection)
0 ..... IDENT
1 ..... KRB_PREEXIST
2 ..... KERBEROS
Choose: 0
Current setting: [IDENT]
(Hit <enter> by itself to terminate selection)
0 ..... IDENT
1 ..... KRB_PREEXIST
2 ..... KERBEROS
Choose: 1
Current setting: [IDENT,KRB_PREEXIST]
(Hit <enter> by itself to terminate selection)
0 ..... IDENT
1 ..... KRB_PREEXIST
2 ..... KERBEROS
Choose:
-----
1 MAX_RESTRICTED_PORT .....65535
2 MIN_RESTRICTED_PORT .....0
3 NDAPI_DEFAULT_ADDR_FAMILY ...ipv4_only
4 NDAPI_DEFAULT_AUTH_TYPE ....IDENT,KRB_PREEXIST
5 NDAPI_LOCAL_LOGFILE ...../dev/null
6 NDAPI_SERVER_HOST .....hpss.lanl.gov
7 NDAPI_SERVER_PORT .....1217
-----

[a=accept] [c N] or [N]->change item N [h N]->help for item N
Your choice: a

+++++
      Configuring HSI-Specific Items
+++++

In the next screen, you will be given the option of changing items that
are specific to the HSI program. Once you have made all the changes that
you wish to make (if any), enter "a" at the prompt to continue.

Press <enter> to continue to the next screen:

If you wish to change an item below, enter "c" followed by an optional
space and the item number, or just the item number.
For example:
    "5" or "c 5" or "c5"

If you would like to get help on an item, enter "h" followed by
an optional space and the number, for example:
    "h 3" or "h3"
-----
1 HSI_CKSUM_HASHTYPE .....MD5
2 HSI_CKSUM_ONOFF .....off
3 HSI_DEFAULT_IO_BUFSIZE .....8388608
4 HSI_HPSS_CONFIG_DIR ...../var/hpss/etc
5 HSI_INTER_HPSS_PORT .....1217
```

## Example run of **Configure**

```
6 HSI_LIBEDIT_SUPPORT .....off
7 HSI_LOCAL_CONFIG_DIR ...../usr/local/etc
8 HSI_MAX_IO_BUFSIZE .....33554432
9 HSI_MIN_IO_BUFSIZE .....1048576
10 HSI_SITENAME .....HOUSTON
11 HSI_TRANSFER_AGENT_SUPPORT ...off
-----

[a=accept] [c N] or [N]->edit item N [h N]->help for item N]
Your choice: a

+++++
      Configuring HTAR-Specific Items
+++++

In the next screen, you will be given the option of changing items that
are specific to the HTAR program. Once you have made all the changes that
you wish to make (if any), enter "a" at the prompt to continue.

Press <enter> to continue:
If you wish to change an item, enter "c" followed by an optional
space and the item number, or just the item number.
For example:
    "5" or "c 5" or "c5"

If you would like to get help on an item, enter "h" followed by
an optional space and the number, for example:
    "h 3" or "h3"

-----
1 HTAR_ABS_MAX_MEMBER_FILES ...5000000
2 HTAR_ARCHIVE_COPY_COUNT .....1
3 HTAR_ARCHIVE_COS .....NONE
4 HTAR_DEFAULT_IOBUF .....8388608
5 HTAR_DEF_MAX_MEMBER_FILES ...1000000
6 HTAR_ENABLE_PREALLOCATION ...off
7 HTAR_LOCAL_FILE_THREADS .....50
8 HTAR_NDAPI_REQUIRED_OPT .....yes
-----

[a=accept] [c N] or [N]->edit item N [h N]->help for item N]
Your choice: a
Writing Makefile include file (config/hsi_pkg_includes)
Creating symlink (config/mach_compile_flags) for linux
... Removing existing symlink
Would you like to edit the configuration file? (yes/no) [no]:
Would you like to compile now? (yes/no) [yes]:
Starting...
Command line args: -a linux_x86_64 -client
Looking for rm
Found rm: /bin/rm
Looking for ln
Found ln: /bin/ln
Looking for make
Found make: /usr/bin/make
Enable verbose output when compiling? (y/n) [n]:
+++++
+      BUILDING CLIENT MODULES      +
+++++
```

## Example run of **Configure**

