Oracle® Auto Service Request

Security White Paper

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This document explains the technical aspects of the Oracle Auto Service Request (ASR) service that automates the Oracle Support process by using fault event telemetry from your qualified ASR hardware products to initiate a Service Request.

The following topics are described:

1 Introduction to Oracle Auto Service Request (ASR)

Auto Service Request is a feature that automates the Support Services process by using fault event telemetry from your qualified Oracle hardware products to initiate a service request. The software infrastructure detects faults at your site and forwards the telemetry data to systems at Oracle for analysis and service request generation. This software-only solution enables you to self-provision and configure the software to enable ASR on your ASR-capable products. Auto Service Request is included with Oracle Premier Support for Systems and Hardware Warranty contracts.

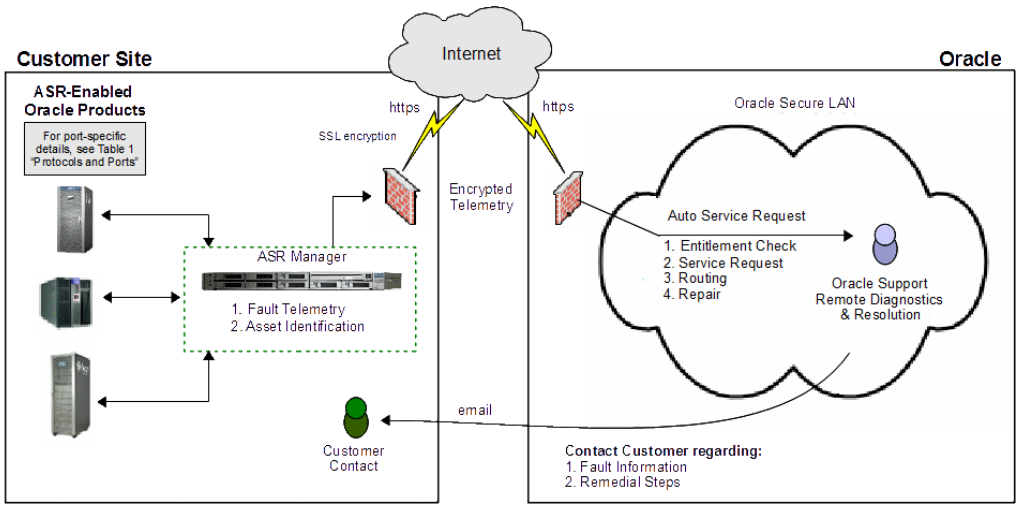
All of the systems that compose the Auto Service Request infrastructure have been built to provide confidentiality, integrity and availability of data. The Auto Service Request security strategy has been designed with multiple layers of encryption, authorization, access controls and data security, to ensure that organizational data is protected.

There are several ASR implementations for various Oracle products. This white paper refers specifically to the ASR Manager software which implements ASR for Oracle servers and engineered systems. For other ASR implementations, please refer to the specific product documentation.

2 Oracle ASR Architecture

The ASR solution is delivered to organizations through a number of interconnected platforms and systems. These are all built with a focus on security and use defense-in-depth to provide multiple layers of protection. Figure 1 provides a high-level overview of the overall architecture of the solution.

Figure 1 Oracle ASR Architecture



3 Auto Service Request Infrastructure

At the heart of the Auto Service Request solution lies the core backend infrastructure hosted within oracle.com. The core ASR infrastructure utilizes user account credentials for validation of users, and digitally-signed and encrypted traffic for validation of systems. All of the systems within the Auto Service Request infrastructure require real-time access to the core infrastructure to process alarm and telemetry messages received from end-devices, and to perform authentication lookups.

The core backend infrastructure is a mixture of systems, user interfaces, databases, and web services that are managed and maintained by Oracle. All data stored by ASR is segregated by organization in a multi-tenancy security model, and this security is enforced through multiple layers of API-based access and authorization controls. Data stored within the core infrastructure includes telemetry event data, registration data, and ASR assets activation data (including host names, serial numbers, and service requests data).

> **Note:** ASR asset IP addresses are not included in the ASR event messages.

There is no direct, outside access to the data stores of the Auto Service Request system. All access requests are validated in real-time against the ASR authentication system and pass through multiple layers of security and validation, before being granted access to data elements (for more information, see the next section, Authentication Infrastructure).

4 Authentication Infrastructure

All requests to the Auto Service Request infrastructure, whether system-generated or human-generated, must pass through multiple layers of business logic and authentication checks in order to gain access to telemetry data.

After passing through perimeter network security measures, requests are first analyzed for proper adherence to system API calls. Requests that use an improper syntax, improperly formatted requests, or requests with a payload that violates prescribed boundaries are immediately discarded at the outermost layer.

If the incoming request is an approved format, the authentication credentials provided with the request are immediately verified against the Oracle Single Sign On (SSO) database for validation. If the credentials presented are authenticated successfully, the request is then compared against the authorization models currently within the system to make sure that the user or system (although authenticated in their identity) has the appropriate level of authorization to perform the request that has been submitted.

