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Version control

Version	Description	Date
1.0	Initial draft	8.29.2012
2.0	Final draft	9.7.2012
2.1	Minor corrections	9.14.2012

Introduction

This document has been developed to assist customers with determining, verifying, and processing RMA requests. The document details the following aspects:

- Provides a high-level RMA workflow diagram.
- Details technical validation steps for customers to confirm hardware failures including instructions for appliance recovery in certain situations.
- Documents the process for customers to open Service Requests on the Infoblox Support portal for technical hardware failure validation including the hardware replacement workflow.

Activities

Customer

- Open Service Request with Infoblox Support to validate hardware failures.
- Provide details and symptoms of failure.
- Provide defective serial number and shipping details in Infoblox Service Request.

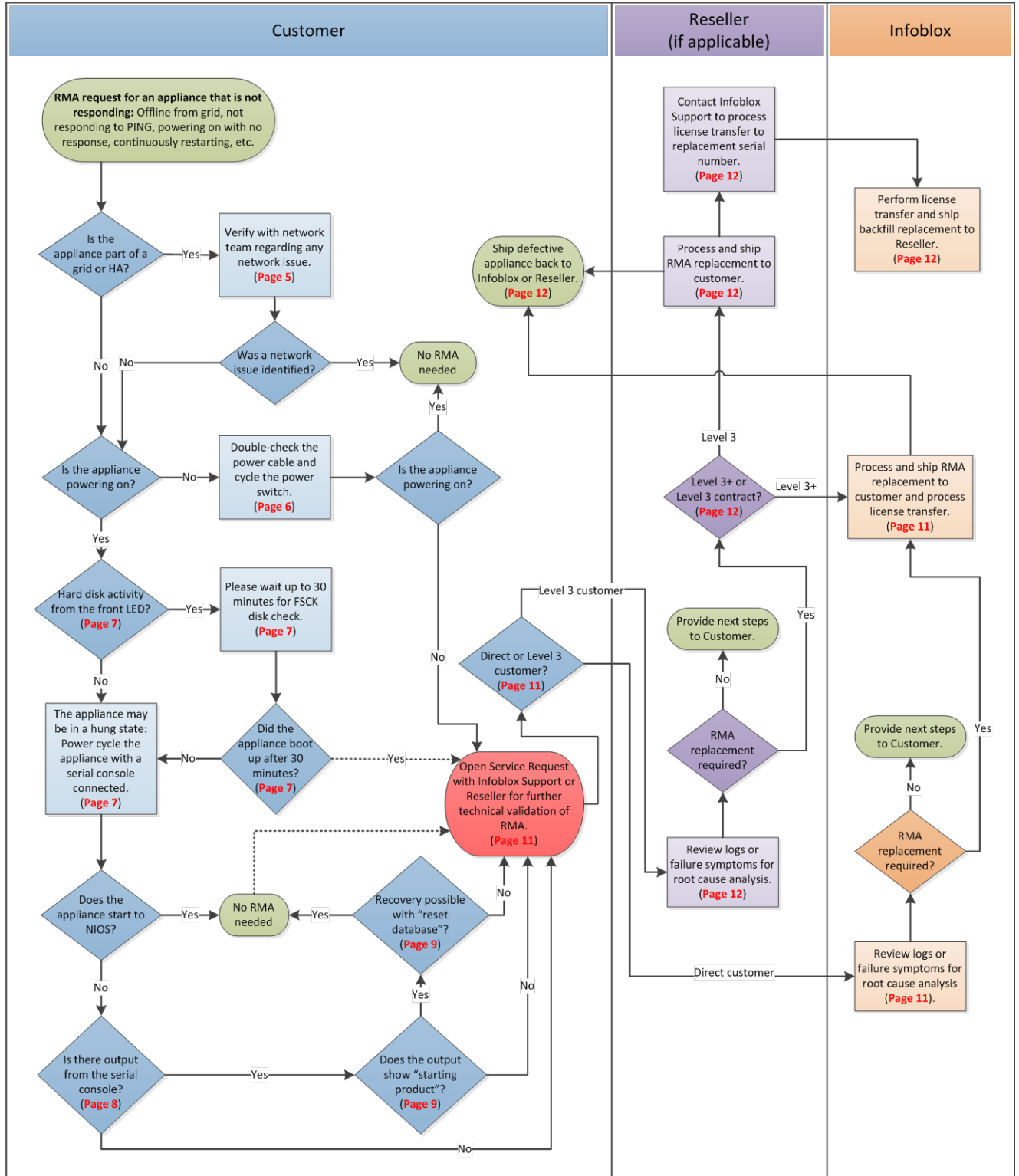
Reseller (if applicable for Level 3 contracts)