```
-----
Choose module(s) to build:
Hit <enter> by itself to terminate selection
0 : all [default]
1 : api_extensions
2 : ndapi client
3 : hsi
4 : htar

Choose: 0
Building for architecture: linux_x86_64
-----
Build in 32 or 64-bit mode? [64]
Will build in 64-bit mode
-----
Choose make flags:
0 : make clean; make clobber; make [default]
1 : make clean; make
2 : make clobber; make
3 : make (no clean or clobber)
4 : make clean;make clobber
5 : make clean
6 : make clobber

Choose: 0
Building ndapi client library
unlink config/mach_compile_flags; symlink
./compflags/compflags.linux_x86_64_64 config/mach_compile_flags
make clean
Cleaning up generated files ...
make clobber
Cleaning up program files ...
make
Compiling with -O3 hpss_hash.c ...
Compiling hpss_interop.c ...
Compiling hpss_MemAlign.c ...
Compiling hpss_net.c ...
hpss_net.c: In function 'hpss_net_strerror':
hpss_net.c:2523: warning: cast to pointer from integer of different size
Compiling hpss_UUID.c ...
Compiling mvrprotocol.c ...
Compiling mvrsockt.c ...
Compiling pdata.c ...
Compiling san3p.c ...
Compiling san3p_util.c ...
Compiling hsigw_init.c ...
Compiling hsigw_apiconfig.c ...
Compiling hsigw_authenticate.c ...
Compiling hsigw_access.c ...
Compiling hsigw_acct.c ...
Compiling hsigw_acl.c ...
Compiling hsigw_bfsattrs.c ...
Compiling hsigw_chdir.c ...
Compiling hsigw_chown.c ...
Compiling hsigw_chmod.c ...
Compiling hsigw_chroot.c ...
Compiling hsigw_cli.c ...
Compiling hsigw_closedir.c ...
Compiling hsigw_convertids.c ...
```

```
Compiling hsigw_copyfile.c ...
Compiling hsigw_fclear.c ...
Compiling hsigw_fgetattr.c ...
Compiling hsigw_file_extensions.c ...
Compiling hsigw_filesets.c ...
Compiling hsigw_fsetattr.c ...
Compiling hsigw_getcwd.c ...
Compiling hsigw_group.c ...
Compiling hsigw_io_misc.c ...
Compiling hsigw_junctions.c ...
Compiling hsigw_lfx_chmod.c ...
Compiling hsigw_lfx_chown.c ...
Compiling hsigw_lfx_io.c ...
Compiling hsigw_lfx_mkdir.c ...
Compiling hsigw_lfx_rdlink.c ...
Compiling hsigw_lfx_readdir.c ...
Compiling hsigw_lfx_rename.c ...
Compiling hsigw_lfx_stat.c ...
Compiling hsigw_lfx_unlink.c ...
Compiling hsigw_link.c ...
Compiling hsigw_logging.c ...
Compiling hsigw_lookup.c ...
Compiling hsigw_lseek.c ...
Compiling hsigw_map_errno.c ...
Compiling hsigw_mkdir.c ...
Compiling hsigw_motd.c ...
Compiling hsigw_msgprocs.c ...
Compiling hsigw_multi_hpss.c ...
Compiling hsigw_open.c ...
Compiling hsigw_opendir.c ...
Compiling hsigw_openlog.c ...
Compiling hsigw_purge.c ...
Compiling hsigw_pvr.c ...
Compiling hsigw_rddir.c ...
Compiling hsigw_rdlink.c ...
Compiling hsigw_read.c ...
Compiling hsigw_rename.c ...
Compiling hsigw_rewdir.c ...
Compiling hsigw_rmdir.c ...
Compiling hsigw_selectcos.c ...
Compiling hsigw_setcos.c ...
Compiling hsigw_sethost.c ...
Compiling hsigw_siteinfo.c ...
Compiling hsigw_sockets.c ...
Compiling hsigw_stage.c ...
Compiling hsigw_stat.c ...
Compiling hsigw_statfs.c ...
Compiling hsigw_su.c ...
Compiling hsigw_subsysstats.c ...
Compiling hsigw_symlink.c ...
Compiling hsigw_threads.c ...
Compiling hsigw_trunc.c ...
Compiling hsigw_uda_cksum.c ...
Compiling hsigw_uda_expire.c ...
Compiling hsigw_umask.c ...
Compiling hsigw_unlink.c ...
Compiling hsigw_utime.c ...
Compiling hsigw_write.c ...
Compiling hsigw_xfer_concur.c ...
```

## Example run of **Configure**