5 ASR Manager Overview

Within an organization's data center, the ASR Manager is a software solution responsible for receiving telemetry messages from ASR assets, delivering them to the ASR core infrastructure and acting as a gatekeeper for incoming fault event messages.

ASR Manager supports a flexible deployment model, with multiple instances deployable to meet the needs of a single organization (if needed to address size or geographic diversity concerns). Upon first initialization of the ASR Manager, the organization will register the system with the Auto Service Request core infrastructure and perform a private/public encryption key exchange. These 1024-bit RSA keys are used for signing all future messages (both request and response) of the ASR Manager in order to provide authentication and non-repudiation of messages.

Note: The `transport.oracle.com` SSL/TLS (Secure Sockets Layer/Transport Layer Security) communication uses an RSA 2048-bit key, though the initial ASR registration generates 1024-bit RSA keys for signing messages.

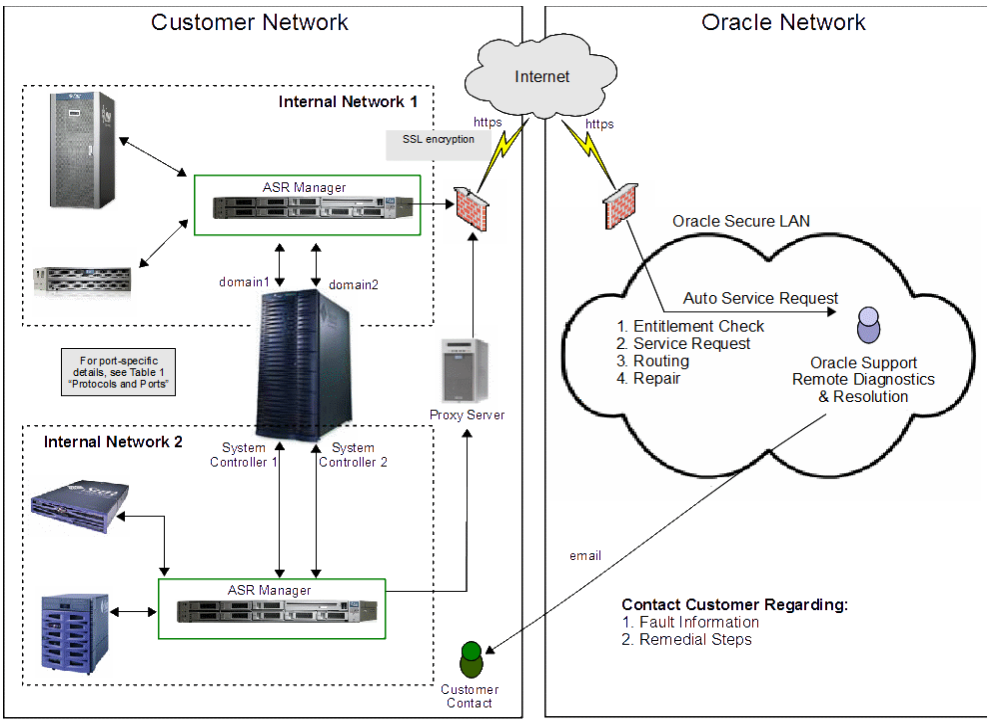
The version of SSL/TLS used depends on the Java version installed on the ASR Manager server:

- Java 6, 7: TLSv1
- Java 8: TLSv1.2

ASR Manager can be deployed in a number of ways within an organization to meet security compliance requirements (for example, within the end-customer's DMZ or within a trusted network). This flexibility allows all telemetry reception within the organization's environment to be compliant with their internal security policies and any necessary compliance requirements.

Figure 2 shows different ASR deployment options in a customer network. The simplest option is to have one ASR Manager host which has internet access and can connect to all the Oracle product domains and system controller network interfaces.

Figure 2 ASR Deployment



It is also possible to deploy multiple ASR Managers if needed. For example, if a server's system controllers are on a separate network from the domains, it is possible to use two ASR Managers, one on the domain network and one on the system controller network.

The ASR Manager requires a direct or proxied Internet connection. The ASR configuration process (`asr register` command) prompts for the proxy server information (hostname/IP address, username and password, if required). The proxy username and password is stored in the ASR Manager's local database. The proxy password is stored using AES 128-bit encryption.

When activating the ASR assets from the ASR Manager, the ASR Manager retrieves the product identity (serial number, product name, hostname). Some ASR assets use the Service Tags HTTP listener running on port **6481**. Other ASR assets send the product identity information to the ASR Manager via an XML message. The ASR Manager periodically retrieves the product identity from the Service Tags HTTP listener to check for any changes, such as host name changes, and updates the ASR infrastructure at Oracle. If Service Tags does not respond, then there is no update.

Note: Port 6481 is also used during post activation for system validations during heartbeat failures.

When a telemetry message has been received, the ASR Manager performs the operations (such as FMA event enrichment which involves an snmp get call from the ASR Manager to an ASR asset, and event normalization) to validate and suppress an alarm. If a telemetry message passes through the ASR Manager and the message should be sent to the Auto Service Request core infrastructure for processing, then the

message is encoded in an XML data structure and sent to the Auto Service Request core infrastructure (transport.oracle.com) via HTTPS (port 443).

