AVAGO
TECHNOLOGIES

LSI Storage Authority Lightweight Monitor

User Guide

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For a comprehensive list of changes to this document, see the Revision History.

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Chapter 1: Introduction

1.1 Overview

The Avago Lightweight Monitor (LWM) software provides server monitoring capabilities. The software monitors the status of the controller cards, virtual drives, drives, and other devices on the server. It alerts you of any issues that require immediate attention with system logs and real-time email notifications (based on the alert settings). For example, when the devices automatically go from an optimal state to a different state, such as a created virtual drive goes to a degraded state, the software gets those events from the controller. The software then sends a notification to you, using system logs and real-time email notifications based on different alert delivery methods.

1.2 System Requirements

1.2.1 Supported Operating Systems

This section details the supported operating systems (OS) for the Avago Lightweight Monitor. The following table provides the OS support matrix.

Table 1 Supported Operating Systems

Requirements	Description
Supported operating systems	■ Microsoft® Windows Server® 2008 R2 SP1 ■ Microsoft Windows Server 2008 SP2 ■ Microsoft Windows Server 2012 ■ Microsoft Windows® 7 ■ Microsoft Windows 8 ■ Red Hat® Enterprise Linux® 7.0 (64 bit) ■ SLES 11 SP3 (32 bit and 62 bit)

1.3 Alert Delivery Methods Based on Severity Levels

Based on the severity level (Fatal, Critical, Warning, and Information), the default alert delivery methods change. By default, each severity level has one or more alert delivery methods configured for it, as shown in the following table. To modify these alert delivery methods, see Section 4.1, Changing the Default Alert Delivery Method for Each Severity Level. The software supports the following alert delivery methods:

■ System log
■ Email notification

Table 2 Severity Level and Default Alert Delivery Methods

Severity Level	Default Alert Delivery Method	Description
Fatal	System log and email notification	A component has failed, and data loss has occurred or will occur.
Critical	System log	A component has failed, but there is no data loss.
Warning	Warning	Some component might be close to a failure point.
Information	System log	Informational message. No user action is necessary.

1.3.1   System Log

By default, the system log is maintained in the local system log (syslog). Depending on the operating system that you are using, the system log is maintained in the following syslog locations:

■   Windows – **Event Viewer > Windows Logs> Application**.

■   Linux – `/var/log/messages`.

1.3.2   Email Notification

By default, fatal events are notified through system log and email notifications. You can configure this feature.

Based on your configuration, the email notifications are delivered to your inbox in a format as shown in the following figure. The email notification contains information like event's description, system information, and the controller's image details. Using this additional information, you can find out the system and the controller on which the fatal error occurred.

Figure 1 Email Notification Format

```
From monitor@server.com  Thu Apr 25 05:38:58 2002
Return-Path: <monitor@server.com>
Received: from 135.24.227.207 (linux-7kul.lsi.com [135.24.227.207])
        by dhcp-135-24-227-243.lsi.com (8.13.8/8.13.8) with ESMTP id g3P08v6T031
181;
        Thu, 25 Apr 2002 05:38:57 +0530
Date: Mon, 5 Oct 2015 17:18:09 +0530 (IST)
From: monitor@server.com
To: root@dhcp-135-24-227-243.lsi.com, hema@dhcp-135-24-227-243.lsi.com
Message-ID: <1290884027.3519.1444045689147.JavaMail.root@linux-7kul.lsi.com>
Subject: Warning | Event occured on: linux-7kul.lsi.com
MIME-Version: 1.0
Content-Type: text/plain;charset="UTF-8"
Content-Transfer-Encoding: 7bit

Controller ID:  0    PD Predictive failure:   Port 4 - 7:1:19
Event ID:96
Generated On: Mon Oct 05 17:18:19 IST 2015

System Details---
Server IP:135.24.227.207
OS name:Linux
OS Version:3.0
Driver Name:megaraid_sas
Driver Version:06.810.07.00

Image Details---
BIOS Version : 6.30.03.0_4.17.08.00_0x06130200
Firmware Package Version: 24.12.0-0011
Firmware Version : 4.620.00-4804
```

The Lightweight Monitor supports one of the SMTP authorization protocols called Auth Login. If your SMTP server is configured with Auth Login support, then you need to enable the Lightweight Monitor with login-specific information. For more information, Section 3.1, Setting Up the Email Server.

By default, the Lightweight Monitor sends the email notification to the configured recipients. The recipients' information is based on your SMTP configuration. You can configure the SMTP configuration to add one or more recipient addresses. For more information, see Section 3.2, Adding the Email Addresses of Recipients of Alert Notifications.