- Perform technical validation for hardware failures.
- Once validated and confirmed, provide RMA replacement.

Infoblox Technical Support

- Perform technical validation for hardware failures.
- Once validated and confirmed, provide RMA replacement.
- Process license transfers from defective appliance to replacement appliance.
- Perform failure analysis once defective appliance received.

RMA process workflow



NOTE: Please reference page numbers for more details. Dashed lines are optional processes.

Verifying external network issues

An appliance disconnecting from a grid or HA pair does not necessarily denote a hardware issue. We recommend the following steps to validate any external network issues.

For appliances that are single grid members (not configured in High Availability or HA mode):

NIOS uses port 2114 (UDP) for the initial VPN key exchange. Once the keys have been transmitted, NIOS uses 1194 (UDP) for grid communication. Verify that there are no connectivity issues by taking traffic captures, for example (for instructions with taking traffic captures from NIOS, please reference the available Admin Guides for your software release).

For appliances that are part of an HA pair:

The vast majority of HA issues involve configuration issues on switches that prevent proper HA communication to occur. For example, one of the nodes in an HA pair may suddenly go into a continuous HA restart loop. This node may have been working perfectly for some time and there were no changes in the network or switch port configurations in the recent past.

Console or LCD output that denotes constant HA restarts:

```
[2011/03/02 10:01:31.615] Infoblox system initializing...
[2011/03/02 10:01:32.615] LAN port IP 10.0.1.10, netmask 255.255.255.0, gateway 10.0.1.1
[2011/03/02 10:01:56.966] Starting services...
login:
[2011/03/02 10:02:12.435] System restart: HA restart...
```

What are the switch settings to be verified?

- Portfast should be enabled on all switch ports connected to an Infoblox device.
- Turn off trunking on all switch ports connected to an Infoblox device.
- Disable "port channel" on all switch ports connected to an Infoblox device.
- Match speed/duplex settings of the switch ports with the interface settings of the Infoblox device.
- Verify that all four interfaces of the HA pair are connected to the same VLAN.

Command to use for Cisco switches:

- Command for Cisco IOS to do all of the above is: `switchport host`
- Command for Cisco CatOS to do all of the above is: `set port host`

If you are not sure whether your Cisco switches are configured regarding the recommendation above, please run the commands above on all four switch ports (LAN/HA of both nodes) and check whether this stabilizes the HA. For other vendors please use equivalent configuration commands. **Please refer to the following KB articles for detailed information on the proper switch configuration to support HA: 11350, 10420, 10411, 11891, and 13411.**

Verifying power supply related issues

In very rare instances, the power cable may vibrate loose from the power supply. Therefore, we strongly suggest that remote staff attempt to re-connect the power cable and cycle the power switch.

If reseating the power cable and cycling the power switch does not correct the issue, then an RMA is required. When submitting details for the RMA request to Infoblox, please include any details regarding the statuses of the LED lights for any of the network cables (useful information for the failure analysis).

Verifying file system check and system hang state

The 'fsck' executable is an Operating System utility that is used to verify and repair a file system, which is a normal process and does not denote a hardware failure. NIOS automatically invokes 'fsck' at boot time if an inconsistent state is detected in the file system as a result of, for example, non-graceful shutdown, etc.

Invoking 'fsck' allows the system to repair itself, but this process may take up to 30 minutes.

