Troubleshooting the Server's Copy-Protection Key

for the enSite™ Management System

The enSite™ server is built on a stable foundation and a proven architecture. This document discusses troubleshooting for potential failures related to licensing and authentication that might cause the enSite™ server to cease or suspend functioning after a given amount of time.

The server's copy-protection key is included on the server when Encore Networks, Inc., first installs the enSite™ software. The device ID identifies a particular server based on the server's hardware configuration. The device ID is generated when the enSite™ software is initially installed. The device ID is paired with the server's copy-protection key.

Encore Networks, Inc., provides the **enstatus** utility to help diagnose issues related to authentication and licensing. See Section 3.1, *The enstatus Utility for Troubleshooting the Server's Copy-Protection Key*, on page 1.

A table of potential issues and their solutions is included in Section 3.2, *Causes of enSite™ Server Shutdown*, on page 4.

3.1 The enstatus Utility for Troubleshooting the Server's Copy-Protection Key

The **enstatus** utility is a custom utility installed in the /usr/local/bin directory. This utility takes the arguments **test** or **auth**. See the following discussions:

- Section 3.1.1, *The enstatus test Command*, on page 2
- Section 3.1.2, *The enstatus auth Command*, on page 4

3.1.1 The enstatus test Command

The **`enstatus test`** command lists several parameters and their values, described in Table 3-1.

Table 3-1. Output Table for enstatus test Command

Key	Type	Correct	Incorrect	Notes
accepts	string	format: [hash] [count] [partsize] [version]	an error message, or timed out	Checks connectivity to given **`host`** in **`settings.ini`**. Returns a value if there is internet connection; returns an error if there is no internet connectivity.
confkey	string	The same key as in the **`settings.ini`** file	empty value or null	This is the server's copy-protection key for this instance of enSite™.
false positive	Boolean	false	true	Checks whether the network cards have been reordered. If the cards are reordered, it can affect the device ID value displayed when you run **`enstatus auth`**. A value of **`true`** means that the network cards have been logically reordered, or that the physical cards have been changed, or both.
hardware	string	A list of identifying information that the command gathers about the installed hardware	empty	Individual hardware parameters list values as strings. The values gathered depend on the hardware; they may vary from machine to machine.
id	integer	A positive integer	zero, or negative, or a non-integer	This is the device ID.
resolves	IP address string	[IP address]	error string (for example, "No such host")	Checks the ability of the **`host`** value in the **`settings.ini`** file to be resolved. If the value is not resolvable, "Error" is displayed. A display of "Error" may indicate a domain name system (DNS) error or a lack of internet connectivity.
status	Boolean	true	false	The value **`true`** means that the server's copy-protection key is valid. The value **`false`** triggers one of the shutdown conditions in Table 3-2.

Figure 3-1 represents sample output from the **`enstatus test`** command.

Figure 3-1. Sample Output for enstatus test Command

```
root@encore-snap:~# enstatus test
{
    "accepts": "ad16fccad49cdb701de4d857b6560f71 17 1024 1.06",
    "confkey": "4f1223f22d2023d8968520cfe720f7ff",
    "false-positive": false,
    "hardware:": {
        "bios_date": "10/23/2014",
        "bios_vendor": "Dell Inc.",
        "bios_version": "1.4.0",
        "board_asset_tag": "",
        "board_name": "081N4V",
        "board_serial": "..CN747515240167.",
        "board_vendor": "Dell Inc.",
        "board_version": "A04",
        "chassis_asset_tag": "        ",
        "chassis_serial": "H21NC42",
        "chassis_type": "23",
        "chassis_vendor": "Dell Inc.",
        "chassis_version": "01",
        "modalias": "dmi:bvnDellInc.:bvr1.4.0:bd10/23/2014:
               svnDellInc.:pnPowerEdgeR220:pvr01:rvnDellInc.:
               rn081N4V:rvrA04:cvnDellInc.:ct23:cvr01:",
        "product_name": "PowerEdge R220",
        "product_serial": "H21NC42",
        "product_uuid": "4C4C4544-0032-3110-804E-C8C04F433432",
        "product_version": "01",
        "sys_vendor": "Dell Inc.",
        "uevent": "MODALIAS=dmi:bvnDellInc.:bvr1.4.0:bd10/23/2014:
               svnDellInc.:pnPowerEdgeR220:pvr01:rvnDellInc.:
               rn081N4V:rvrA04:cvnDellInc.:ct23:cvr01:"
    },
    "id": 93042767845368,
    "resolves": "104.236.32.48",
    "status": true
}
```

3.1.2 The enstatus auth Command

The **enstatus auth** command displays the server's authorization key (Figure 3-2), identical to the server' s current device ID.