Table 1 Protocols and Ports

Source	Destination	Protocol	Port	Description
ASR Asset	ASR Manager	http/https	*user defined*	For sending Solaris 11 ASR telemetry to the ASR Manager.
ASR Manager	ASR Backend (Oracle) transport.oracle.com	https	443	For sending ASR registration events, asset activation requests, fault event telemetry, and diagnostic data to Oracle. For obtaining ASR Manager software and fault rule updates from Oracle. transport.oracle.com SSL uses RSA 2048-bit key.
ASR Manager	ASR Asset	http	6481	Service Tag listener for asset activation and periodic asset check for asset identity [hostname, serial number, product name] (Solaris 10, ILOM SNMP and M-Series XSCF only).
ASR Asset	ASR Manager	snmp udp	162	For sending fault events to the ASR Manager.
ASR Manager	ASR Asset	snmp (get) udp	161	FMA enrichment for getting additional diagnostics information (Solaris 10 and M-Series XSCF only).

6 ASR Manager Processing of Events from the Oracle Network

ASR Manager has the ability to receive requests from the Auto Service Request infrastructure (Oracle Network). Examples of use include getting a Service Request (SR) number back to ASR Manager, performing an Auto Update of the ASR Manager software, and gathering and sending a diagnostic log for troubleshooting ASR Manager issues.

How does this work? All of these activities are initiated by the ASR Manager, outbound, HTTPS (port 443) to `transport.oracle.com`. The ASR Manager is configured to periodically poll the end point to determine if there are any outstanding requests. When one exists, the ASR Manager will pull the event, process it, and perform the appropriate action.

For example, in the case of gathering a diagnostic log, the ASR Manager polls the end point and finds a request outstanding. It pulls this event and processes it locally at the ASR Manager. The ASR Manager determines that the event is requesting a diagnostic. It in turn runs a script to gather the information and sends the diagnostic outbound, HTTPS (port 443) back to transport.oracle.com to complete the action.

The embedded polling and subsequent associated processing can be turned off at the ASR Manager at the customer's discretion.

7 Auditing

Throughout all levels of the Oracle Auto Service Request solution, audit capability has been engineered into as many functions as possible in order to provide internal accountability for actions taken within the system. The ASR Infrastructure and the ASR Manager provide detailed auditing of all actions that take place across the platform.

When the ASR Manager sends or attempts to send a message about an ASR asset, that message and its corresponding status is included in an audit log in the following directory:

```
/var/opt/asrmanager/log/auditlog
```

Each day, a new audit log file is created to collect all unique activity from the ASR Manager. By default, a maximum of 30 days of log files are maintained. After 30 days, the oldest log file is deleted.

You can use these logs to perform troubleshooting analysis on your qualified ASR assets. A typical log file summarizes all ASR activity for any ASR asset associated with the ASR Manager. Duplicate activity for a single asset is not recorded. For example, if a message from the ASR Manager fails to be sent to the Oracle ASR Infrastructure, then each retry attempt will not be recorded in the log.

By default, ASR Audit Logging is enabled.

Some organizations have a network security policy that requires them to validate the information that would be sent to Oracle via ASR Manager before implementing. The ASR Manager audit log feature can be used to meet this requirement:

1. Install and register ASR Manager
2. Activate one or more ASR assets
3. Execute the `disable_asr_manager` command.

   Messages are not sent to Oracle ASR Infrastructure, but are logged in the audit log.
4. Review the ASR Manager messages in the audit log during the evaluation period.
5. Execute the `enable_asr_manager` command to allow future ASR Manager messages to be sent to Oracle.

Refer to the ASR Manager User's Guide for details:

http://docs.oracle.com/cd/E37710_01/install.41/e18475/ch4_asr_enviro_admin.htm#ASRUD343

8 Communication Reliability

The ASR Manager and ASR Manager Relay will attempt to deliver fault event messages to Oracle indefinitely. If the ASR Manager experiences a network communication failure with `transport.oracle.com`, then it retries sending the fault event message, waiting a random time between 1 and 5 minutes between attempts.

Other ASR Manager messages, such as heartbeats and asset activation/deactivation, are retried three times.

9 ASR Manager Diagnostics

To support ASR Manager installation and configuration problems, the ASR Manager can generate a diagnostic file and send it to Oracle Support.

You can manually run the ASR Manager diagnostics, or you can choose to allow Oracle Support engineers to remotely request the diagnostics. The ASR Manager diagnostics file includes IP addresses of ASR assets which are useful in resolving problems.