Follow these steps to verify if the system has invoked 'fsck' or is in a hang state:

1. For example, if there was a non-user initiated power interruption, 'fsck' may be run automatically on the next boot sequence. If an appliance is non-responsive (e.g., powers on, but does not reconnect to the grid or respond to the remote console), remote staff may observe activity from the front hard drive LED light.
2. If there is activity with the front hard disk LED, it is recommended to allow the appliance to operate without disruption for up to 30 minutes. If the appliance is powered on, but there is no front hard drive LED activity, then, the appliance may be in a hang state.
3. If the appliance is in a hang state, the following symptoms may be observed:
 - No hard disk LED activity
 - LCD stuck on "Infoblox" logo and does not scroll with status information
 - Pressing the front LCD buttons do not trigger activity on the LCD
 - System may or may not respond to PING
4. While in the hang state, power cycle the appliance with a serial console connection.
 - If the appliance recovers after the power cycle, you may choose at this point to create a case with Infoblox Technical Support to identify the root cause. Otherwise, the appliance has been successfully recovered for normal operation.
 - If the appliance does not recover after the power cycle, verify the serial console output. If serial console output is available, the appliance may be recovered with the "reset database" command.
5. Please move to the next troubleshooting steps.

Verifying serial console output

Verifying serial console output helps to determine the current state of the appliance. In general, if the appliance provides serial console output, it can be recovered.

The Infoblox appliance has a male DB-9 console port on the front panel. You can log in to the appliance through this port and specify initial network settings using the Infoblox CLI.

IMPORTANT: Only a properly grounded USB-to-Serial dongle is allowed to connect to the serial console port. If the dongle is connected to a laptop, this laptop must be grounded properly as well. Failure to do so may result in damage to the serial console port of the Infoblox appliance. Infoblox is not responsible for such damage.

1. Connect a console cable from the console port of the management system to the console port of the Infoblox appliance.
2. Using a serial terminal emulation program such as Hilgraeve HyperTerminal (c) (provided with Windows (R) operating systems), launch a session. The connection settings are:
 - **Bits per second:** 9600
 - **Stop bits:** 1
 - **Data bits:** 8
 - **Flow control:** Xon/Xoff
 - **Parity:** None 3.
3. At this point, there should be output to the serial console. If there is no output, attempt to power cycle the appliance and validate the connection again.

Verifying proper startup and ability for “reset database” to recover

In certain circumstances like an external power outage or an appliance reboot, the NIOS database may enter an inconsistent state. While in this state, the appliance may hang during startup and the serial console output (specifically using a serial console cable or null model cable connected to the front of the appliance) may include the following messages:

- Fatal error during Infoblox startup
- Running DB catastrophic recovery, please wait
Catastrophic recovery failure

In these situations, an RMA is not required as the appliance can be fully recovered by running the “reset database” command at the serial console. The “reset database” command reinitializes the database for full recovery.

IMPORTANT: Please note that employing the following instructions with “reset database” will remove ALL data from the Infoblox appliance. Once rejoined to a fully functional grid or active peer of an HA pair, the node will download its database for recovery. For standalone configurations, ensure that you have a backup (taken prior to the issue) to restore from after the “reset database”.

Instructions to perform “reset database” for full recovery:

Assuming the appliance provides any serial console output, you can verify if the appliance can be recovered using the “reset database” command.

1. First, verify if the appliance can startup to NIOS (e.g., `starting product` message at the serial console). Connect to the serial console port on the device, and power cycle the device. If the appliance becomes hung at the `system BIOS shadowed` message for more than 10 minutes, then a “reset database” is not possible and an RMA is required.

```
Phoenix cME(tm) TrustedCore(tm) Server  
Copyright 1985-2004 Phoenix Technologies Ltd.  
All Rights Reserved
```

```
Infoblox Network Services Appliance  
CPU = Intel(R) Celeron(R) D CPU 2.93GHz  
FSB at 533MHz  
Intel(R) Extended Memory 64 Technology.
```

```
2047M System RAMS Passed  
256K Cache SRAM Passed  
System BIOS shadowed
```

If the serial console output passes `system BIOS shadowed` during startup, proceed to the next step.

