

# Installation and Configuration Guide

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ArcSight™ ESM Version 4.5 GA

November 21, 2008



## Installation and Configuration Guide ArcSight™ ESM Version 4.5 GA

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# Planning and Installation Overview

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This chapter provides a conceptual overview of ArcSight ESM, and offers a high-level description of system components. It helps a network administrator understand planning and deployment issues.

These topics are covered here:

- ["What is ArcSight ESM?" on page 1](#)
- ["ArcSight Components" on page 1](#)
- ["Deployment Overview" on page 6](#)
- ["ArcSight ESM Communication Overview" on page 6](#)
- ["Deployment Order" on page 8](#)
- ["Supported Platforms" on page 8](#)
- ["Installation Planning" on page 8](#)
- ["Directory Structure for ArcSight Installation" on page 10](#)
- ["Securing your ArcSight ESM System" on page 11](#)
- ["Deployment Scenarios" on page 17](#)
- ["Where to go From Here" on page 20](#)

## What is ArcSight ESM?

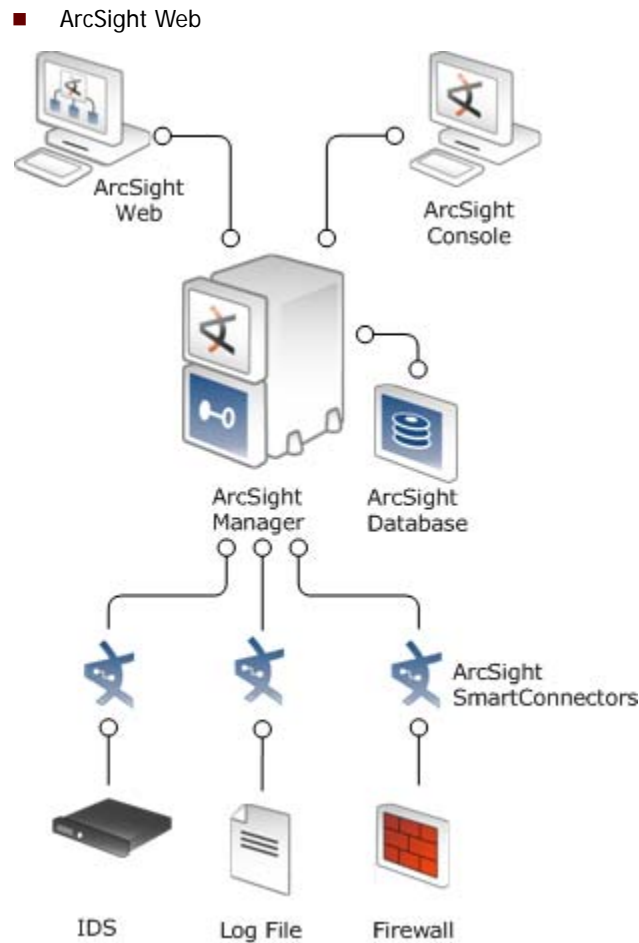
ArcSight ESM is a Security Information Management (SIM) solution that collects and analyzes security data from heterogeneous devices on your network and provides you a central, real-time view of the security status of all devices of interest to you.

ArcSight ESM components gather and store events generated by the devices you identify. These events are filtered and correlated with events from other devices or collection points to discover risks and assess vulnerabilities.

## ArcSight Components

The ArcSight ESM system comprises of the following components, as shown in the following illustration:

- ArcSight SmartConnector
- ArcSight Manager
- ArcSight Database
- ArcSight Console



**Figure 1-1** ArcSight ESM Components

## ArcSight SmartConnector

SmartConnectors (also known as connectors) are the interface for collecting event data from the network devices—such as a firewall, an intrusion prevention system, or a host syslog—that you want to monitor. The connectors gather raw event data comprising of status, alarms, and alerts from these devices. In addition, ArcSight SmartConnectors can also do the following:

- Normalize every alarm and alert into a common security schema
- Filter out unwanted traffic
- Set severity according to a common taxonomy
- Intelligently manage bandwidth to minimize network traffic

SmartConnectors receive event information using SNMP, HTTP, Syslog, proprietary protocols (for example, OPSEC), or direct database connections to the device's repository, such as ODBC or proprietary database connections.