Refer to Global Customer Support Security Practices for details about how Oracle manages and protects your data:

http://www.oracle.com/us/support/policies

10 Examples of ASR Messages

The following are examples of XML messages that the ASR Manager sends to Oracle when qualified fault events occur:

Example 1 X4100 Server SNMP Trap

```
<message xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:noNamespaceSchemaLocation="message.xsd">
  <site-id>asrX4100</site-id>
  <host-id>asrX4100</host-id>
  <message-uuid>0x8FF90D8D3F05E887A5752362B8E63A2E</message-uuid>
  <message-time timezone="US/Mountain">2009-02-06T08:31:05</message-time>
  <system-id>12345679</system-id>
  <asset-id>12345679</asset-id>
  <product-name>X4100</product-name>
  <event>
    <primary-event-information>
      <message-id>1.3.6.1.4.1.42.2.175.103.2.0.19</message-id>
      <event-uuid>0xB7F7EEF6C020167FCE33FD1AA3C0CC45</event-uuid>
      <event-time timezone="US/Mountain">2009-02-06T08:31:05</event-time>
      <severity>NA</severity>
      <component>
        <hardware-component>
          <name>NA</name>
        </hardware-component>
      </component>
      <summary>NA</summary>
      <description>NA</description>
      <additional-information name="receiver_id">ASR-2.0</additional-information>
      <payload name="snmp" type="v2c" category="ILOM">
```

```
        <raw-event>
          <varbinding1 name=".1.3.6.1.2.1.1.3.0" type="67"><![CDATA[59831]]>
          </varbinding1>
          <varbinding2 name=".1.3.6.1.6.3.1.1.4.1.0"
          type="6"><![CDATA[.1.3.6.1.4.1.42.2.175.103.2.0.19]]></varbinding2>
          <varbinding3 name=".1.3.6.1.4.1.42.2.175.103.2.1.1.0" type="4" />
          <varbinding4 name=".1.3.6.1.4.1.42.2.175.103.2.1.14.0"
          type="4"><![CDATA[1762TH2-0636010618]]></varbinding4>
          <varbinding5 name=".1.3.6.1.4.1.42.2.175.103.2.1.15.0" type="4" />
          <varbinding6 name=".1.3.6.1.4.1.42.2.175.103.2.1.2.0"
type="4"><![CDATA[/
          SYS/FT0/FM0/F0/SPEED]]></varbinding6>
          <varbinding7 name=".1.3.6.1.4.1.42.2.175.103.2.1.3.0"
          type="2"><![CDATA[2]]></varbinding7>
          <varbinding8 name=".1.3.6.1.4.1.42.2.175.103.2.1.4.0"
          type="4"><![CDATA[3000.000000]]></varbinding8>
          <varbinding9 name=".1.3.6.1.4.1.42.2.175.103.2.1.5.0"
          type="4"><![CDATA[2000.000000]]></varbinding9>
          <varbinding10 name=".1.3.6.1.4.1.42.2.175.103.2.1.9.0"
type="4"><![CDATA[Lower
          Non-recoverable going low]]></varbinding10>
          <varbinding11 name=".1.3.6.1.4.1.42.2.175.103.2.1.10.0"
          type="6"><![CDATA[.1.3.6.1.2.1.47.1.1.1.1.2.12]]></varbinding11>
          <varbinding12 name=".1.3.6.1.4.1.42.2.175.103.2.1.13.0"
          type="2"><![CDATA[2]]></varbinding12>
        </raw-event>
      </payload>
    </primary-event-information>
  </event>
</message>
```