```
Compiling u_signed64.c
Compiling hsigw_xdr.c
In file included from ../../ndapi/common/hsigw_xdr.c:360:
../../ndapi/common/hsigw_xdr_os_types.c: In function 'nd_xdr_ino_t':
../../ndapi/common/hsigw_xdr_os_types.c:103: warning: passing argument 2 of
'xdr_u_int' from incompatible pointer type
/usr/include/rpc/xdr.h:289: note: expected 'u_int *' but argument is of
type 'ino_t *'
../../ndapi/common/hsigw_xdr_os_types.c: In function 'nd_xdr_nlink_t':
../../ndapi/common/hsigw_xdr_os_types.c:218: warning: passing argument 2 of
'xdr_u_int' from incompatible pointer type
/usr/include/rpc/xdr.h:289: note: expected 'u_int *' but argument is of
type 'nlink_t *'
../../ndapi/common/hsigw_xdr_os_types.c: In function 'nd_xdr_size_t':
../../ndapi/common/hsigw_xdr_os_types.c:228: warning: passing argument 2 of
'xdr_u_int' from incompatible pointer type
/usr/include/rpc/xdr.h:289: note: expected 'u_int *' but argument is of
type 'size_t *'
../../ndapi/common/hsigw_xdr_os_types.c: In function 'nd_xdr_time_t':
../../ndapi/common/hsigw_xdr_os_types.c:508: warning: passing argument 2 of
'xdr_int' from incompatible pointer type
/usr/include/rpc/xdr.h:288: note: expected 'int *' but argument is of
type 'time_t *'
In file included from ../../ndapi/common/hsigw_xdr.c:361:
../../ndapi/common/hsigw_xdr_basetypes.c: In function
'nd_xdr_idl_long_int':
../../ndapi/common/hsigw_xdr_basetypes.c:33: warning: passing argument 2 of
'xdr_int' from incompatible pointer type
/usr/include/rpc/xdr.h:288: note: expected 'int *' but argument is of type 'long
int *'
In file included from ../../ndapi/common/hsigw_xdr.c:472:
../../ndapi/common/xdr_cli/hg_xdr_lfx_api.c: In function
'nd_xdr_hsi_xfer_init_info_t':
../../ndapi/common/xdr_cli/hg_xdr_lfx_api.c:101: warning: passing argument 2 of
'xdr_longlong_t' from incompatible pointer type
/usr/include/rpc/xdr.h:294: note: expected 'quad_t *' but argument is of type
'long long int *'
../../ndapi/common/xdr_cli/hg_xdr_lfx_api.c:105: warning: passing argument 2 of
'xdr_u_longlong_t' from incompatible pointer type
/usr/include/rpc/xdr.h:295: note: expected 'u_quad_t *' but argument is of type
'long long unsigned int *'
../../ndapi/common/xdr_cli/hg_xdr_lfx_api.c:109: warning: passing argument 2 of
'xdr_u_longlong_t' from incompatible pointer type
/usr/include/rpc/xdr.h:295: note: expected 'u_quad_t *' but argument is of type
'long long unsigned int *'
../../ndapi/common/xdr_cli/hg_xdr_lfx_api.c:113: warning: passing argument 2 of
'xdr_u_longlong_t' from incompatible pointer type
/usr/include/rpc/xdr.h:295: note: expected 'u_quad_t *' but argument is of type
'long long unsigned int *'
../../ndapi/common/xdr_cli/hg_xdr_lfx_api.c: In function
'nd_xdr_hsi_xfer_init_reply_t':
../../ndapi/common/xdr_cli/hg_xdr_lfx_api.c:335: warning: passing argument 2 of
'xdr_u_longlong_t' from incompatible pointer type
/usr/include/rpc/xdr.h:295: note: expected 'u_quad_t *' but argument is of type
'long long unsigned int *'
../../ndapi/common/xdr_cli/hg_xdr_lfx_api.c: In function
'nd_xdr_hsi_xfer_complete_t':
../../ndapi/common/xdr_cli/hg_xdr_lfx_api.c:427: warning: passing argument 2 of
'xdr_u_longlong_t' from incompatible pointer type
```

## Example run of **Configure**