ArcSight SmartConnectors communicate with network devices by either receiving or retrieving information. If the device sends information, the ArcSight SmartConnector receives; if the device does not send information, the ArcSight SmartConnector retrieves from the device.

ArcSight SmartConnectors are available for over 200 network device types found in a typical enterprise infrastructure. For a complete list of available SmartConnectors, see the ArcSight Supported Products ([http://www.arcsight.com/product\\_supported.htm](http://www.arcsight.com/product_supported.htm)) page.

Depending on the network device a SmartConnector is collecting data from, the connectors can be installed directly on devices (if possible) or separately on connector-dedicated servers.

## ArcSight Manager

ArcSight Manager is at the center of the ArcSight ESM solution. The Manager is a server-based system that receives event data from SmartConnectors, processes it to assess and categorize threat levels, and displays information to the ArcSight Console and ArcSight Web. In addition, the ArcSight Manager can send notifications to the devices (such as pagers and cell phones) you specify.

For detailed information about how events received by the Manager are processed, see *ESM 101 Concepts for ArcSight ESM*.

ArcSight Manager can be installed across a variety of operating systems, such as Windows and UNIX, and hardware platforms.

## ArcSight Database

ArcSight Database is the central repository for all information collected by the ArcSight Manager. Additionally, the database contains configuration information about the Manager such as users, groups, permissions, rules, assets, and reports.

The database is based on Oracle and is typically installed on a dedicated system separate from the system on which ArcSight Manager is installed.

The database can be installed across a variety of operating systems and hardware platforms. The platform on which the database is installed can be different from the one on which the ArcSight Manager is running.

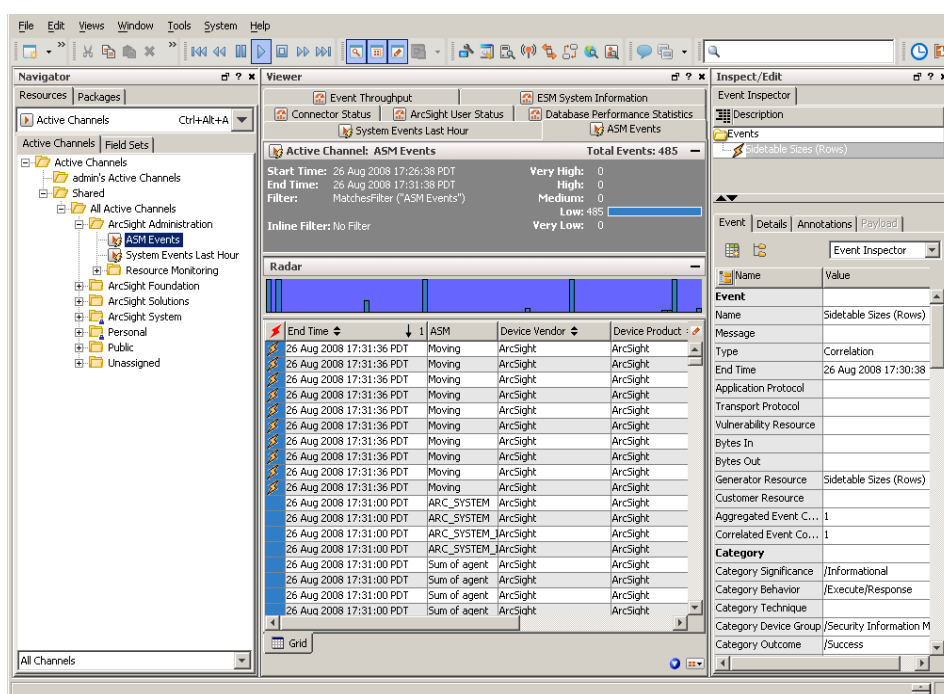
## ArcSight Console

The ArcSight Console is a workstation-based graphical user interface that provides an intuitive interface to perform essential security management tasks. The following graphic shows you an example of the ArcSight Console.

