

X11 Forwarding

Category: Productivity Hints

To run X applications (such as `xclock`, `emacs`, `totalview`, etc) on the X client host (for example, a NAS computer such as `pfe20`, etc.) and display them back to an X server (such as your localhost), the simplest way is to use SSH X11-Forwarding.

If you are using a NAS-supported workstation or compute server, X11-Forwarding is already set up for you. The following command activates SSH X-11 Forwarding automatically:

```
your_localhost% ssh hostname.nas.nasa.gov
```

Most modern SSH client software support this option (for example, Cygwin, TeraTerm, PuTTY, Unix, and Linux). To use SSH X11-Forwarding, the SSH server-side daemon (`sshd`) configuration file must contain the entry:

```
X11Forwarding yes
```

to support the forwarding capability. All NAS-supported hosts (including all workstations and compute servers) honor this setting in the default `sshd_config` file (for High End Computing systems and Linux systems, it is `/etc/ssh/sshd_config`; for Mac systems, it is `/etc/sshd_config`) For other non-NAS machines, ask your system administration to set this in the `sshd_config` file.

In addition to setting `X11Forwarding yes` on the SSH server side (for example, a NAS machine), it is recommended that `ForwardX11 yes` is also set in the `ssh_config` file on the SSH client host (for example, your localhost). By default, NAS and HEC system configurations will enable these settings for both client and server. If `ForwardX11 yes` is not set in the `ssh_config` file by the system administrator of your localhost, you can set it in your `~/.ssh/config` file or use the `-X` option of SSH.

Other parameters related to the performance of X11-Forwarding are handled by the NAS-recommended `ssh_config` file. If you are on a NAS-supported system, no action is needed in setting these parameters yourself. If your localhost is not supported by NAS and you would like to get configuration ideas, you can look at `/etc/ssh/ssh_config` on any NAS High-End-Computing systems (such as `cfe2`, `pfe[20-27]`, `bridge[1-4]`).

Example

To run an X11-based application, for example, `xclock`, on `pfe20.nas.nasa.gov` and have it displayed on your localhost, do the following:

```
your_localhost% ssh pfe20.nas.nasa.gov
```

```
-----  
* * * W A R N I N G      W A R N I N G * * *  
  
      U.S. GOVERNMENT COMPUTER  
If not authorized to access this system, disconnect NOW.  
....  
-----  
                ** PFE20 **  
....  
  
pfe20% xclock
```

To run an X11-based application on a NAS-supported desktop, follow the example below:

```
your_localhost% ssh sfel.nas.nasa.gov  
sfel% ssh a_nas_desktop  
a_nas_desktop% xclock
```

If **ForwardX11 yes** is not set in either the **ssh_config** file or the **~/.ssh/config** file of your localhost, use:

```
your_localhost% ssh -X hostname.nas.nasa.gov
```

WARNING: The SSH daemon sets the DISPLAY environment variable by itself. DO NOT RESET it to point to display zero (for example, **setenv DISPLAY your_localhost:0**), otherwise SSH X11-Forwarding will not work.

WARNING: For each new login, the **.Xauthority** file gets updated. If you are over your quota, this file cannot be updated and you get the error:

```
/usr/X11R6/bin/xauth:  error in locking authority file  
/u/username/.Xauthority
```

X11-Forwarding will not work if you receive this error.

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<http://www.nas.nasa.gov/hecc/support/kb/entry/256/?ajax=1>