Apache 2.2 on QNX Neutrino 6.4.x OS
Step-by-step installation manual

1. User and Group settings for Apache 2.2

First of all, we have to create a new GROUP in Photon. On the right side menu (Shelf) select the "Users" icon
push "Advanced" button
Select "Groups" tab
push "New Group" button
write into "Group Name" field: www
Apply/Done

Create a new USER www
Select "Users" tab
push "New User" button
write into "Full Name" field: www
write into "Login ID" field: www
write into "Home Directory" field: www
select from "Group" list: www
select the checkbox "Prevent this user from logging in."
Apply/Done
Done
Done

2. Setting of TCP/IP network for use Apache2.2 web server

QNX:
Settings has to be Manual mode, do not select the automatic settings "DHCP" !!!!!
These are below our settings:

IP: 192.168.1.121   (or any proper IP address)
Netmask: 255.255.255.0
Host Name: host121   (or any proper name but not "localhost")

Name Servers (it was our settings, but of course can be different):
195.184.181.4
195.184.180.4
192.168.1.1

Default Gateway:
192.168.1.1

Edit the /etc/host file, the Apache needs to know about the "hostname and address" signature:
192.1.1.121 host121

3. Setup environment

Setup PATH, environment variables:

/etc/profile :

PATH= ./:/usr/pkg/bin:/usr/pkg/sbin

/etc/rc.d/rc.local :
setconf CS_LIBPATH $(getconf CS_LIBPATH):/usr/pkg/lib

Now restart with QNX machine and boot into Photon graphical environment again.

Open a terminal window and type:
cd /
Check the current directory name:
pwd
You have to see it:
/
(if not the root - then enter this command: cd /)

4.   Download PKGSRC project

a. Download pkgsrc project:

http://community.qnx.com/sf/wiki/do/viewPage/projects.pkgsrc/wiki/Bootstrap

To get pkgsrc, write this line into a single line:

svn checkout --username <username> http://community.qnx.com/svn/repos/pkgsrc/HEAD_640
(username is your registrated email address)

(or ftp://ftp.netbsd.org/pub/pkgsrc/current/pkgsrc.tar.bz2
and unpack it:
bzcat pkgsrc.tar.bz2 | tar xfv)

More info:
Pkgsrc documentation:
file://HEAD_640/pkgsrc/doc/pkgsrc.html
file://HEAD_640/pkgsrc/doc/pkgsrc.html#developers-guide
Alternatively, you can also import new packages into pkgsrc-wip (pkgsrc work-in-progress);
see the homepage at http://pkgsrc-wip.sourceforge.net/

Fault report to pkgsrc developers:
Next, generate an uuencoded gzipped archive that contains all files that make up the package.
Finally, send this package to the pkgsrc bug tracking system:
http://www.NetBSD.org/support/send-pr.html
In the form of the problem report, the category should be pkg, the synopsis should include the
package name and version number, and the description field should contain a short description of your
package
(contents of the COMMENT variable or DESCR file are OK).
The uuencoded package data should go into the â€śfixâ€ť field.

Porting pkgsrc into a new OS:
file://HEAD_640/pkgsrc/doc/pkgsrc.html#developers-guide

b. Bootstraping pkgsrc project:

bootstrap the pkgsrc source (as root user) with ./bootstrap/bootstrap :
cd /HEAD_640/pkgsrc/bootstrap
./bootstrap
(it takes to finish around 35mins.)

5.   Prepare Apache 2.2 package for compilation

QNX related patch for Apache:

It's an unfortunate coincidence that both QNX header and in the BSD source code
"mod_mime_magic.c" module also contains as definition
a function called "mcheck()". Other operating systems don't do that, it's a coincidence.

To solve this conflict, copy a patch file
"patch-aw" to
HEAD_640/pkgsrc/www/apache22/patches directory, and then type these commands :

cd /HEAD_640/pkgsrc/www/apache22
bmake distinfo
bmake clean

The content of patch-aw file:

$NetBSD$..--- modules/metadata/mod_mime_magic.c.orig.2006-10-03 14:47:35.000000000
+0200.+++ modules/metadata/mod_mime_magic.c.2009-02-14 09:23:40.000000000 +0100.@@ -
106,6 +106,10 @@. #include <utime.h>. #endif. .+#ifdef __QNX__ /* naming conflict with <malloc.h>
/.+#define mcheck mod_mime_magic_mcheck.+#endif.+. /. * data structures and related constants.
*/.