Depending on your job function or need, the Console can be used for a variety of tasks such as:

- Routine monitoring
- Authoring—Setting up filters and creating customized rules, defining notification and escalation procedures, and generating reports
- Administrative tasks—Setting up users and their permissions

- The Console can be installed across a variety of operating systems and hardware platforms.



**Figure 1-2** Example of ArcSight Console

## ArcSight Web

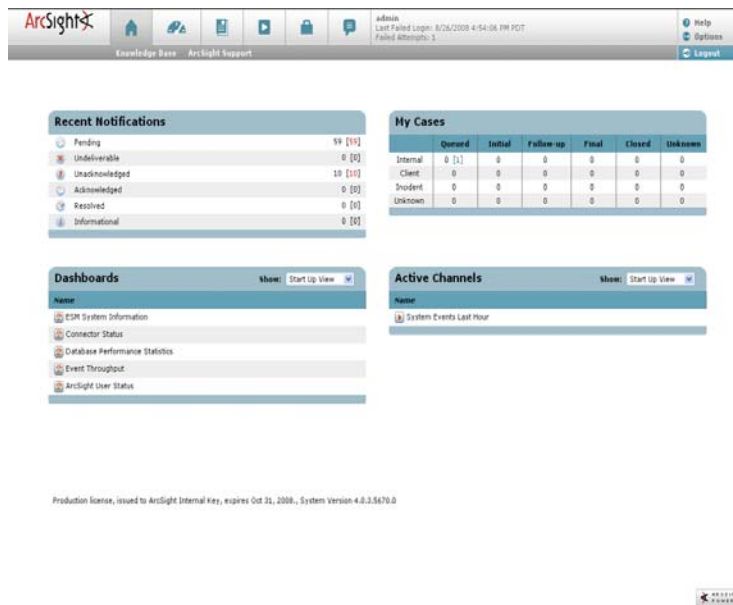
ArcSight Web is a web server that enables you to access ArcSight Manager securely using a browser.

ArcSight Web is intended for users who need to view information on the Manager, but not author or administer it; for example, operators in a Security Operations Center (SOC) and customers of a Managed Security Service Provider (MSSP).

ArcSight Web can be installed on the same server as the ArcSight Manager or on a separate server that has network access to the Manager. If ArcSight Web is installed on a separate server, that server makes secure connections to the Manager on behalf of the browsers requesting data from the Manager.

If the separately installed server is accessible from outside of a protected network, users from outside of that network can use ArcSight Web to access information on the Manager.