2. After system goes through the initial boot-up messages, the following messages should be displayed (notice the `starting product` message):

```
.  
.  
/etc/rc.d/rc: executing /etc/rc.d/rc3 start  
/etc/rc.d/rc3: start normal operation  
/etc/rc.d/rc3: setting system umask  
/etc/rc.d/rc3: starting product  
  
Hit "Esc" and "Enter" now for Emergency prompt, or wait 5 seconds for login  
prompt.
```

NOTE: If the `starting product` message or prompt to enter the emergency prompt message do not appear, then an RMA is required. You may choose to power cycle the appliance again and repeat the steps. While opening the RMA, please be sure to include the serial console output.

3. At this point, within 5 seconds, hit both the "Esc" key and the "Enter/Return" key (if you waited too long, you must power cycle the appliance again). You will now be taken to the Emergency Prompt at which time you can type "reset database" to reset the system. After a successful reset from the Emergency Prompt, you can "exit" from the emergency prompt by entering the "exit" command, which will take you to the regular login prompt. At this point, the system configuration is completely reset to factory defaults and the database reinitialized.

```
Emergency> reset database  
  
WARNING: THIS WILL ERASE THE DATABASE ON THIS SYSTEM.  
  
ARE YOU SURE YOU WANT TO PROCEED? (y or n): y  
  
RESETTING THE DATABASE  
  
Initializing Database  
Emergency> exit  
  
Continuing with system startup...
```

After the reset, you must use the default username ("admin") and default password ("infoblox").

NOTE: If the "reset database" still results in the `Fatal error` during `Infoblox startup message`, then an RMA is required. You may choose to power cycle the appliance again and repeat the steps. While opening the RMA, please be sure to include the serial console output.

4. Once the appliance is recovered with the "reset database" command, a "set network" can be issued to rejoin the appliance to the grid. Please review the available Admin Guides for further details.
5. You may choose at this point to create a case with Infoblox Technical Support to identify the root cause of the system hang. Otherwise, the appliance has been successfully recovered for normal operation.

Instructions for Customers to open an Infoblox Service Request

For confirmation of hardware failure, Customers should create a Service Request online with relevant details for investigation by Infoblox or contact the appropriate Reseller (for Level 3 contracts). Please be sure to provide all details below to expedite the review. Infoblox Support or Resellers will work directly with Customers to validate the hardware failure before the replacement process is initiated.

Direct Infoblox customers:

To open a case for review, for Customers that have purchased appliances directly from Infoblox, please follow these instructions:

1. **[Action: Customer]** Navigate to the Support site and login using your iSupport credentials.
<http://support.infoblox.com>

NOTE:

- If you do not have a Support login, please refer to the **User registration instructions to obtain an iSupport login** section within this document (Page 13).
- Infoblox Support assumes that the individual creating the case is the technical contact if any follow up is needed to gather additional details. Please provide a separate contact in the case for technical follow up as needed.
- If the issue is critical (e.g., service outage situation), please call the Infoblox Technical Support team: (<http://www.infoblox.com/en/support/support-contacts.html>)

2. **[Action: Customer]** Once logged into the Infoblox Support site, create a Service Request by selecting the "Case management" link in the left pane. Once the iSupport page loads, select the "Support" tab at the top right.

NOTE: For further details with creating a case online, please reference the iSupport User Guide (http://ww2.infoblox.com/support/pdf/iSupport_userguide.pdf)

3. **[Action: Customer]** When creating the Service Request, please provide as much detail as possible. Minimally, please provide the following in the Service Request:
 - **Serial number of defective appliance**
 - **Software version**
 - **Failure symptoms (please be specific):** For example, if the appliance provides serial console output, please include the output in the case details. Provide all details in the problem description or add new case comment updates:
 - **Does the appliance power on?**
 - **If the appliance powers on, is there any serial console output? If yes, provide the output.**
 - **Does the LCD scroll (if applicable) or it is hung on the "Infoblox" logo?**
 - **Was a "reset database" possible to recover the appliance?**
 - **Desired shipping address and shipping contact (must include full name and phone number).**

4. **[Action: Infoblox]** Once the Service Request is submitted, Infoblox Support will review and following up with the Customer on next steps. If a hardware failure is confirmed, Infoblox will notify the Customer in the Service Request.
5. **[Action: Customer]** If an RMA replacement was provided, the Customer ships the defective appliance back to Infoblox.