```
/usr/include/rpc/xdr.h:295: note: expected 'u_quad_t *' but argument is of type
'long long unsigned int *'
../../ndapi/common/xdr_cli/hg_xdr_lfx_api.c: In function
'nd_xdr_lfx_stat_t':
../../ndapi/common/xdr_cli/hg_xdr_lfx_api.c:472: warning: passing
argument 2 of 'xdr_longlong_t' from incompatible pointer type
/usr/include/rpc/xdr.h:294: note: expected 'quad_t *' but argument is
of type 'long long int *'
In file included from ../../ndapi/common/hsigw_xdr.c:488:
../../ndapi/common/xdr_hpss_clapi/hg_xdr_extensions.c: In function
'nd_xdr_xfer_size_to_count_t':
../../ndapi/common/xdr_hpss_clapi/hg_xdr_extensions.c:395: warning:
passing argument 2 of 'xdr_u_longlong_t' from incompatible pointer type
/usr/include/rpc/xdr.h:295: note: expected 'u_quad_t *' but argument is
of type 'long long unsigned int *'
../../ndapi/common/xdr_hpss_clapi/hg_xdr_extensions.c:398: warning:
passing argument 2 of 'xdr_u_longlong_t' from incompatible pointer type
/usr/include/rpc/xdr.h:295: note: expected 'u_quad_t *' but argument is
of type 'long long unsigned int *'
Making extension lib directory ...
/bin/mkdir -p ../../lib
Loading ../../lib/libhpssapi.a ...
Make all done
Building api_extensions
unlink config/mach_compile_flags; symlink
./compflags/compflags.linux_x86_64_64 config/mach_compile_flags
unlink Makefile; symlink Makefile.client Makefile
make clean
Make clean done
make clobber
Make clobber done
make
Compiling hpss_auth_funcs.c ...
Compiling hpss_cos_functions.c ...
Compiling hpss_cos.c ...
Compiling hpss_cosparse.c ...
Compiling hpsscfigx_config_api.c ...
Compiling hpsscfigx_cfg_functions.c ...
Compiling hpsscfigx_GetClientInterfaces.c ...
Compiling hpsscfigx_hpssconf.c ...
Compiling hpsscfigx_restricted_ports.c ...
Compiling hpss_conv.c ...
hpss_conv.c:81:1: warning: "LLONG_MAX" redefined
In file included from
/var/lib/perceus/vnfs/asc-
fe/rootfs/usr/bin/./lib/gcc/x86_64-redhat-linux/4.4.7/include/limits.h:122,
from /var/lib/perceus/vnfs/asc-
fe/rootfs/usr/bin/./lib/gcc/x86_64-redhat-linux/4.4.7/include/syslimits.h:7,
from /var/lib/perceus/vnfs/asc-
fe/rootfs/usr/bin/./lib/gcc/x86_64-redhat-linux/4.4.7/include/limits.h:11,
from hpss_conv.c:78:
/usr/include/limits.h:136:1: warning: this is the location of the previous definition
Compiling hpss_crypt_funcs.c ...
Compiling hpss_motd.c ...
Compiling hpss_netrc.c ...
Compiling hpss_openssl.c ...
Compiling hpsscfigx_pattern_match.c ...
Compiling hpss_record_io.c ...
Compiling hpsscfigx_restricted_addr.c ...
```



## Example run of **Configure**

---