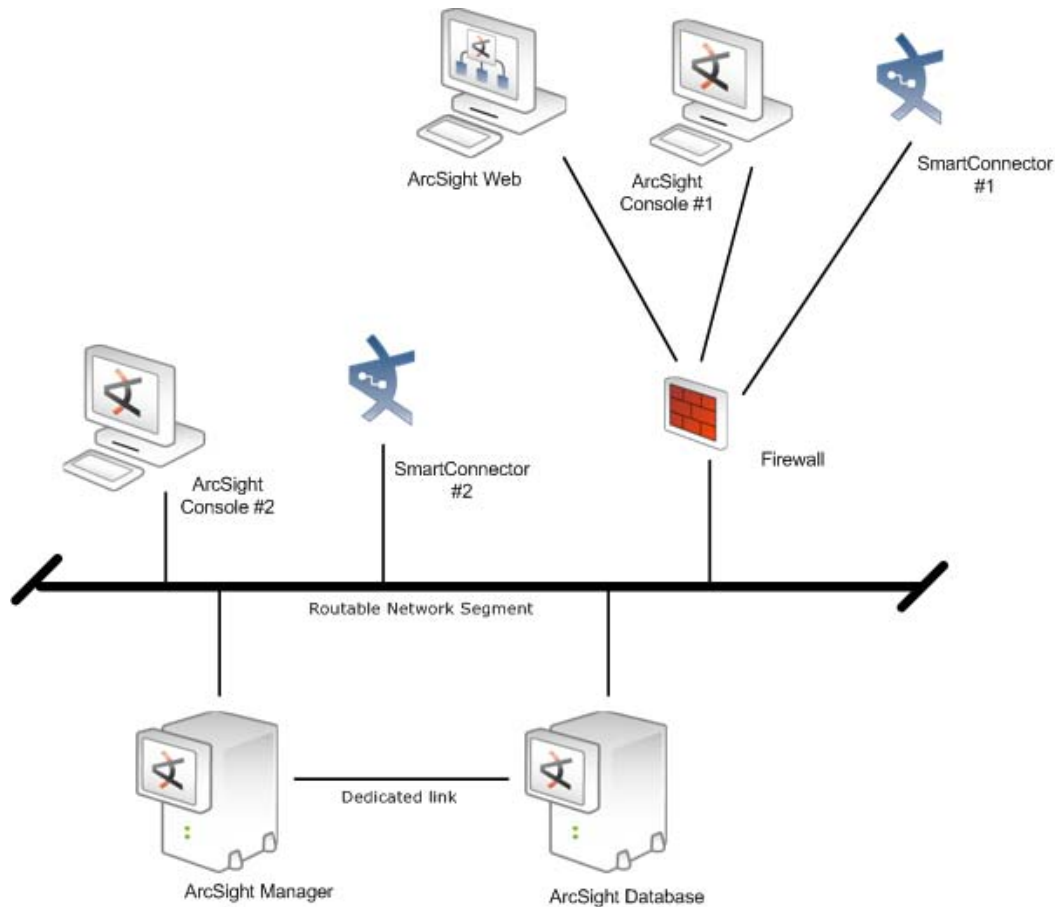
The following graphic shows you an example of the ArcSight Web.



**Figure 1-3** Example of ArcSight Web

## Deployment Overview

The following is an example of how various ArcSight components can be deployed in a network.



**Figure 1-4 ArcSight Components Deployment Overview**

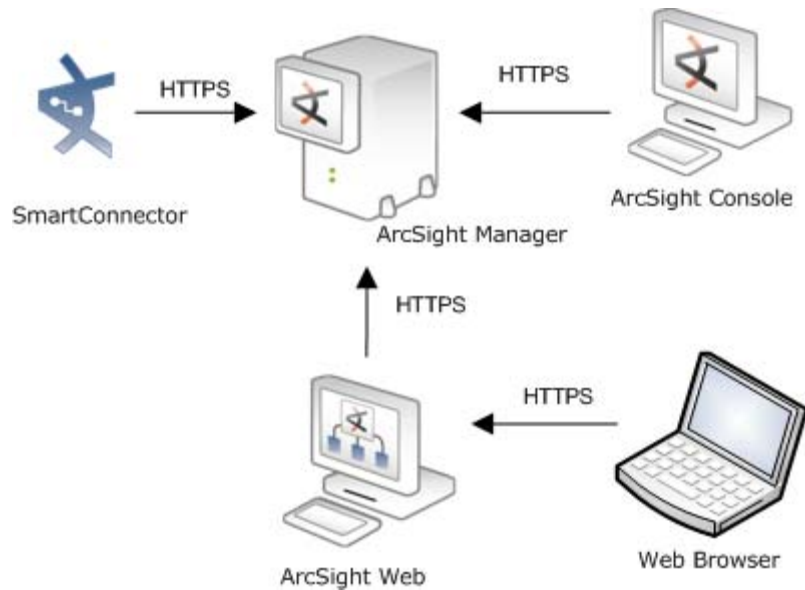
There are many other possible topologies such as placing the Manager and the database behind a firewall for an extra layer of protection or installing multiple Managers for redundancy.

Irrespective of the topology you use to deploy SmartConnectors, Consoles, and ArcSight Web, ArcSight strongly recommends deploying the ArcSight Database in close proximity to the Manager, possibly over a dedicated network link with a cross-over cable connection.

