Node Provisioning: How do I automatically plug in new nodes and assign it an identity in Bright?

How do I automatically plug in new nodes and assign it an identity in Bright?

The following technique can save labor, when you are adding a large number of new nodes to the cluster in order to embiggen it.

It can be done using a script that comes in the pythoncm examples at:

```
/cm/local/examples/cmd/python/newnodes.py
```

Make sure your Bright Cluster Manager is updated to the latest version before using the script.

The script takes the MAC addresses that are detected and associates them with physical node identities. These identities are typically objects that have been created earlier. In other words, they are typically "placeholder identities", until the association is actually done.

For example, when the `newnodes.py` script runs, the first MAC address detected with the new nodes property gets attached to the first physical node which has no MAC address as a property.

```
[Master]% device
[Master->device]% newnodes
MAC                 First appeared                   Detected on switch port
------------------- -------------------------------- ------------------------
FA:16:3E:26:38:EE   Tue, 16 Dec 2014 02:01:43 PST [no port detected]

FA:16:3E:1D:16:0D   Tue, 16 Dec 2014 02:05:12 PST [no port detected]



[root@Master ~]# cmsh
[Master]% device list
Type          Hostname MAC               Category Ip            Network     Status
-----------   -------- ---------         -------- ------------- -----------
--------------------
HeadNode      Master   FA:16:3E:DA:91:98          10.141.255.254 internalnet [ UP ]
PhysicalNode  node002  FA:16:3E:39:93:89 default  10.141.0.1    internalnet [ UP ]
PhysicalNode  node003  00:00:00:00:00:00 default  10.141.0.1    internalnet [ DOWN ]
(Unassigned)
PhysicalNode  node004  00:00:00:00:00:00 default  10.141.0.1    internalnet [ DOWN ]
```

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(Unassigned)

Note the MAC address is assigned to a node in the order in which the mac address was detected. So the first detected MAC address is assigned to the first unassigned physical node. This means that you should typically plug and power on the nodes in the order in which you would like the numbering to go.

After powering up the nodes, you can do a dry-run with the script by running it, from your terminal, without any options:

```
[root@headnode ~]# /cm/local/examples/cmd/python/newnodes.py

Assign mac FA:16:3E:26:38:EE to node003

Assign mac FA:16:3E:1D:16:0D to node004
```

The script shows, as output, the detected MACs and tells you which nodes the MAC address is about to be assigned to. But at this state the changes are not yet committed.

Once you are sure that the MACs are in the order you want with the Physical nodes, you can run the script with the option -s option, which saves the assignment:

```
[root@headnode ~]# /cm/local/examples/cmd/python/newnodes.py -s
Assign mac FA:16:3E:26:38:EE to node003
Committed: node003
Assign mac FA:16:3E:1D:16:0D to node004
Committed: node004
```

The assignment is now completed. From now on, the nodes installer will install the nodes automatically, without you having to feed it the MAC address manually to identify the node.

Assigning new nodes in bulk is also described in the Administrator manual, in the section on advanced uses of the `newnodes` command.
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