Example 2 FMA Event

```
<message xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:noNamespaceSchemaLocation="message.xsd">
  <site-id>HOSTID1</site-id>
  <host-id>HOSTID1</host-id>
  <message-uuid>0x8A73E36AABA7A9D828FA915E68EB576E</message-uuid>
  <message-time timezone="Pacific Standard
Time">2008-05-15T22:39:46</message-time>
  <system-id>ASSETSERIAL1</system-id>
  <asset-id>ASSETSERIAL1</asset-id>
  <product-name>T5240</product-name>
  <event>
    <primary-event-information>
      <message-id>SUN4V-8000-E2</message-id>
      <event-uuid>c4dc3f01-820f-6f55-bd23-e157ab53cf21</event-uuid>
      <event-time timezone="Pacific Standard
Time">2008-05-15T22:39:46</event-time>
      <severity>Critical</severity>
      <component>
        <hardware-component>
          <name>MEMORY</name>
        </hardware-component>
      </component>
      <summary>Uncorrectable memory error</summary>
      <description>One or more uncorrectable memory errors occurred.</description>
      <knowledge-link>http://sun.com/msg/SUN4V-8000-E2</knowledge-link>
      <payload name="snmp" type="v2c">
```

```
        <raw-event>
          <varbinding1 name=".1.3.6.1.2.1.1.3.0" type="67"><![CDATA[37840012]]>
          </varbinding1>
          <varbinding2 name=".1.3.6.1.6.3.1.1.4.1.0"
          type="6"><![CDATA[.1.3.6.1.4.1.42.2.195.1.7.0.1]]></varbinding2>
          <varbinding3 name=".1.3.6.1.4.1.42.2.195.1.1.1.2"
type="4"><![CDATA[c4dc3f01-
          820f-6f55-bd23-e157ab53cf21]]></varbinding3>
          <varbinding4 name=".1.3.6.1.4.1.42.2.195.1.1.1.3"
type="4"><![CDATA[SUN4V-8000
          -E2]]></varbinding4>
          <varbinding5 name=".1.3.6.1.4.1.42.2.195.1.1.1.4"
type="4"><![CDATA[http://
          sun.com/msg/SUN4V-8000-E2]]></varbinding5>
          <varbinding6 name=".1.3.6.1.6.3.18.1.3.0" type="4"><![CDATA[1.2.3.4]]>
          </varbinding6>
          <varbinding7 name=".1.3.6.1.6.3.18.1.4.0" type="4"><![CDATA[public]]>
          </varbinding7>
          <varbinding8 name=".1.3.6.1.4.1.42.2.195.1.1.1.5.36.99.52.100.99.51.102.

48.49.45.56.50.48.102.45.54.102.53.53.45.98.100.50.51.45.101.49.53.55.97.98.
          53.51.99.102.50.49" type="4"><![CDATA[fmd:///module/cpumem-diagnosis]]>
          </varbinding8>
          <varbinding9
name=".1.3.6.1.4.1.42.2.195.1.1.1.6.36.99.52.100.99.51.102.48.

49.45.56.50.48.102.45.54.102.53.53.45.98.100.50.51.45.101.49.53.55.97.98.
          53.51.99.102.50.49" type="4"><![CDATA[Sat May 10 10:22:31 PDT 2008]]>
          </varbinding9>
          <varbinding10
name=".1.3.6.1.4.1.42.2.195.1.1.1.7.36.99.52.100.99.51.102.48.

49.45.56.50.48.102.45.54.102.53.53.45.98.100.50.51.45.101.49.53.55.97.98.53.
          51.99.102.50.49" type="66"><![CDATA[2]]></varbinding10>
          <varbinding11
name=".1.3.6.1.4.1.42.2.195.1.2.1.4.36.99.52.100.99.51.102.48.

49.45.56.50.48.102.45.54.102.53.53.45.98.100.50.51.45.101.49.53.55.97.98.53.
          51.99.102.50.49.1" type="4"><![CDATA[fault.memory.bank]]></varbinding11>
          <varbinding12
name=".1.3.6.1.4.1.42.2.195.1.2.1.5.36.99.52.100.99.51.102.48.

49.45.56.50.48.102.45.54.102.53.53.45.98.100.50.51.45.101.49.53.55.97.98.
          53.51.99.102.50.49.1" type="66"><![CDATA[95]]></varbinding12>
          <varbinding13
name=".1.3.6.1.4.1.42.2.195.1.2.1.6.36.99.52.100.99.51.102.48.

49.45.56.50.48.102.45.54.102.53.53.45.98.100.50.51.45.101.49.53.55.97.98.53.
          51.99.102.50.49.1"
type="4"><![CDATA[mem:///unum=MB/CMP0/BR0:CH1/D0/J0700]]>
          </varbinding13>
          <varbinding14
name=".1.3.6.1.4.1.42.2.195.1.2.1.7.36.99.52.100.99.51.102.48.

49.45.56.50.48.102.45.54.102.53.53.45.98.100.50.51.45.101.49.53.55.97.98.53.
          51.99.102.50.49.1"
type="4"><![CDATA[hc://:product-id=SUNW,T5240:chassis-
          id=0723BBC006:server-id=wgs48-53:serial=d8181439//motherboard=0/chip=0/
          branch=0/dram-channel=1/dimm=0]]></varbinding14>
```

```
          <varbinding15
name=".1.3.6.1.4.1.42.2.195.1.2.1.8.36.99.52.100.99.51.102.48.

49.45.56.50.48.102.45.54.102.53.53.45.98.100.50.51.45.101.49.53.55.97.98.53.
          51.99.102.50.49.1" type="4"><![CDATA[-]]></varbinding15>
          <varbinding16
name=".1.3.6.1.4.1.42.2.195.1.2.1.4.36.99.52.100.99.51.102.48.

49.45.56.50.48.102.45.54.102.53.53.45.98.100.50.51.45.101.49.53.55.97.98.53.
          51.99.102.50.49.2" type="4"><![CDATA[fault.memory.bank]]></varbinding16>
          <varbinding17
name=".1.3.6.1.4.1.42.2.195.1.2.1.5.36.99.52.100.99.51.102.48.

49.45.56.50.48.102.45.54.102.53.53.45.98.100.50.51.45.101.49.53.55.97.98.53.
          51.99.102.50.49.2" type="66"><![CDATA[95]]></varbinding17>
          <varbinding18
name=".1.3.6.1.4.1.42.2.195.1.2.1.6.36.99.52.100.99.51.102.48.

49.45.56.50.48.102.45.54.102.53.53.45.98.100.50.51.45.101.49.53.55.97.98.53.
          51.99.102.50.49.2"
type="4"><![CDATA[mem:///unum=MB/CMP0/BR0:CH0/D0/J0500]]>
          </varbinding18>
          <varbinding19
name=".1.3.6.1.4.1.42.2.195.1.2.1.7.36.99.52.100.99.51.102.48.

49.45.56.50.48.102.45.54.102.53.53.45.98.100.50.51.45.101.49.53.55.97.98.53.
          51.99.102.50.49.2"
type="4"><![CDATA[hc://:product-id=SUNW,T5240:chassis-
          id=0723BBC006:server-id=wgs48-53:serial=d81813ce//motherboard=0/chip=0/
          branch=0/dram-channel=0/dimm=0]]></varbinding19>
          <varbinding20
name=".1.3.6.1.4.1.42.2.195.1.2.1.8.36.99.52.100.99.51.102.48.

49.45.56.50.48.102.45.54.102.53.53.45.98.100.50.51.45.101.49.53.55.97.98.53.
          51.99.102.50.49.2" type="4"><![CDATA[-]]></varbinding20>
        </raw-event>
      </payload>
    </primary-event-information>
  </event>
</message>
```

