Linux
Hardware Information
Management
Web Application
(hariX)

USER MANUAL

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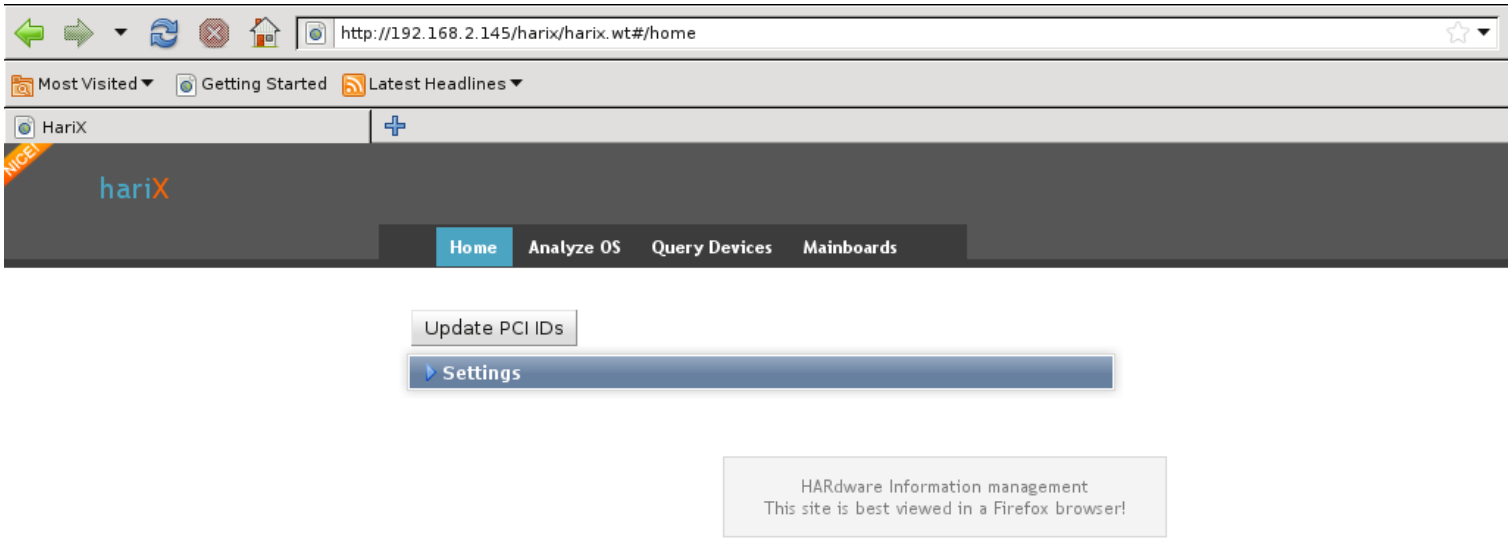
1. Hardware Information & Management System Introduction

The system is made up of an intranet web server, serving users and storing information in a MySQL database. And the users of client computers access the web server to probe for the specific hardwares their computer has; currently the user provides a list of PCI IDs of devices through the web application interface, and the system responds back with appropriate information like device and class names, on which linux distributions and kernels the given device has modules. User can also save Mainboard configurations with the provided list of devices for later review, or see which devices of the Mainboard is supported with a specific Linux Distribution. This way when we want to know whether a machine is supported with a Linux distro, we can just query it's PCI device list, so the installation of the OS on Machine could be avoided.

Project is being written in C++ using Wt Library, and is designed to run with Apache and MySQL. For Setup and Installation instructions see the INSTALL file in source code.

2. Home(Start) Page

When you direct your location to the application URL, you will be redirected to the home page(/home). There is not much of an option on this page, you can update the PCI IDs stored in database or set the application settings. Below is the view you will get at home page.