## ArcSight ESM Communication Overview

ArcSight Console, ArcSight Manager, and ArcSight SmartConnector communicate using HTTP (HyperText Transfer Protocol) over SSL (Secure Sockets Layer), often referred to as

HTTPS (HyperText Transfer Protocol Secure). The HTTPS protocol provides for data encryption, data integrity verification, and authentication for both server and client.



**Figure 1-5** ArcSight ESM Communication Overview

SSL works over TCP (Transport Control Protocol) connections. The default incoming TCP port on ArcSight Manager is 8443. For more information on port settings and defaults, see the section on [“Securing your ArcSight ESM System” on page 11](#).

The Manager never makes outgoing connections to the Console, ArcSight Web, or SmartConnectors. However, it does make outgoing connections to the ArcSight Database (the protocol depends on the kind of database), network management solutions (using SNMP), and external authentication solutions via RADIUS and LDAP (if configured). HTTPS is not used between the Manager and the Database.

## Effect on communication when components fail

If any of the ArcSight components is unavailable, it can affect communication between other components.

If the database is unavailable for any reason, such as database capacity is full or the database hardware is down, the Manager stops accepting events and caches any events that were not committed to the database. The SmartConnectors start caching new events they receive, so there is no event data loss. The Consoles are disconnected. All existing ArcSight Web connections are disconnected and no new login requests to the Web server are accepted until the database is up and running again.

If the Manager is unavailable, the SmartConnectors start caching events to prevent event data loss. The TNS listener on the database waits for connections from clients. The database server is idle. The Consoles are disconnected. All existing ArcSight Web connections are disconnected and no new login requests to the Web server are accepted.

If a SmartConnector fails, whether event data loss will occur or not depends on the SmartConnector type. SmartConnectors that listen for events from devices such as the SNMP SmartConnectors will stop accepting events. However, a SmartConnector that polls a

device, such as the NT Collector SmartConnector, may be able to collect events that were generated while the SmartConnector was down, once the SmartConnector comes back up.

## Deployment Order

There are dependencies among the ArcSight components. Therefore, it is important to install the components in this order:

- 1 Database (ArcSight Database)
- 2 Manager
- 3 SmartConnectors or Consoles or Partition Manager (in any order)
- 4 Web Server (ArcSight Web)



Do not deploy the component next in the list until you have ensured that the previous component is completely deployed and functioning as expected.

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## Supported Platforms



Refer to the ArcSight ESM Product Lifecycle document available on the ArcSight Customer Support website for the most current information on supported platforms.

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All ArcSight ESM system components are software based. You can deploy these components on industry standard heterogeneous platforms, such as UNIX, Windows, Linux, and Macintosh. The components securely communicate with each other over a TCP/IP network using Secure Socket Layer (SSL).

Although multiple components can be installed on single machine, ArcSight strongly recommends against it.

Refer to specific component chapters for details regarding the platform requirements for particular ArcSight components. For supported Web browsers, see the section on [“Installing ArcSight Web” on page 125](#).

Viewing ArcSight reports and product documentation requires Adobe Reader, version 5.0 or later. The Acrobat Reader, which includes a stand-alone program as well as a web browser plug-in, is available at no cost from <http://www.adobe.com/products/acrobat/readermain.htm>

## Installation Planning

Planning involves sizing and determining installation details for each ArcSight component based on your business and network needs.

The first step in planning is to inventory your network to determine the number and type of network devices you want ArcSight to monitor. Typically, device type is directly related to the number of events it will generate on daily basis. For example, firewalls generate a lot of events and a server may not. Once you have determined expected event volume on your network, you can easily size the hardware you will need to collect, process, and store those events.



The next step is to ensure that other elements essential to installation have been procured such as a license, an SSL certificate, and an SMTP server.

The following sections describe these steps on a high level.



ArcSight Professional Services can help create a comprehensive plan for ArcSight deployment and can assist with installation and configuration as well. For more information, contact your ArcSight representative.