```
Compiling hpss_site_info.c ...
Compiling hpss_scheduler.c ...
Compiling hpss_u64conv.c ...
Compiling md5.c ...
Making extension lib directory ...
/bin/mkdir -p ../lib
Loading ../lib/libhpssapi.a ...
make
if [ -f ../ndapi/include/hpss_version.h ]; then \
    /bin/rm -f hpss_version.h; \
    /bin/ln -s ../ndapi/include/hpss_version.h hpss_version.h; \
else \
    echo "Attempting to make ../ndapi/include/hpss_version.h"; \
    ../ndapi/include/7.4; ./MAKELINKS.sh; \
fi
Building HSI
unlink config/mach_compile_flags; symlink
./compflags/compflags.linux_x86_64_64 config/mach_compile_flags
make clean
    Cleaning up generated files ...
make clobber
    Cleaning up generated files ...
make
    Compiling hsi.c ...
    Compiling hsi_AclCommand.c ...
    Compiling hsi_Account.c ...
    Compiling hsi_Annotate.c ...
    Compiling hsi_COS.c ...
    Compiling hsi_Debug.c ...
    Compiling hsi_Chdir.c ...
    Compiling hsi_ChecksumCmd.c ...
    Compiling hsi_Chmod.c ...
    Compiling hsi_Chown.c ...
    Compiling hsi_ClientInterface.c ...
    Compiling hsi_CmdEditor.c ...
    Compiling hsi_Command.c ...
    Compiling hsi_Crename.c ...
    Compiling hsi_ControlCmds.c ...
    Compiling hsi_CopyCommand.c ...
    Compiling hsi_DirProcs.c ...
    Compiling hsi_DuCommand.c ...
    Compiling hsi_DumpCommand.c ...
    Compiling hsi_FileCopy.c ...
    Compiling hsi_FileMisc.c ...
    Compiling hsi_FileRead.c ...
    Compiling hsi_FilesetCommand.c ...
    Compiling hsi_FileWrite.c ...
    Compiling hsi_Find.c ...
    Compiling hsi_Firewall.c ...
    Compiling hsi_Getopt.c ...
    Compiling hsi_Glob.c ...
    Compiling hsi_GlobalLocks.c ...
    Compiling hsi_GPFS_interface.c ...
    Compiling hsi_GroupCommand.c ...
    Compiling hsi_HashCommand.c ...
    Compiling hsi_Help.c ...
    Compiling hsi_HpssPioMgr.c ...
    Compiling hsi_History.c ...
    Compiling hsi_HsigwdCommand.c ...
```

## Example run of **Configure**

---

```
Compiling hsi_IdCommand.c ...
Compiling hsi_IHCopyLocalMethod.c ...
Compiling hsi_IHCopyNdapidMethod.c ...
Compiling hsi_JunctionCommand.c ...
Compiling hsi_Keyset.c ...
Compiling hsi_LFM.c ...
Compiling hsi_LfmPathCheck.c ...
Compiling hsi_Link.c ...
Compiling hsi_Ls.c ...
Compiling hsi_Local.c ...
Compiling hsi_LocalXfers.c ...
Compiling hsi_LocalXferMisc.c ...
Compiling hsi_Logging.c ...
Compiling hsi_LogicalDrives.c ...
Compiling hsi_MigratePurge.c ...
Compiling hsi_Misc.c ...
Compiling hsi_Mkdir.c ...
Compiling hsi_MultiHPSS.c ...
Compiling hsi_MvCommand.c ...
Compiling hsi_NetIO.c ...
Compiling hsi_Parser.c ...
Compiling hsi_PartialXfers.c ...
Compiling hsi_PathProcs.c ...
Compiling hsi_Perror.c ...
Compiling hsi_Prompt.c ...
Compiling hsi_Purgelock.c ...
Compiling hsi_Rc.c ...
Compiling hsi_ReadCommand.c ...
Compiling hsi_ReadParallel.c ...
Compiling hsi_ReadViaAPI.c ...
Compiling hsi_Rename.c ...
Compiling hsi_RmCommand.c ...
Compiling hsi_RmdirCommand.c ...
Compiling hsi_RmtSite.c ...
Compiling hsi_Scheduler.c ...
Compiling hsi_Signals.c ...
Compiling hsi_Sockets.c ...
Compiling hsi_Stage.c ...
Compiling hsi_Su.c ...
Compiling hsi_TA_HPSS.c ...
Compiling hsi_TA_Local.c ...
Compiling hsi_TA_Misc.c ...
Compiling hsi_ThreadMisc.c ...
Compiling hsi_TrashCan.c ...
Compiling hsi_TouchCommand.c ...
Compiling hsi_Tty.c ...
Compiling hsi_UdaInterface.c ...
Compiling hsi_Umask.c ...
Compiling hsi_WriteCommand.c ...
Compiling hsi_WriteParallel.c ...
Compiling hsi_WriteViaAPI.c ...
Compiling hsi_XferProgressThread.c ...
Compiling hsi_version.c ...
Linking hsi ...
Make all done
Building HTAR
unlink config/mach_compile_flags; symlink
./compflags/compflags.linux_x86_64_64 config/mach_compile_flags
make clean
```

## Example run of **Configure**

---