Example 3 ASR Activation

```
<?xml version="1.0" encoding="UTF-8" standalone="yes"?>
<message>
    <site-id>SITEID12345</site-id>
    <host-id>Host-ID-1234</host-id>
    <message-uuid>message_uuid_1234567890</message-uuid>
    <message-time timezone="UTC">2014-02-25T15:28:39</message-time>
    <system-id>system-ID-12345</system-id>
    <asset-id>ASSET-UUID-1234567890</asset-id>
    <product-id>SUNW_Sun-Fire-T2000</product-id>
    <product-name>SUNW,Sun-Fire-T2000</product-name>
    <monitoring-activation>
        <activation-user>
            <company>NA</company>
            <email>NA</email>
            <first-name>NA</first-name>
            <last-name>NA</last-name>
```

```
            <organization>NA</organization>
            <phone>NA</phone>
            <additional-information
name="SOA">email@mycompany.com</additional-information>
        </activation-user>
        <site-address>
            <line>NA</line>
            <company>NA</company>
            <city>NA</city>
            <state>NA</state>
            <postal-code>NA</postal-code>
            <country>NA</country>
        </site-address>
        <contact>
            <company>NA</company>
            <email>NA</email>
            <first-name>NA</first-name>
            <last-name>NA</last-name>
            <phone>NA</phone>
        </contact>
    </monitoring-activation>
    <additional-information name="telemetry_source">FMA</additional-information>
    <additional-information name="receiver_id">ASR-4.7</additional-information>
    <additional-information
name="asr-site-id">ASR-SITE-ID12345</additional-information>
    <additional-information name="client_reg_
id">CLIENT-REG-ID12345</additional-information>
    <additional-information name="telemetry_channel">ASR_
MANAGER</additional-information>
    <additional-information name="host-name">host-name1</additional-information>
</message>
```

Note: Only the Oracle Single Sign-On (SSO) user name (for example, email@mycompany.com) that is registered for the ASR Manager is being sent to the Oracle ASR backend. All other address information is marked as Not Applicable (NA).

Example 4 ASR Deactivation

```
<?xml version="1.0" encoding="UTF-8" standalone="yes"?>
<message xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:noNamespaceSchemaLocation="message.xsd">
    <site-id>site1</site-id>
    <host-id>host2</host-id>
    <message-uuid>deactivation_112233</message-uuid>
    <message-time
timezone="US/Mountain">2014-02-21T13:54:11.669-07:00</message-time>
    <system-id>SYSID12345</system-id>
    <asset-id>ASSETID54321</asset-id>
    <product-name>SUNW,Sun-Fire-V240 SPARC System</product-name>
    <monitoring-deactivation xsi:type="xs:string"
xmlns:xs="http://www.w3.org/2001/XMLSchema"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"></monitoring-deactivation>
    <additional-information name="receiver_id">ASR-4.7.0</additional-information>
    <additional-information name="host-name">host-name</additional-information>
    <additional-information name="asrmanager_host_
name">asrmanager-host</additional-information>
    <additional-information name="asrmanager_
```

```
activated">false</additional-information>
</message>
```