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## Inventory your devices

Inventory your devices and plan the ArcSight SmartConnector that will report on them. The number of SmartConnectors that you can install on a machine depends on the total number of events per second (eps) those connectors will collectively process. Typically, a dual Pentium IV with 2 GB RAM can easily process up to 1500 eps (~130 million events per day), all connectors combined.

## Determine the size and topology of Managers

Determine the number and configuration of ArcSight Managers to which the SmartConnectors will report. If you will be using more than one Manager, determine the topology that is most appropriate for your environment. The section at the end of this chapter lists a few common topologies.

## Size your database

Use these factors to size your storage requirements:

- Event Volume
- Retention Policy

### Event Volume

A raw event is a single “row” or “message” in a log file, a trap, or database of the reporting device. SmartConnectors send these events to the Manager, which stores it in the database. For sizing a database, it is important to know the volume of events that the database will store.

The average size of the data stored for each event depends on the Turbo mode—Fastest, Faster, or Fast—specified for each SmartConnector. In the Fastest mode, a small subset of the event fields from an event is retained. This mode is suited for devices such as firewalls that have relatively less amount of data in an event. Faster mode retains all event fields, without adding additional data. This is the default mode and is adequate for most devices. Fast mode is the most comprehensive turbo mode and includes all event fields available in an event, plus some additional data. Fast mode should be used with care as it has a significant impact on performance.

SmartConnectors can filter raw events to reduce event volume. For example, you can set up your SmartConnector to forward events from a specific network device or specific types of events such as login failures.

Additionally, SmartConnectors can aggregate events with matching values into a single aggregated event. For example, a connector is configured to aggregate events with a specific source and destination address and if the same event occurs within 30 second intervals. If 10 such events occur, the connector aggregates all those events into one single

event, adds an aggregated event count of 10, and forwards it to the Manager. Thus aggregation further reduces event volume.



If both, filtering and aggregation, are configured, event filtering takes place before aggregation.

---

## Retention Policy

Retention period defines the amount of time data is retained in the database. There are three types of retention periods in ArcSight Database:

- Online Uncompressed Partitions (Hot)
- Online Compressed Partitions (Warm)
- Archived Partitions (Cold—on disk archives)

The retention period for online uncompressed partitions specifies the number of days (or latest partitions) for which data will be kept uncompressed. By default, this retention period is set to 2 days. For example, if this retention period is set to 2 and today is April 24th, the data in the partitions created for April 22nd and 23rd will be uncompressed.

The retention period for compressed partitions specifies the number of days (or partitions) for which data will be compressed but kept online. By default, this retention period is set to 28 days. For example, if this retention period is set to 28 and today is April 24th, the data in the partitions created for March 25th through April 21st will be compressed but online.

The retention period for archived partitions specifies the number of days (or partitions) for which data is compressed and archived to a nearline storage device. Any archived partition older than this period is purged and cannot be reactivated easily. By default, this retention period is set to 60 days. For example, if this retention period is set to 60 and today is April 24th, the data in partitions created for Jan 24th through March 24th will be compressed and archived to a specified nearline storage device.

## Identify or procure hardware and software

Based on the data you collect in previous steps, choose appropriate hardware and software platforms based on supported platforms that are listed in the specific component chapters.

## Directory Structure for ArcSight Installation

ArcSight ESM software components install consistently across UNIX and Windows platforms. Whether a host is dedicated to the ArcSight Database, Manager, Console or other component, by default, ArcSight software is installed in a directory tree under a single root directory on each host. (DBMS and other third-party software is not necessarily installed under this directory, however.) The path to this root directory is called `<ARCSIGHT_HOME>`.

Typical examples of `<ARCSIGHT_HOME>` include `/usr/arc sight/manager` on a UNIX system, or `C:\ArcSight\Manager` on a Windows system.

The directory structure below `<ARCSIGHT_HOME>` is also standardized across components and platforms. The following table lists a few of the commonly used directories across the components.