```
    Cleaning up generated files ...
make clobber
    Cleaning up generated files ...
make
    Compiling htar.c ...
    Compiling htar_Annotate.c ...
    Compiling htar_Append.c ...
    Compiling htar_ArchiveFile.c ...
htar_ArchiveFile.c: In function 'htar_GetArchiveAttrs':
htar_ArchiveFile.c:747: warning: passing argument 2 of 'stat64' from incompatible
pointer type
/usr/include/sys/stat.h:230: note: expected 'struct stat64 * __restrict__' but
argument is of type 'struct stat *'
htar_ArchiveFile.c: In function 'htar_GetArchiveXAttrs':
htar_ArchiveFile.c:897: warning: passing argument 2 of 'stat64' from incompatible
pointer type
/usr/include/sys/stat.h:230: note: expected 'struct stat64 * __restrict__' but
argument is of type 'struct stat *'
    Compiling htar_BuildIndex.c ...
    Compiling htar_Compare.c ...
    Compiling htar_CompareCksums.c ...
    Compiling htar_Consistency.c ...
htar_Consistency.c: In function 'htar_WriteConsFileIndexEntry':
htar_Consistency.c:894: warning: passing argument 2 of 'lstat64' from incompatible
pointer type
/usr/include/sys/stat.h:278: note: expected 'struct stat64 * __restrict__' but
argument is of type 'struct stat *'
    Compiling htar_Copy.c ...
    Compiling htar_CopyFromHPSSArchive.c ...
    Compiling htar_CopyToHPSSArchive.c ...
    Compiling htar_Create.c ...
    Compiling htar_Debug.c ...
    Compiling htar_DirProcs.c ...
htar_DirProcs.c: In function 'htar_ReadLocalDir':
htar_DirProcs.c:632: warning: passing argument 2 of 'lstat64' from incompatible
pointer type
/usr/include/sys/stat.h:278: note: expected 'struct stat64 * __restrict__' but
argument is of type 'struct stat *'
    Compiling htar_Delete.c ...
    Compiling htar_Extract.c ...
htar_Extract.c: In function 'htar_Mkdir':
htar_Extract.c:2169: warning: passing argument 2 of 'stat64' from incompatible
pointer type
/usr/include/sys/stat.h:230: note: expected 'struct stat64 * __restrict__' but
argument is of type 'struct stat *'
    Compiling htar_FileMisc.c ...
htar_FileMisc.c: In function 'htar_CleanupTransferThreads':
htar_FileMisc.c:768: warning: initialization discards qualifiers from pointer
target type
htar_FileMisc.c: In function 'htar_MakeAllSubdirs':
htar_FileMisc.c:1737: warning: passing argument 2 of 'stat64' from incompatible
pointer type
/usr/include/sys/stat.h:230: note: expected 'struct stat64 * __restrict__' but
argument is of type 'struct stat *'
htar_FileMisc.c: In function 'htar_MoveBuffersToEmptyQueue':
htar_FileMisc.c:2041: warning: assignment discards qualifiers from pointer
target type
htar_FileMisc.c: In function 'htar_ShutdownTransferThreads':
htar_FileMisc.c:2925: warning: passing argument 1 of 'pthread_mutex_lock' discards
```

## Example run of **Configure**

---