1.3.3 Time Synchronization

A mismatch between the controller time settings and the OS time setting is possible during daylight savings time (DST) or known lower layer limitations. In this case, the timestamp will be different on I/O. The Lightweight Monitor resolves this limitation by synchronizing the OS time and the controller time on an hourly basis.

NOTE   This is a default feature of the Lightweight Monitor software. This
feature is not configurable.

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Installing the LSI Storage Authority Software on the Microsoft Windows Operating System
through the LSA Master Setup

Chapter 2: Installing the Lightweight Monitor

There are two ways to install the Lightweight Monitor:

- Through the LSA Master Setup
- Through the Lightweight Monitor Standalone Installation.

2.1 Installing the LSI Storage Authority Software on the Microsoft Windows Operating System through the LSA Master Setup

Perform the following steps to install the LWM through the LSI Storage Authority Master Setup.

1. Run the LSI Storage Authority `setup.exe` file.

    The **InstallShield Wizard** dialog appears.

2. Click **Next**.

    The **License Agreement** dialog appears.

3. Read the agreement and choose the **I accept the terms in the license agreement** radio button, and click **Next**.

    The **Customer Information** dialog appears.

4. (optional) Enter your user name and the organization name, and click **Next**.

    The **Port Configuration Settings** dialog appears.

5. Click **Next** if you want to proceed with the default port configuration settings. Otherwise, enter the port details in the **Web Server Port** field and the **LSA Server Port** field and click **Next**. Make sure that specified port numbers are available for use. You can edit this information after installation also.

    The **Destination Folder** dialog appears with the default file path.

6. Click **Change** to change the file path. Browse the file path, and click **OK** and then click **Next**.

    The **Setup Type** dialog appears.

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Figure 2 Setup Type Dialog
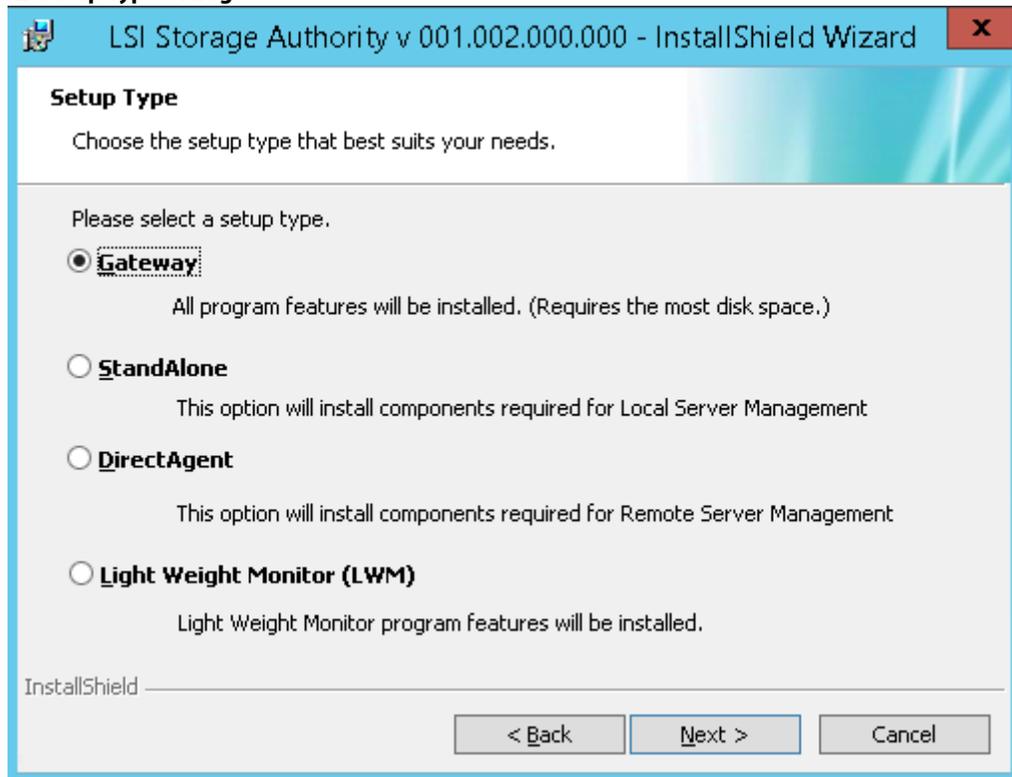
7. **Select Light Weight Monitor (LWM)**.

8. Click **Next**. The **Ready to Install the Program** window appears. Click **Next**.

   Depending on the setup type you have selected, the **InstallShield Wizard Completed** dialog appears.

9. (optional) Select the **Show the Windows Installer log** check box to view the windows installer log file.

   The log file (`LSA_install.log`) is created in the same folder from where the `setup.exe` command is executed.

