**ipqalign**

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**Introduction**

**ipqalign** is a tool to help system administrators maintain and keep track of accounts and identities “known” to an IPQ box.

IPQ accounts and identities can be host IP addresses, user names or aliases. The first two of these have byte counters and limits associated with them. Aliases instead are host IP addresses or user names which do not have their own byte counters or limits but instead point to other host IP addresses or user names which do.

The **ipqalign** tool reads in an alignment data file which contains a list of accounts and identities and then compares this list to the list currently active in a given IPQ box. It can either report the differences or cause the IPQ box to align with the data file by removing identities, creating or changing aliases, creating identities and changing limits.

**The alignment data file**

Before describing the contents of this file you are reminded that the IPQ software does not allow an alias to point to another alias. An alias must point to a real account, i.e. One with its own counters and limits.

The first field on any line is an identity. If this identity is followed by a “->” then the identity is an alias. Identities not followed by a “->” are real accounts.

The field following a “->” must be either empty or else the name of a real account. If empty the the identity does not need to exist, but if it does it must be an alias. What the alias points to is not checked.

The information associated with a real account is a list of zero or more limits.

Once **ipqalign** has been successfully run against an IPQ box the IPQ box will contain only the real accounts specified in the alignment data file. These accounts will have the limits specified in the alignment data file. Unspecified limits are not changed. Real accounts not listed in the alignment data file will be removed.

Specific aliases (i.e. those with “targets”) will also exist.

Any existing aliases that are not specific or which are not the subject of a non-specific definition in the data file will be removed.

All conflicts will be resolved in favour of the data file. For example, if the IPQ box contains a real account by the name of “jim” but the data file says that “jim” should be an alias
pointing at 127.0.0.1 then the real account will be removed and replaced with the alias.

**Sample alignment data file**

```
plinich -> root
frog -> root
root I1-5 I2-1 O3-10
127.0.0.10
peter -> root
herman
129.94.214.5 I1-10
byebye -> 129.94.214.5
treadmill -> root
199.99.99.99 -
```

The first line in the above data file says that the alias “plinich” points to the “root” real account.

The second line says that the “frog” alias also points to “root”.

The third line has information regarding the “root” real account. Three limits are specified. If the “root” real account already exists and it’s I1 I2 and O3 limits match those given then no change will be made. If any of these limits are not the same then the IPQ account will be updated. The I3, O1 and O2 limits will not be effected.

If the “root” real account does not exist a new one will be created with the given limits. The unspecified limits will be set to default values.

The fourth line shows that there is a real host IP account 127.0.0.10. No limits for it have been specified; thus if the account does not exist a new one will be created with the default limit values. If it does exist no change will be made to it.

The fifth line shows that there is an alias called “peter” which points at the “root” account.

The sixth line shows that there is a real user name account called “herman”. It also has no limits specified.

The seventh line shows that there is a real host IP account 129.94.214.5. It has an I1 limit associated with it.

Next there is an alias called “byebye” which points to the real host IP account 129.94.214.5

Finally, 199.99.99.99, if it exist, must be an alias but it doesn’t matter where it points.
Operation and command-line options

When run from the command-line with no options ipqalign will attempt to read in the alignment data from standard input. It will attempt to connect to a default IPQ box and will do a non-aligning alignment; in other words it will go through the motions but will not actually attempt to change anything on the IPQ box. It will also not report the results of the alignment, i.e. The changes it would have made, because verbose mode was not enabled.

It is suggested that you don’t run it this way.

A good way to get the list of valid options from ipqalign is to run the command with an invalid option, like “-help”. This gives the following output:

Unknown option: "·-help"
Usage: ipqalign [option list] [data file]

Options:
  Verbose         -v
  Update limits   -L
  Instantiate changes   -i
  Set IPQ host address   -H <host> (default 127.0.0.1)
  Set IPQ port number   -P <port> (default 8081)
  Delete all         -D
  Delete host accounts -DH
  Delete user accounts -DN -DU
  Delete host aliases  -Dh
  Delete user aliases  -Dn -Du
  Add all            -A
  Add host accounts   -AH
  Add user accounts   -AN -AU
  Add host aliases    -Ah
  Add user aliases    -An -Au

The -i option is probably the most important. It tells ipqalign to “make it so”. It makes the changes to the IPQ box accounts so they do align with the data file. It is possible to control to what extent ipqalign changes things by specifying various combinations of -Dx, -Ax and -L flags. If you want full alignment specify all three flags. The -L flag is effective only for those accounts specified by the -Ax option(s).

Using the -v flag turns on verbose mode so that you get a report of the changes that ipqalign makes (or would like to make if you leave out the -i flag).

Note that the -L flag is currently ignored. ipqalign always acts as if it had been specified.