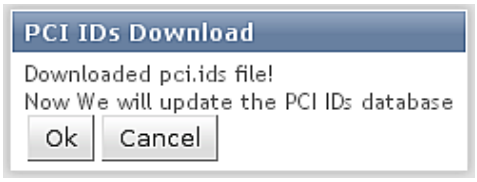


2.1. Update PCI Ids from Net

To update the PCI and Class ID definitions in database, click the “Update PCI IDs” button, which will download the latest 'pci.ids' file from :

http://pciids.sourceforge.net/v2.2/pci.ids

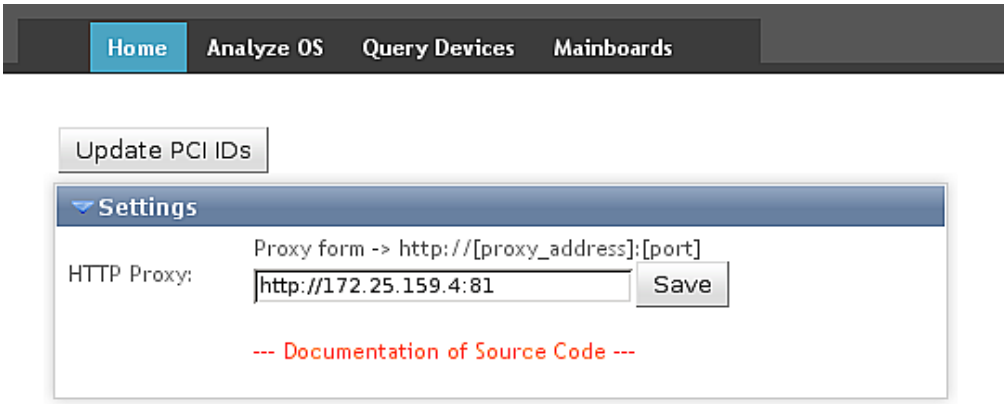
then asking the user to confirm the update:



if confirmed it will read from that file and update corresponding parts of the database with new PCI and Class Codes. You need to have the “curl” tool installed in your system for this action to work, as it downloads the file with a system call to curl.

2.2. Settings Panel

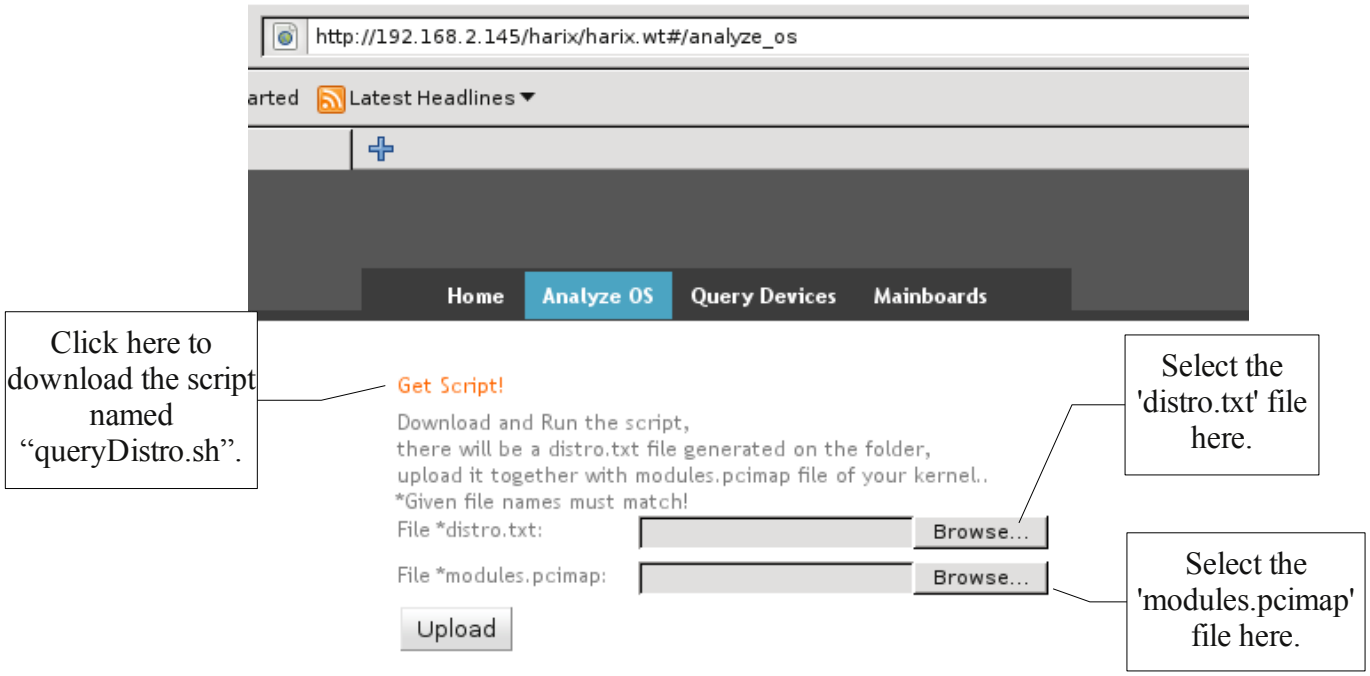
Settings section of home page is a collapsible panel opened by clicking the arrow at left-hand side of Settings panel title. Below is shown the expanded view of the Settings Panel:



Here you can set the Proxy Settings for the Server if it's used behind a proxy server. Proxy address is stored in /tmp folder, so you will need to re-enter it after a server restart. Source code documentation of the project is also available here, which is shown in html pages produced by Doxygen tool.

3. Analyze OS Page

Analyze OS page allows you to add an Operating System to database along with it's modules; or just update it's modules if the OS already exists in database. Below is the view you will get in Analyze OS page.



To start you will need to download the script provided at the "Get Script!" link, which detects the Distribution-Release-KernelVersion-KernelArch running on Client machine and creates a file named 'distro.txt' in it's folder. So give executable permission to the script and run it in command line:

```
$ chmod +x queryDistro.sh
$ ./queryDistro.sh
```

3.1. Upload Distribution and it's Modules

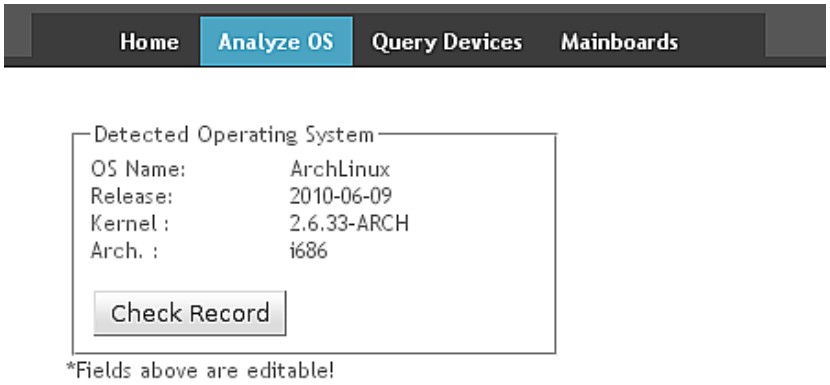
Now we are ready to upload the OS information. First select the 'distro.txt' file created by the 'queryDistro.sh' script, in the corresponding file upload area. Then select the 'modules.pcimap' file of the Client OS, containing the list of drivers and the devices they support, which is most likely located at "/lib/modules/'uname -r'/modules.pcimap".

When all is done, click on the "Upload" button, which will upload the files to the server and bring you the view described at section *3.2. Detected OS*.

Be careful when you select the files, files must have the exact case-sensitive names to be uploaded, otherwise the "Upload" action will be ignored!

3.2. Detected OS

After the needed files are uploaded to the server, you will get the view shown below, listing details of the OS detected:



If you believe that the detected OS information is wrong, you can simply change the fields by clicking on, editing the value and clicking the “Save” button in the end. Note that these operations do not save the OS in database, this is just a step before we query whether the given OS is already stored in database.

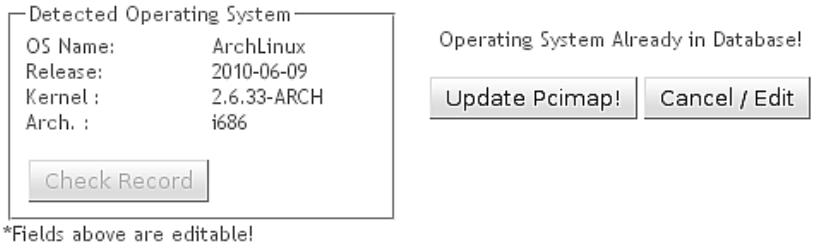
Finally, click the “Check Record” button to see whether the OS is already stored in database or not. Subsections *a)* and *b)* desribe the views you will get in each case.

a) Add OS along with it's Modules

If the provided OS is not stored in database before, you will get a view as below asking for confirmation to store the OS in database along with it's modules.

When you click the “Add OS!” button, you will see a Loading Indicator blocking all the page, while the application is analyzing the 'modules.pcimap' file and adding the OS with it's drivers to database. You will need to wait for the action to complete, and finally you will get a dialog box showing the success status.

b) Update Modules of an existing OS



If the provided OS is already available in database, you will get a view as above asking for confirmation to update the OS's modules.