Example 5 ASR Heartbeat

```
<?xml version="1.0" encoding="UTF-8" standalone="yes"?>
<message xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:noNamespaceSchemaLocation="message.xsd">
    <site-id>heartbeat</site-id>
    <host-id>heartbeat</host-id>
    <message-uuid>heartbeat_UUID12345</message-uuid>
    <message-time
timezone="US/Mountain">2014-02-21T13:51:48.689-07:00</message-time>
    <system-id>heartbeat</system-id>
    <asset-id>heartbeat</asset-id>
    <product-name>heartbeat</product-name>
    <heartbeat>
        <time timezone="US/Mountain">2014-02-21T13:51:48.689-07:00</time>
        <asr-site-id>ASRSITEID123456789101112</asr-site-id>
        <assets-heartbeat>
            <asset-heartbeat>
                <serial>SERIAL12345</serial>
                <host-name>host-name1</host-name>
                <product-name>SUNW,Sun-Fire-T1000</product-name>
                <heartbeat-time
timezone="US/Mountain">2014-02-21T13:51:48.689-07:00</heartbeat-time>
                <heartbeat-from-asset>false</heartbeat-from-asset>
                <telemetry_source>FMA</telemetry_source>
            </asset-heartbeat>
            <asset-heartbeat>
                <serial>2NDSERIAL12345</serial>
                <host-name>host-name2</host-name>
                <product-name>SUNW,Sun-Fire-T200</product-name>
                <heartbeat-time
timezone="US/Mountain">2014-02-21T08:51:01.074-07:00</heartbeat-time>
                <heartbeat-from-asset>true</heartbeat-from-asset>
                <telemetry_source>FMA</telemetry_source>
            </asset-heartbeat>
            <asset-heartbeat>
                <serial>3RDSERIAL456789</serial>
                <host-name>hostname2</host-name>
                <product-name>SUN-FIRE-X4170-M2-SERVER</product-name>
                <heartbeat-time
timezone="US/Mountain">2014-02-19T13:29:34.872-07:00</heartbeat-time>
                <heartbeat-from-asset>true</heartbeat-from-asset>
                <telemetry_source>FMA</telemetry_source>
            </asset-heartbeat>
            <asset-heartbeat>
                <serial>4THSERIAL98765</serial>
                <host-name>hostname3</host-name>
                <product-name>SUNW,Sun-Fire-V240 SPARC System</product-name>
                <heartbeat-time
timezone="US/Mountain">2014-02-21T13:51:48.689-07:00</heartbeat-time>
                <heartbeat-from-asset>false</heartbeat-from-asset>
                <telemetry_source>FMA</telemetry_source>
            </asset-heartbeat>
        </assets-heartbeat>
        <remote_request_config name="LOG_COLLECTION">true</remote_request_config>
        <remote_request_config name="DIAG_BUNDLE_COLLECTION">true</remote_request_
```

```
config>
        <receiver_id>ASR-4.7.0</receiver_id>
        <version>1.5.0</version>
        <asrmanager_host_name>asrmanager-hostname</asrmanager_host_name>
        <asrmanager_activated>false</asrmanager_activated>
        <Fault_Rules>4.7.0</Fault_Rules>
    </heartbeat>
    <additional-information name="remote_request_
enabled">true</additional-information>
    <additional-information name="receiver_id">ASR-4.7.0</additional-information>
    <additional-information name="java_version">1.7.0_25</additional-information>
</message>
```

Example 6 ASR Test Service Request (SR)

```
<?xml version="1.0" encoding="UTF-8" standalone="yes"?>
<message xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:noNamespaceSchemaLocation="message.xsd">
    <site-id>siteID12345</site-id>
    <host-id>hostID12345</host-id>
    <message-uuid>testevent_UUID12345</message-uuid>
    <message-time
timezone="US/Mountain">2014-02-21T13:58:04.785-07:00</message-time>
    <system-id>SYSTEMID1234</system-id>
    <asset-id>ASSETID1234556</asset-id>
    <product-name>SUNW,Sun-Fire-V240 SPARC System</product-name>
    <event>
        <primary-event-information>
            <message-id>TESTCREATE</message-id>
            <event-uuid>TESTCREATE_UUID123456789</event-uuid>
            <event-time
timezone="US/Mountain">2014-02-21T13:58:04.785-07:00</event-time>
            <severity>Minor</severity>
            <component>
                <hardware-component>
                    <name>TESTCREATE</name>
                    <id>TESTCREATE</id>
                </hardware-component>
            </component>
            <summary>SOA:asr@mycompany.com</summary>
            <description>TESTCREATE</description>
        </primary-event-information>
    </event>
    <additional-information name="receiver_id">ASR-4.7.0</additional-information>
    <additional-information name="host-name">hostname1</additional-information>
    <additional-information name="client_reg_
id">urn:scn:clregid:osso:v2:client-registration-number123</additional-information>
    <additional-information
name="asr-site-id">ASRSITEID123</additional-information>
    <additional-information name="asrmanager_host_
name">asrmanager-hostname</additional-information>
    <additional-information name="asrmanager_
activated">false</additional-information>
    <additional-information name="enable_notification_
trap">false</additional-information>
</message>
```

Example 7 SR Notification Outbound Event

```
<?xml version="1.0" encoding="UTF-8" standalone="yes"?>
```

```
<caseinfo>
    <host-name>vsmpriv2_vsm</host-name>
    <ip-address>N/A</ip-address>
    <serial-number>AB123456789</serial-number>
    <platform-type>STORAGETEK VSM6</platform-type>
    <fault-info>
        <fault-summary>All faults associated with an event id have been
addressed.</fault-summary>
        <knowledge-link>N/A</knowledge-link>
    </fault-info>
    <service-request-info>
        <service-request-number>1234567890</service-request-number>
        <service-request-string>3-1234567890</service-request-string>

<service-request-link>https://support.oracle.com/epmos/faces/ui/sr/SrDetail.jspx?s
rNumber=3-1234567890</service-request-link>
        <severity>3</severity>
    </service-request-info>
    <contact-info>
        <name>NA</name>
        <telephone>NA</telephone>
        <email>NA</email>
    </contact-info>
    <sr-creation-time>
        <dateTime>2014-02-23T07:23:48.108-07:00</dateTime>
        <timezone>US/Mountain</timezone>
    </sr-creation-time>
    <fault-detection-time>
        <dateTime>2014-02-23T07:23:48.000-07:00</dateTime>
        <timezone>GMT-05:00</timezone>
    </fault-detection-time>
    <additional-information name="event_
uuid">1393165428955.86231112.9</additional-information>
</caseinfo>
```

Note: Contact information (for example, technical contact e-mail address, phone numbers, etc.) will be available only for SR SNMP notification trap events.