Port	Directory
ArcSight ESM Software	<code>&lt;ARCSIGHT_HOME&gt;\bin</code>
Properties files	<code>&lt;ARCSIGHT_HOME&gt;\config</code>
Log files	<code>&lt;ARCSIGHT_HOME&gt;\logs</code>

## Securing your ArcSight ESM System

Follow the information in the following sections to protect your ArcSight component.



By default, the minimum length for passwords is six characters and the maximum length is 20 characters.

## Protecting ArcSight Manager

Never run ArcSight Manager as root.

Don't use demo SSL certificates in production. Make sure when switching that you remove the demo CA from cacerts on all SmartConnectors and Consoles.

Closely control access to files, using the principle of least privilege, which states that a user should be given only those privileges that the user needs to complete his or her tasks. The following files are particularly sensitive:

- `<ARCSIGHT_HOME>/config/jetty/keystore` (to prevent the ArcSight Manager private key from being stolen)
- `<ARCSIGHT_HOME>/config/jetty/truststore` (w/ SSL Client authentication only, to prevent injection of new trusted CAs)
- `<ARCSIGHT_HOME>/config/server.properties` (has keystore and database passwords)
- `<ARCSIGHT_HOME>/config/jaas.config` (w/ RADIUS or SecurID enabled only, has shared node secret)
- `<ARCSIGHT_HOME>/config/client.properties` (w/ SSL Client authentication only, has keystore passwords)
- `<ARCSIGHT_HOME>/reports/sree.properties` (to protect the report license)
- `<ARCSIGHT_HOME>/reports/archive/*` (to prevent archived reports from being stolen)
- `<ARCSIGHT_HOME>/jre/lib/security/cacerts` (to prevent injection of new trusted CAs)
- `<ARCSIGHT_HOME>/lib/*` (to prevent injection of malicious code)
- `<ARCSIGHT_HOME>/rules/classes/*` (to prevent code injection)

Use a host-based firewall. On the ArcSight Manager, block everything except for the following ports. Make sure you restrict the remote IP addresses that may connect to those that actually need to talk.

Port	Flow	Description
22/TCP	Inbound	SSH log in (Unix only)
53/UDP	Inbound/Outbound	DNS requests and responses
8443/TCP	Inbound	SmartConnectors and Consoles
1521/TCP	Outbound	Oracle
25/TCP	Outbound	SMTP to mail server
110/TCP	Outbound	POP3 to mail server, if applicable
143/TCP	Outbound	IMAP to mail server, if applicable
1645/UDP	Inbound/Outbound	RADIUS, if applicable
1812/UDP	Inbound/Outbound	RADIUS, if applicable
389/TCP	Outbound	LDAP to LDAP server, if applicable
636/TCP	Outbound	LDAP over SSL to LDAP server, if applicable

Block all inbound ports on the ArcSight database except the following:

Port	Flow	Description
22/TCP	Inbound	SSH log in (Unix only)
53/UDP	Inbound/Outbound	DNS requests and responses
1521/TCP	Inbound	Oracle



If your database is set up on Microsoft Windows platform and you have blocked inbound ports as described above, your connections to the database might fail.

This behavior is observed because Oracle database, running on Windows, redirects connection requests coming from its clients on port 1521 to different, non-standard ports. When the client tries to establish a connection on the redirected port, it is blocked by the firewall. For more information, see the OracleMetaLink bulletin Solving Firewall Problems on Windows (Doc ID: Note:68652.1) at <https://metalink.oracle.com/>.

To allow successful connections in such a setup, you need to open all inbound TCP ports between your Manager and your database IP addresses or use SQL\*Net proxy for your firewall.