10. Click **Finish**.

    The Lightweight Monitor is successfully installed.

2.2   Installing the Lightweight Monitor on Windows Operating System Through the LSA Standalone Installation

Perform the following steps to install LWM through the LSI Storage Authority Master Setup on the Windows Operating System.

1. Download and extract the installation package.

2. Log on to the system with administrator privileges.

3. Run the `setup.exe` file.

4. Follow the on-screen instructions to complete the installation procedure.

The LWM agent is installed in the following directory path:

<ProgramFilesFolder>`\LSI\LSIStorageAuthority`

2.3 Uninstalling Lightweight Monitor Software on the Windows Operating System

You can uninstall the Lightweight Monitor software either through the **Control Panel** or through the application shortcut in the **Start** menu.

Uninstalling the Software through the Application Shortcut from the Start Menu

1. Select **Start > All Programs > LSI > LSIStorageAuthority > Uninstall LSA**.

The Lightweight Monitor package and all of the installed files are removed.

Uninstalling the Software through the Control Panel

1. If you are using the Microsoft Windows Server 2008 or the Microsoft Windows Server 2012 operating systems, select **Add/Remove Programs** from the **Control Panel**. If you are using the Microsoft Windows 7 and Microsoft Windows 8 operating systems, select **Programs and Features** from the **Control Panel**.
2. Select the Lightweight Monitor software from the listed programs and click **Uninstall**.

The Lightweight Monitor package and all of the installed files are removed.

2.4 Installing Lightweight Monitor on the Linux Operating System

1. Log on to the system with root privileges.
2. Run the following command:

```
rpm -ivh LightWeightMonitor-<x.xx.xx-xx>
```

Where: *x.xx.xx-xx* is the Lightweight Monitor version number.

The LWM agent is installed in the following directory path:

```
cd/opt/lsi/LSIStorageAuthority/
```

2.5 Uninstalling the Lightweight Monitor on the Linux Operating System

1. Run the following command to search for the Lightweight Monitor package.

```
rpm -qa | grep Light*
```

2. Select the Lightweight Monitor package from the listed programs and run the following command to uninstall the package.

```
rpm -e LightWeightMonitor-<x.xx.xx-xx>
```

Where *x.xx.xx-xx* is the Lightweight Monitor version number.

Chapter 3: Configuring Lightweight Monitor

This section provides information on how to configure the LWM agent.

> **NOTE**   You must only edit the `config-current.JSON` file to configure the email server and alert settings. This file has the write permission. You must not edit any other files in the package.

> **NOTE**   If you need to revert back to the original settings, you must copy the contents of the `config-default.JSON` file to the `config-current.JSON` file. This will restore the configuration settings to its original state.

3.1   Setting Up the Email Server

Perform the following steps to configure the email server.

1. Open the `config-current.JSON` file in the following directories:
   — Windows OS: `<ProgramFilesFolder>\LSI\LSIStorageAuthority\conf\monitor`.
   — Linux OS: `cd /opt/lsi/LSIStorageAuthority/conf/monitor`.

2. Make the following changes in the `"email"`sections of the files:
   — Windows OS and Linux OS:

   Default Configuration:

```
"email":
  {
      "isActive": true,
      "type": "EMAIL",
      "sender": "lsa-monitor@server.com",
      "server": "127.0.0.1",
      "to":
          [
           "root@localhost"
          ],
      "authentication":
          {
```

```
            "type": "NONE"
        }
    }
```

Changes to be Made

Edit the `server` field with the IP address of your SMTP server. For example, `"server":` `"135.24.227.243"`.

3. If on your SMTP server, the Auth Login feature is enabled and if you want to enable this feature in the LWM agent, enter the following authentication details:

   — Windows OS and Linux OS:

   Default Configuration:

```
"email":
    {
        "isActive": true,
        "type": "EMAIL",
        "sender": "lsa-monitor@server.com",
        "server": "127.0.0.1",
        "to":
            [
             "root@localhost"
            ],
        "authentication":
          {
            "type": "NONE"
          }
    }
```

Changes to be Made

Enter the authentication details in the user name and password fields and make the following changes in the `"authentication"` field.

```
        "username": "lsi",
        "password": "xxxx",
        "authentication":
          {
            "type": "AUTH-LOGIN"
          }
```

Where: `lsi` represents SMTP server's user name and *xxxx* represents the Base64 converted SMTP configuration password.