When you click the “Update Pcimap!” button, you will see a Loading Indicator blocking all the page, while the application is analyzing the 'modules.pcimap' file and updating drivers of the OS in database. You will need to wait for the action to complete, and finally you will get a dialog box showing the success status.

4. Query Devices Page

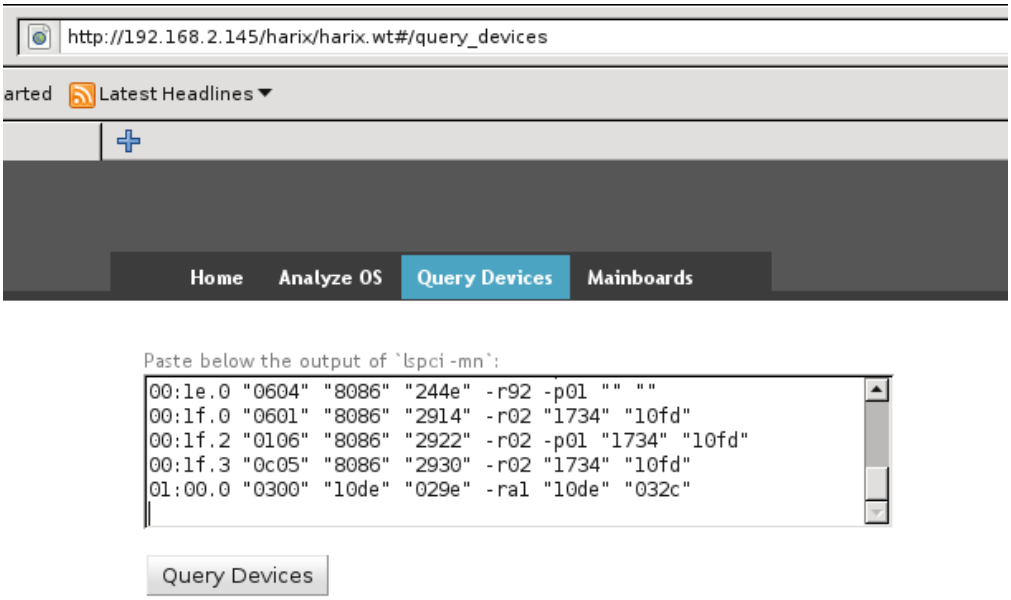
At Query Devices page, you can query a list of pci device codes which will result in a table showing their class and device names, let you see the OS support for each device with their modules, and save a mainboard configuration consisting of this devices.

4.1. Query PCI list of a Board

Here you will be presented with an empty text area to put the list of pci device codes to be queried. To query the PCI devices on a client machine, you should type the following in command line:

```
$ lspci -mn
```

and paste the output to the text area. The list might be as long as you like, or you can query just one device as well. But copy the output as it is, do not omit any column with hand, cause it will parsed in server!