Note: As discussed earlier, the device ID is a special identifier specific to the hardware configuration of the server, generated when enSite™ is initially installed.

Figure 3-2. Sample Output for enstatus auth Command

```
root@encore-snap:~# enstatus auth
auth_key: 93042767845368
```

3.2 Causes of enSite™ Server Shutdown

If the server's copy-protection key is edited or deleted, the server will shut down. If the device ID changes because of a hardware configuration change, the server will shut down. Table 3-2 lists possible shutdown situations and potential causes.

Table 3-2. enSite™ Server Shutdown Symptoms and Solutions (Sheet 1 of 2)

Observable Symptom	Error Condition	Potential Cause	Diagnosis and Repair
Server shuts down immediately after POST.	stack-trace or core-dump may occur on the console.	The Python executable that starts the server may be missing, or the **settings.ini** file may be missing or may contain syntax errors, resulting in a system failure.	Ensure that the **settings.ini** is present at **root / location**, and ensure that it is configured properly.
Notes: To troubleshoot the **settings.ini** file, enter **init=/bin/bash** into kernel commandline in grub. You can then run the **enstatus test** and **enstatus auth** commands to diagnose the errors. Take a screenshot or picture of the output from these commands to share with your enSite™ administrator or with enSite™ support staff. To edit the **settings.ini** file yourself, you can use **mount -o remount,rw /** to make the **settings.ini** file writable, and then use **nano settings.ini** to make changes to the **settings.ini** file.			

Table 3-2. enSite™ Server Shutdown Symptoms and Solutions (Sheet 2 of 2)

Observable Symptom	Error Condition	Potential Cause	Diagnosis and Repair
Server shuts down after 15 minutes of seemingly normal use.	The server is detecting an incorrect copy-protection key. Specifically, this machine's device ID no longer matches the device ID generated at the initial installation.	The hardware setup has changed from initial installation. This could be because new hardware was added, old hardware was removed or replaced, or existing hardware was rearranged (for example, **eth0** is now **eth1**).	From the command line, run the **enstatus test** command; it will show the confkey and ID. If the current device ID doesn't match the initial device ID, that mismatch is causing the problem. The original device ID was generated when the server was installed, and was provided on the customer's installation paperwork.
Notes: Before making a hardware change to the enSite™ server, contact the enSite™ Support Team, so that the team is aware of the change and can update your server's device ID. If you did not make an explicit hardware change, it is possible that the BIOS may have rearranged the order of the network interfaces, or may have rearranged the order of attached drives, or may have made other small changes that are generally harmless but may affect the device ID that is part of enSite™ copy protection. If the Ethernet ports were rearranged, try switching the interface **eth0** to **eth1**, and vice versa, to return them to their original configuration. Run **enstatus auth** after doing so, to see whether the generated device ID then matches the installed device ID. Remove attached drives if new ones were added, and run **enstatus auth** after doing so, to confirm that the generated device ID matches the installed device ID. If a hardware failure has occurred that requires a new hardware configuration, contact the Encore Support Team so that a new device ID or copy-protection key can be generated after you have finished the new hardware configuration.			
Server shuts down after 30 minutes of seemingly normal use.	The system does not detect the server's copy-protection key. Specifically, the copy-protection key is missing from the installed server, and the system assumes that the server has no copy protection.	Either the key was never installed, or the **settings.ini** file has been altered, resulting in the removal of the server's copy-protection key.	Check the syntax in the **settings.ini** file, and ensure that the key is present and properly noted, free from any syntax errors. Proper syntax is as follows: **key = [key string]**
Notes: Encore Networks, Inc., installs the server's copy-protection key during initial setup. If you run the **enstatus test** command and the confkey is blank, then changes have occurred in the **settings.ini** file; these will need to be corrected.			
Cannot run either of the **enstatus** commands.	The enstatus utility is not found.	The enstatus utility may have been accidentally deleted, or did not include **/usr/local/bin** in its path. Try **/usr/local/bin/enstatus** to access the enstatus utility.	The enstatus utility is installed by default into **/usr/local/bin**. If it is no longer present, it will need to be replaced.
Notes: If the **enstatus** utility is not present, it must be replaced in order to see the authentication information for your server.			