Level 3/Level 3+ replacement workflow

The following steps provide a high-level summary of the replacement workflow. Your Reseller may define additional steps – please contact your Reseller for additional details.

1. **[Action: Customer]** Contacts the Reseller to confirm hardware failures by providing the defective serial number, software version, detailed failure symptoms, and desired shipping address and contact details.
2. **[Action: Reseller]** Once confirmed by your Reseller, a replacement is sent to the Customer. For Level 3+ contracts, the Reseller contacts Infoblox to ship a direct replacement.
3. **[Action: Reseller]** Reseller contacts Infoblox to process the replacement and transfer licenses.
4. **[Action: Infoblox]** Infoblox processes the license transfer and ship a backfill part to the Reseller (if applicable).

NOTE: The defective and replacement serial numbers are required by Infoblox to process the license transfer and to ship a backfill part to the Reseller (if applicable).

5. **[Action: Customer]** Returns the defective appliance to the Reseller or Infoblox as appropriate.

User registration instructions to obtain an iSupport login

iSupport login accounts are required to access the Infoblox case management system including access to downloads, license keys, install base information, etc. Only direct Infoblox customers are allowed to open cases online. Please follow the following steps to obtain a new iSupport login account.

Support ID (Organization Number): Please refer to your contract notification.

Instructions to request an iSupport account for approval:

1. Navigate to <http://support.infoblox.com>.
2. Select the “**Register User**” link.
3. Within the User Registration wizard, select the appropriate option.
4. Specify your **Organization Number** or **Support ID**.
5. Provide your personal information.
6. Select the “**Continue**” button to submit your request.

NOTE: Once submitted, the iSupport login account approval process takes up to 1 business day. Once the approval process is complete, an automated confirmation email will be sent. If you have an urgent request, please call Infoblox Technical Support.

Instructions to return a defective appliance

In general, all RMA replacements shipped from Infoblox include a pre-paid/pre-printed return label.

If the pre-printed UPS return label is missing, please use the following links to return a defective appliance.

- RMA return instructions (North America):
http://ww2.infoblox.com/support/Downloads/Customer_Downloads/Infoblox_Domestic_RMA_return_instruction.pdf
- RMA return instructions (International):
http://ww2.infoblox.com/support/Downloads/Customer_Downloads/Infoblox_International_RMA_return_instruction.pdf

References

- Infoblox Support website:
<http://www.support.infoblox.com/en/services/support/support-central.html>
- Infoblox Support contact information:
<http://www.support.infoblox.com/en/company/contact.html>
- iSupport user guide for creating cases online and accessing the knowledgebase (Navigate to the Infoblox Support website and select the portal user guide link):
<http://www.support.infoblox.com/en/services/support/support-central.html>
- RMA return instructions (North America):
http://ww2.infoblox.com/support/Downloads/Customer_Downloads/Infoblox_Domestic_RMA_return_instruction.pdf
- RMA return instructions (International):
http://ww2.infoblox.com/support/Downloads/Customer_Downloads/Infoblox_International_RMA_return_instruction.pdf

FAQ

- **How do I obtain a login to create a case online?**
Please reference **Page 13** in this document.
- **Is there a way to recover an Infoblox appliance?**
Yes, in certain circumstances, you may be able to use the “reset database” command. Please reference **Page 9** in this document.
- **How do I access the Infoblox Knowledge base?**
After logging into the Support website (<http://support.infoblox.com>), click the “Knowledge base” link in the left pane.
- **Instructions to replace a defective appliance**
If you need assistance with replacing a defective appliance, please refer to Knowledgebase Article 15733.