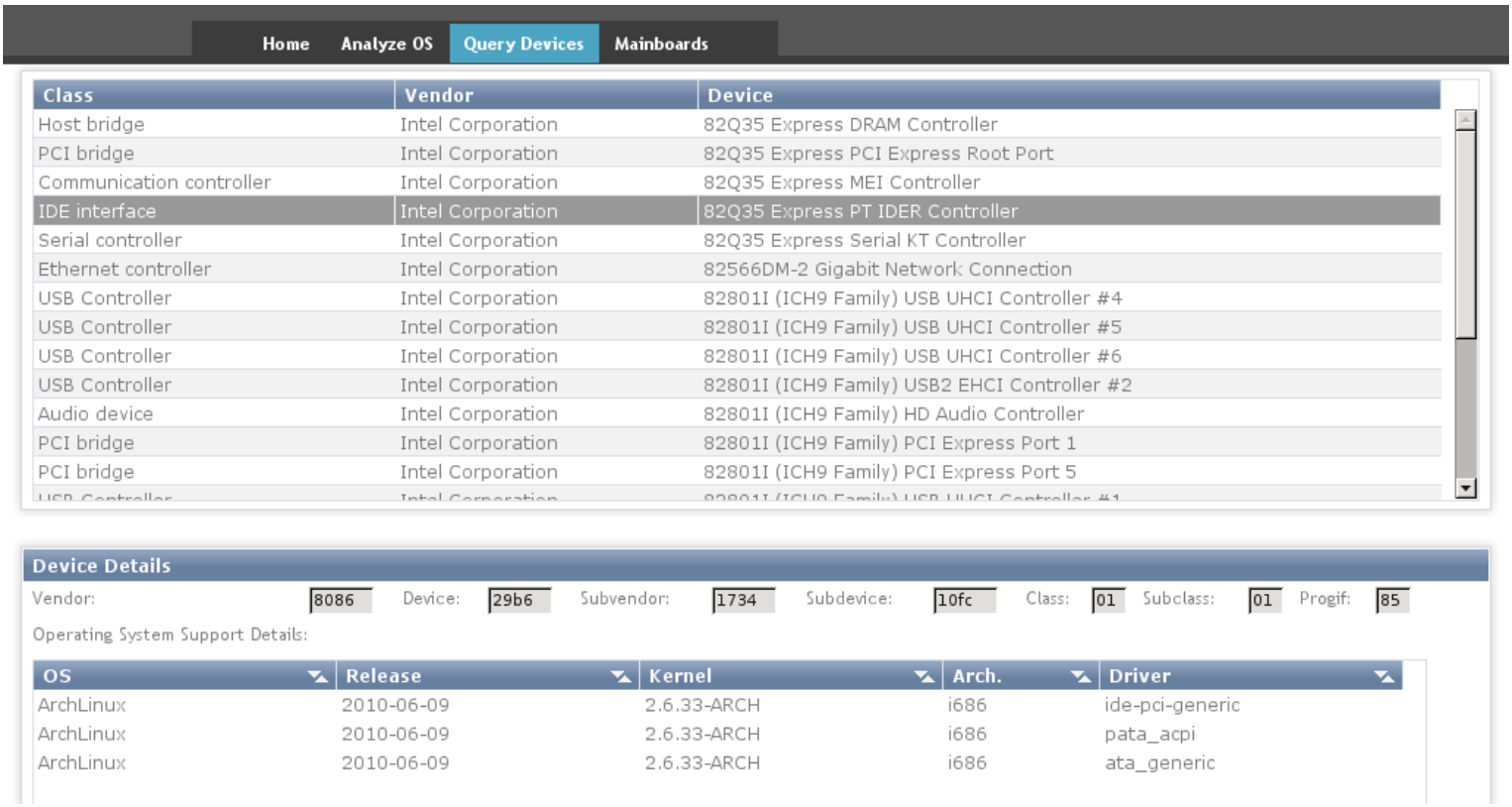


Above you see an example input on page. Afterwards we can click on the “Query Devices” button, which will bring the page described at section *4.2. Query Results*.

4.2. Query Results

In fact this is just another page, which is contained as a subsection in Query Devices. Mainly this page presents a list of devices in a table and shows the OSes that support the selected device in a seperate table.

On page load it just lists the names of the devices provided to it, and when a device is selected(Double Click to select!) in the table, you can see the list of OSes supporting the device in Device Details panel. Table in Device Details panel lists the Distribution, Release, Kernel Version, Architecture and Modules of the OSes supporting the device. Sample below shows the page with selected device, and OSes supporting it with their modules.



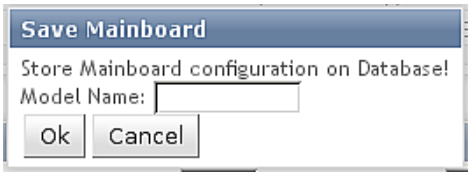
WARNING: Some devices like “Serial Controller”s(Class code '0700xx') might have drivers compiled in the kernels, so those OSes won't be listed as supporting while they actually do.

a) Save Mainboard Configuration

Now you have the list of PCI devices but you want to save it for later review, or you want to see easily whether they are supported by a specific Linux OS of your choice.

To be able to do all of these we need to save the list as a Mainboard configuration, just click the “Save Mainboard!” button located on bottom left of the Device Details panel.