Example 8 Auto Update Inbound Event XML Sample

```
Preparation Success:

<message>
    <site-id>autoupdate</site-id>
    <host-id>autoupdate</host-id>
    <message-uuid>autoupdate_123456789</message-uuid>
    <message-time
timezone="US/Mountain">2014-04-02T21:16:27.631-06:00</message-time>
    <system-id>autoupdate</system-id>
    <asset-id>autoupdate</asset-id>
    <product-name>autoupdate</product-name>
    <asr-autoupdate>
        <soa_username>contact@mycompany.com</soa_username>
        <asr-site-id>123456ABCDE</asr-site-id>
        <client-reg-id>Client Registration ID</client-reg-id>
        <module-type>SWASR</module-type>
        <autoupdate-status>PREPARATION_SUCCESS</autoupdate-status>
```

```
        <start-time
timezone="US/Mountain">2014-04-02T21:18:27.577-06:00</start-time>
        <currentversion>4.8.0</currentversion>
        <update-to>4.8.5</update-to>
    </asr-autoupdate>
    <additional-information name="receiver_id">ASR-4.8.0</additional-information>
    <additional-information name="Rules-version">4.8.0</additional-information>
    <additional-information name="ASR-version">4.8.0</additional-information>
    <additional-information name="host-name">Host Name</additional-information>
</message>

Starting:

<message>
    <site-id>autoupdate</site-id>
    <host-id>autoupdate</host-id>
    <message-uuid>autoupdate_123456789</message-uuid>
    <message-time
timezone="US/Mountain">2014-04-02T21:16:43.608-06:00</message-time>
    <system-id>autoupdate</system-id>
    <asset-id>autoupdate</asset-id>
    <product-name>autoupdate</product-name>
    <asr-autoupdate>
        <soa_username>contact@mycompany.com</soa_username>
        <asr-site-id>123456ABCDEF</asr-site-id>
        <client-reg-id>Client Registration ID</client-reg-id>
        <module-type>SWASR</module-type>
        <autoupdate-status>STARTING</autoupdate-status>
        <start-time
timezone="US/Mountain">2014-04-02T21:18:27.577-06:00</start-time>
        <currentversion>4.8.0</currentversion>
        <update-to>4.8.5</update-to>
    </asr-autoupdate>
    <additional-information name="receiver_id">ASR-4.8.0</additional-information>
    <additional-information name="Rules-version">4.8.0</additional-information>
    <additional-information name="ASR-version">4.8.0</additional-information>
    <additional-information name="host-name">Host Name</additional-information>
</message>

Complete Success:

<message>
    <site-id>autoupdate</site-id>
    <host-id>autoupdate</host-id>
    <message-uuid>autoupdate_123456789</message-uuid>
    <message-time
timezone="US/Mountain">2014-04-02T21:22:42.080-06:00</message-time>
    <system-id>autoupdate</system-id>
    <asset-id>autoupdate</asset-id>
    <product-name>autoupdate</product-name>
    <asr-autoupdate>
        <soa_username>contact@mycompany.com</soa_username>
        <asr-site-id>123456ABCDEF</asr-site-id>
        <client-reg-id>Client Registration ID</client-reg-id>
        <module-type>SWASR</module-type>
        <autoupdate-status>COMPLETE_SUCCESS</autoupdate-status>
        <autoupdate-details>SWASR package update is
successful.</autoupdate-details>
        <start-time
```

```
timezone="US/Mountain">2014-04-02T21:18:27.577-06:00</start-time>
        <end-time timezone="US/Mountain">2014-04-02T21:22:42.008-06:00</end-time>
        <currentversion>4.8.5</currentversion>
        <update-to>4.8.5</update-to>
    </asr-autoupdate>
    <additional-information name="receiver_id">ASR-4.8.5</additional-information>
    <additional-information name="Rules-version">4.8.5</additional-information>
    <additional-information name="ASR-version">4.8.5</additional-information>
    <additional-information name="host-name">Host Name</additional-information>
</message>
```

11 Third-Party Licenses

Oracle Auto Service Request (ASR) includes third-party products. For a complete list of the licensed third-party products, see Appendix C, "Third-Party Licenses," of the *Oracle® Auto Service Request (ASR) Manager User's Guide*:

http://docs.oracle.com/cd/E37710_01/install.41/e18475/toc.htm

12 Documentation Accessibility

For information about Oracle's commitment to accessibility, visit the Oracle Accessibility Program website at http://www.oracle.com/pls/topic/lookup?ctx=acc&id=docacc.

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Oracle Auto Service Request Security White Paper, Release 5.5
E37468-16