6. Compile & Link and Install Apache2.2

cd /HEAD_640/pkgsrc
(cd www/apache22 && /usr/pkg/bin/bmake install)

(it is a quite long process..)

7. Configure to use dinamic .so modules in Apache2.2

Configure for use dynamic *.so modules>
cd /HEAD_640/pkgsrc/www/apache22/work/httpd-2.2.11
./configure --enable-so

cd /HEAD_640/pkgsrc
(cd www/apache22 && /usr/pkg/bin/bmake install)

8. Config file of Apache 2.2

Edit this config file according to the Apache22 help descriptions:
/usr/pkg/etc/httpd/httpd.conf
(Sample available at: /usr/pkg/share/examples/httpd)

Important contents of Apache2.2 config file: /usr/pkg/etc/httpd/httpd.conf:

ServerRoot "/usr/pkg"

Listen 192.168.1.121:80

User www
Group www

ServerAdmin you@example.com   (your email address here)
ServerName 192.168.1.121:121   (use your localhost IP address !)
DocumentRoot "/usr/pkg/share/httpd/htdocs"

<Directory "/usr/pkg/share/httpd/htdocs"
.
.
ErrorLog "/var/log/httpd/error_log"

LogLevel warn
.
.
ErrorDocument 500 "The server made a boo boo."

9. Default HTML page which will be shered by Apache server

Copy or edit the existing index.html in directory
/usr/pkg/share/httpd/htdocs

10. Test and check for errors

You can try to start Apache by hand:
cd /usr/pkg/share/examples/rc.d
apache start

In case of any fault, see the error log file:
"/var/log/httpd/error_log"

11. Understanding the calling sequence accross start scripts

==
The following file should be created automatically by apache installer:
/usr/pkg/share/examples/rc.d/apache
==
Start:
/usr/pkg/share/examples/rc.d/apache start -> /usr/pkg/sbin/apachectl start -> (/usr/pkg/sbin/httpd -k
start)
Stop:
/usr/pkg/share/examples/rc.d/apache stop -> /usr/pkg/sbin/apachectl stop -> (/usr/pkg/sbin/httpd -k
stop)

12. Creating of starter scripts with insertion of Apache start's at Neutrino OS boot

Now we creating the starter scripts into folder: "-etc-rc.d"

Copy "apache" and any other daemon's starter scripts like "mysqld"
From:
/usr/pkg/share/examples/rc.d
To:
/etc/rc.d

Include this line(s) into   /etc/rc.d/rc.local file:
/etc/rc.d/apache start
/etc/rc.d/mysqld
Optionally:
#inetd:
inetd -d /etc/inetd.conf &

NOTE: the "rc.local" file should NOT contains any of CR/LF pairs at line ends !!!   Only LF permitted.
Otherwise "apachectl" srcipt able to do a very strange behaviour and malfunctions when we call
"apache start"

Now try to stop/start the Apache server:

cd /etc/rc.d
apache stop
Stopping apache   (you have to see this message from Apache)
apache start

Starting apache   (you have to see this message from Apache)
#

13. Restart with QNX6.4.0 OS

Now we will have to see the "Starting apache" message during boot-up.

On intranet LAN we would have to check the correct operation of Apache server.
From a Windows Internet Exporer or with any other browser we can check Apache server's operation:

http://192.168.1.121:80   or
http://192.168.1.121/index.html

You have to see this result in your browser:

It works!

It is the default HTML page which is located in directory
/usr/pkg/share/httpd/htdocs
after Apache installation. We have modified the text in the index.html file a litle bit:

14. DynDNS

You can register a free Dinamic IP address at www.dyndns.org
with something username "yourselectedname"

You will have this domain name like:
"yourselectedname.dyndns.org"

Setup your internet router equiment for use DynDNS - properly for your router settings/menu.
This simple service can forward any TCP port request from internet side (WAN side) to
your Apache server machine IP address on local network (LAN).

e.g
TCP   internal IP address

80   192.168.1.121   (HTTP service)
23   192.168.1.121   (TELNET service)
21   same or other machine's IP address   (FTP service)

from outside you can test the Apache server and TCP redirection service's operation:
http://yourselectedname.dyndns.org
http://yourselectedname.dyndns.org/index.html

Your webserver is ready to use now.

In any case of problem you can send email to us.

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