```
qualifiers from pointer target type
/usr/include/pthread.h:746: note: expected 'union pthread_mutex_t *' but argument
is of type 'volatile union pthread_mutex_t *'
htar_FileMisc.c:2926: warning: passing argument 1 of 'pthread_cond_signal' discards
qualifiers from pointer target type
/usr/include/pthread.h:961: note: expected 'union pthread_cond_t *' but argument
is of type 'volatile union pthread_cond_t *'
htar_FileMisc.c:2927: warning: passing argument 1 of 'pthread_mutex_unlock' discards
qualifiers from pointer target type
/usr/include/pthread.h:757: note: expected 'union pthread_mutex_t *' but argument
is of type 'volatile union pthread_mutex_t *'
    Compiling htar_GenLists.c ...
htar_GenLists.c: In function 'htar_GenDirList':
htar_GenLists.c:1752: warning: passing argument 2 of 'stat64' from incompatible
pointer type
/usr/include/sys/stat.h:230: note: expected 'struct stat64 * __restrict__' but
argument is of type 'struct stat *'
htar_GenLists.c:1755: warning: passing argument 2 of 'lstat64' from incompatible
pointer type
/usr/include/sys/stat.h:278: note: expected 'struct stat64 * __restrict__' but
argument is of type 'struct stat *'
htar_GenLists.c:1934: warning: passing argument 2 of 'stat64' from incompatible
pointer type
/usr/include/sys/stat.h:230: note: expected 'struct stat64 * __restrict__' but
argument is of type 'struct stat *'
    Compiling htar_Glob.c ...
htar_Glob.c: In function 'expand':
htar_Glob.c:617: warning: passing argument 2 of 'stat64' from incompatible pointer
type
/usr/include/sys/stat.h:230: note: expected 'struct stat64 * __restrict__' but
argument is of type 'struct stat *'
htar_Glob.c: In function 'matchdir':
htar_Glob.c:1197: warning: passing argument 2 of 'stat64' from incompatible pointer
type
/usr/include/sys/stat.h:230: note: expected 'struct stat64 * __restrict__' but
argument is of type 'struct stat *'
htar_Glob.c:1199: warning: passing argument 2 of 'lstat64' from incompatible
pointer type
/usr/include/sys/stat.h:278: note: expected 'struct stat64 * __restrict__' but
argument is of type 'struct stat *'
htar_Glob.c: In function 'matchl1':
htar_Glob.c:1624: warning: passing argument 2 of 'stat64' from incompatible pointer
type
/usr/include/sys/stat.h:230: note: expected 'struct stat64 * __restrict__' but
argument is of type 'struct stat *'
htar_Glob.c: In function 'addname':
htar_Glob.c:1825: warning: passing argument 2 of 'stat64' from incompatible pointer
type
/usr/include/sys/stat.h:230: note: expected 'struct stat64 * __restrict__' but
argument is of type 'struct stat *'
htar_Glob.c:1829: warning: passing argument 2 of 'lstat64' from incompatible
pointer type
/usr/include/sys/stat.h:278: note: expected 'struct stat64 * __restrict__' but
argument is of type 'struct stat *'
    Compiling htar_GpfsInterfaces.c ...
    Compiling htar_GlobalLocks.c ...
    Compiling htar_IndexFile.c ...
htar_IndexFile.c: In function 'htar_CopyIndexToHpss':
htar_IndexFile.c:801: warning: passing argument 2 of 'fstat64' from incompatible
```

## Example run of **Configure**

---