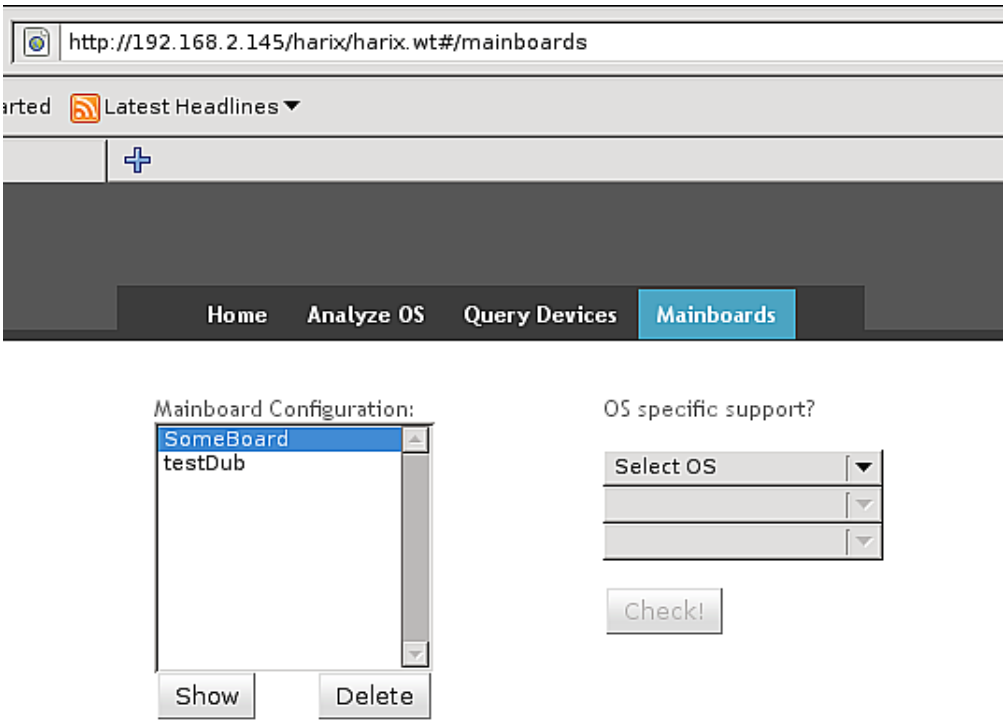
You will be presented with a dialog box asking a name for the board as shown on right. Then you type a name for board in the field, click “Ok” and you will get a dialog box showing the success status.



Afterwards the page will be refreshed displaying the board name on top of device list.

5. Mainboards Page

Here on this page you will find the list of Mainboards stored in database, and you will be able to get their device list, delete them, or see whether they are supported by the chosen Linux OS from drop-down lists. Mainboards page will look like below:



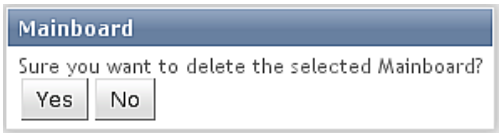
In the list-box on left, you will see the list of Mainboards. And in dropdown-lists on right there will be the Distributions, their Releases and Kernels.

5.1. Show or Delete Mainboard Configurations

To see the device list of a previously saved mainboard, simply click on the “Show” button, which will direct the page to Query Results(See section 4.2.) while providing the board name, so that it can be displayed on top of device list table on Query Results page.

When you want to delete a mainboard configuration, first select the mainboard in listbox and then click the “Delete” button.

This will popup the dialog box shown on right. Confirm deletion and the page will be refreshed with the new mainboard list.

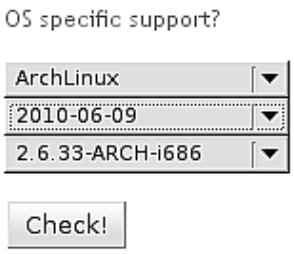


5.2. OS support for a Mainboard Configuration

You have saved a mainboard configuration at a time, and now you want to see which of it's devices are supported by an OS you selected.

We select the mainboard from the listbox on left, then on the right side we will select the specific OS from drow-down lists.

First we select the distribution on drop-down list visible as “Select OS”, then the 2nd drop-down list will be activated visible as “Select Release” and filled with corresponding releases of the selected distribution. When we select a release the 3rd drop-down list will be activated automatically selecting the first kernel version for the release. A sample is shown on right.



Now we can click on the “Check!” button which will direct the page to Query Results(See section 4.2.) while providing the board name and the selected OS.

On Query Results page as shown below, there will be an extra column called 'Support' in device list table. This identifies if there exists any module of the provided OS supporting the device. This way we can easily get a view of how the mainboard would be supported if the OS was installed on it. Also we can still see which OSes support the devices if we double click on any of them.