4. Save the `config-current.JSON` file.

5. Perform the following steps to restart the Lightweight Monitor services for the changes to take effect:
   — Windows OS:
      a. In the command prompt, type the following command to stop the Lightweight Monitor service:

      ```
      sc stop LSAService
      ```

      b. Type the following command to start the Lightweight Monitor service:

      ```
      sc start LSAService
      ```

   — Linux OS:
      Run the following command:

      ```
      /etc/init.d/LSISASH restart
      ```

3.2 Adding the Email Addresses of Recipients of Alert Notifications

Perform the following steps to add email addresses of recipients of the alert notifications.

1. Open the `config-current.JSON` files in the following directories:
   — Windows OS: `<ProgramFilesFolder>\LSI\LSIStorageAuthority\conf\monitor`
   — Linux OS: `cd/opt/lsi/LSIStorageAuthority/conf/monitor`

2. Make the following changes in the following sections of the files:
   — Windows OS and Linux OS:
      In the `"email"` section and `"to"` field, add your email ID. You can add multiple email addresses by separating them with commas. For example,

   ```
   "to": [ xxx@xx.com, abc@zyz.com, ... ]
   ```

      Where: `xxx@xx.com` or `abc@zyz.com` represents your email ID.

3. Save the `config-current.JSON` file.

4. Perform the following steps to restart the Lightweight Monitor services for the changes to take effect:
   — Windows OS:
      a. Start the command prompt.
      b. Type the following command to stop the Lightweight Monitor service:

   ```
   sc stop LSAService
   ```

      c. Type the following command to start the Lightweight Monitor service:

   ```
   sc start LSAService
   ```

   — Linux OS:
      Run the following command:

   ```
   /etc/init.d/LSISASH restart
   ```

Chapter 4: Configuring Alert Settings

4.1 Changing the Default Alert Delivery Method for Each Severity Level

Perform the following steps to change the default alert delivery methods for each severity level.

1. Open the `config-current.JSON` file in the following directories:
   — Windows OS: `<ProgramFilesFolder>\LSI\LSIStorageAuthority\conf\monitor`
   — Linux OS: `cd/opt/lsi/LSIStorageAuthority/conf/monitor`

2. For example, if you want to edit the default alert delivery method for the warning severity level from the system log to both the system log and email notification, make the following changes:
   — Windows OS and Linux OS:

```
{
    "warning": [
      "systemlog",
      "email"
    ]
}
```

3. Save the `config-current.JSON` file.

4. Perform the following steps to restart the Lightweight Monitor services for the changes to take effect:
   — Windows OS:
      a. Start the command prompt.
      b. Type the following command to stop the Lightweight Monitor service:

```
sc stop LSAService
```

      c. Type the following command to start the Lightweight Monitor service:

```
sc start LSAService
```

   — Linux OS:
      Run the following command:

```
/etc/init.d/LSISASH restart
```

4.2 Changing the Alert Delivery Method for a Specific Event

Perform the following steps to change the alert delivery method for a specific event.

1. Open the `config-current.JSON` file in the following directories:
    — Windows OS: `<ProgramFilesFolder>\LSI\LSIStorageAuthority\conf\monitor`
    — Linux OS: `cd/opt/lsi/LSIStorageAuthority/conf/monitor`

2. Make the following changes to the events [] array.
    — Windows OS and Linux OS:

```
"events": [
    {
       "typeId": 4,
       "severity": "INFO",
       "actions": [
            "email"
       ]
}
]
```

3. Save the `config-current.JSON` file.
4. Perform the following steps to restart the Lightweight Monitor services for the changes to take effect:
    — Windows OS:
        a. Start the command prompt.
        b. Type the following command to stop the Lightweight Monitor service:

```
sc stop LSAService
```

        c. Type the following command to start the Lightweight Monitor service:

```
sc start LSAService
```

    — Linux OS:
        Run the following command:

```
/etc/init.d/LSISASH restart
```

4.3   Changing the Severity Level for a Specific Event

Perform the following steps to change the severity level for a specific event.

1. Open the `config-current.JSON` file in the following directories:
    — Windows OS: `<ProgramFilesFolder>\LSI\LSIStorageAuthority\conf\monitor`
    — Linux OS: `cd /opt/lsi/LSIStorageAuthority/conf/monitor`

2. Make the following changes to the `events []` array.
    — Windows OS and Linux OS:

```
"events": [
        {
           "typeId": 4,
           "severity": "CRITICAL",
           "actions": [
                "global"
           ]
        }
```

3. Save the `config-current.JSON` file.
4. Perform the following steps to restart the Lightweight Monitor services for the changes to take effect:
   — Windows OS:
     a. Start the command prompt.
     b. Type the following command to stop the Lightweight Monitor service:

```
sc stop LSAService
```

     c. Type the following command to start the Lightweight Monitor service:

```
sc start LSAService
```

   — Linux OS:
     Run the following command:

```
/etc/init.d/LSISASH restart
```

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