```
pointer type
/usr/include/sys/stat.h:232: note: expected 'struct stat64 *' but argument is of
type 'struct stat *'
htar_IndexFile.c: In function 'htar_IndexFileDoesExist':
htar_IndexFile.c:2769: warning: passing argument 2 of 'stat64' from incompatible
pointer type
/usr/include/sys/stat.h:230: note: expected 'struct stat64 * __restrict__' but
argument is of type 'struct stat *'
htar_IndexFile.c: In function 'htar_OpenIndexFile':
htar_IndexFile.c:3023: warning: passing argument 2 of 'stat64' from incompatible
pointer type
/usr/include/sys/stat.h:230: note: expected 'struct stat64 * __restrict__' but
argument is of type 'struct stat *'
    Compiling htar_List.c ...
htar_List.c: In function 'htar_List':
htar_List.c:287: warning: passing argument 2 of 'stat64' from incompatible pointer
type
/usr/include/sys/stat.h:230: note: expected 'struct stat64 * __restrict__' but
argument is of type 'struct stat *'
    Compiling htar_LocalArchive.c ...
    Compiling htar_LocalFileReadThread.c ...
htar_LocalFileReadThread.c: In function 'htar_LFW_Thread':
htar_LocalFileReadThread.c:2724: warning: passing argument 2 of 'stat64' from
incompatible pointer type
/usr/include/sys/stat.h:230: note: expected 'struct stat64 * __restrict__' but
argument is of type 'struct stat *'
htar_LocalFileReadThread.c:2936: warning: passing argument 2 of 'stat64' from
incompatible pointer type
/usr/include/sys/stat.h:230: note: expected 'struct stat64 * __restrict__' but
argument is of type 'struct stat *'
    Compiling htar_Logging.c ...
    Compiling htar_Memmgr.c ...
    Compiling htar_MemberFiles.c ...
htar_MemberFiles.c: In function 'htar_RemoveMemberFiles':
htar_MemberFiles.c:1333: warning: passing argument 2 of 'stat64' from incompatible
pointer type
/usr/include/sys/stat.h:230: note: expected 'struct stat64 * __restrict__' but
argument is of type 'struct stat *'
htar_MemberFiles.c:1335: warning: passing argument 2 of 'lstat64' from incompatible
pointer type
/usr/include/sys/stat.h:278: note: expected 'struct stat64 * __restrict__' but
argument is of type 'struct stat *'
    Compiling htar_Misc.c ...
    Compiling htar_ParseCmdLine.c ...
htar_ParseCmdLine.c: In function 'htar_ParseCmdLine':
htar_ParseCmdLine.c:1598: warning: passing argument 2 of 'stat64' from incompatible
pointer type
/usr/include/sys/stat.h:230: note: expected 'struct stat64 * __restrict__' but
argument is of type 'struct stat *'
    Compiling htar_PathProcs.c ...
    Compiling htar_Rc.c ...
    Compiling htar_ReadArchive.c ...
    Compiling htar_ReadIodError.c ...
    Compiling htar_Repack.c ...
    Compiling htar_Shutdown.c ...
    Compiling htar_Signal.c ...
    Compiling htar_StatusFuncs.c ...
    Compiling htar_Update.c ...
    Compiling htar_UidGidToName.c ...
```

## Example run of **Configure**

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```
    Compiling htar_Verify.c ...
    Compiling htar_VerifySupport.c ...
htar_VerifySupport.c: In function 'verifyCallbackCtl':
htar_VerifySupport.c:838: warning: passing argument 2 of 'stat64' from incompatible
pointer type
/usr/include/sys/stat.h:230: note: expected 'struct stat64 * __restrict__' but
argument is of type 'struct stat *'
htar_VerifySupport.c:840: warning: passing argument 2 of 'lstat64' from
incompatible pointer type
/usr/include/sys/stat.h:278: note: expected 'struct stat64 * __restrict__' but
argument is of type 'struct stat *'
htar_VerifySupport.c: In function 'verifyMemberFileInit':
htar_VerifySupport.c:1632: warning: passing argument 2 of 'stat64' from
incompatible pointer type
/usr/include/sys/stat.h:230: note: expected 'struct stat64 * __restrict__' but
argument is of type 'struct stat *'
    Compiling htar_WriteIodError.c ...
    Compiling htar_WriteLocalArchive.c ...
htar_WriteLocalArchive.c: In function 'copyLocalFile':
htar_WriteLocalArchive.c:644: warning: passing argument 2 of 'fstat64' from
incompatible pointer type
/usr/include/sys/stat.h:232: note: expected 'struct stat64 *' but argument is of
type 'struct stat *'
    Compiling htar_WriteXferThread.c ...
    Compiling htar_version.c ...
    Linking htar ...
htar_IndexFile.o: In function `htar_CopyAndAdjustLocalIndex':
/yellow/users/dsherril/proj/htar/5.0.1.p2/htar.5.0.0/src/htar_IndexFile.c:412:
warning: the use of `mktemp' is dangerous, better use `mkstemp'
Make all done...
```