As another layer of defense (or if no host-based firewall is available), you can also restrict which connections are accepted by the ArcSight Manager using the following properties in the server.properties file:

```
web.accept.ips=
```

```
xmlrpc.accept.ips=
```

```
agents.accept.ips=
```

Each of these properties takes a list of IP addresses or subnet specifications, separated by commas or spaces. Once specified, only connections originating from those addresses are accepted. The `xmlrpc.accept.ips` property restricts access for ArcSight Consoles and the ArcSight Web server. The `agents.accept.ips` property restricts access for SmartConnectors. For registration, the SmartConnectors need to be in `xmlrpc.accept.ips` as well, so that they can be registered. The format for specifying subnets is quite flexible, as shown in the following example:

```
web.accept.ips=192.168.10.0/24 192.168.30.171
```

```
xmlrpc.accept.ips=192.168.10.120 192.168.10.132
```

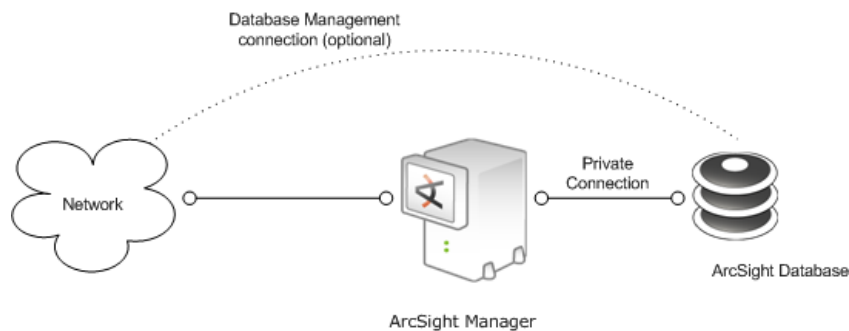
```
agents.accept.ips=10.*.*.*,192.168.0.0/255.255.0.0
```

## Protecting ArcSight Database

Secure the link between the ArcSight Manager and Oracle as the Oracle protocol transmits the Oracle password as well as event data and other sensitive data in clear. The options described here include a private network (preferred) or a tunnel (if performance is less important).

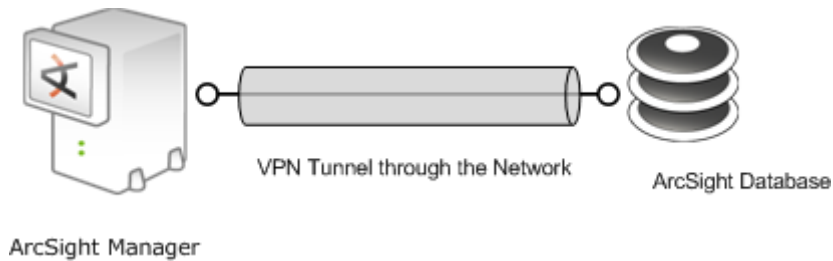
You can secure the communication path between ArcSight Database and ArcSight Manager in these ways:

- Dedicated (private) connection between the Manager and the database



Run a dedicated network between ArcSight Manager and ArcSight Database. Use a second network interface for the Manager host machine and connect it to a dedicated network in which only the database host machine is present (that is, using a dedicated switch/HUB or a crossover Ethernet cable to connect the hosts). While this approach provides the best performance, it might be difficult to achieve in some environments due to logistic constraints. In most cases, it is required to access the database host machine from the public network in order to manage it. So, it is recommended to use a second interface on the database host machine in order to connect it to the main network.

- Use a Virtual Private Network (VPN) tunnel between the Manager and Database



In this scenario, the communication between the database and the Manager is encrypted before it is sent over. ArcSight recommends using IPsec VPNs or SSH (Secure Shell) tunnels.

The advantage of using VPNs is that they enable secure communication over public networks. However, the overhead of encrypting and decrypting data can impact performance.

If you are deploying on a storage area network (SAN), use access control lists to prevent other hosts on the SAN from accessing volumes that contain ArcSight Database files. Equivalently, you can configure the TNS listener on the Oracle side to restrict source IP addresses.

## ArcSight Built-In Security

ArcSight user accounts have user types that control the functions which users can access in the ArcSight Manager. The "Normal User" type has the most privileges. Where possible, use more restrictive types, such as "Manager SmartConnector," "Management Tool," or "Archive Utility" for non-human user accounts. This is particularly important when user passwords must be stored in scripts for unattended execution.

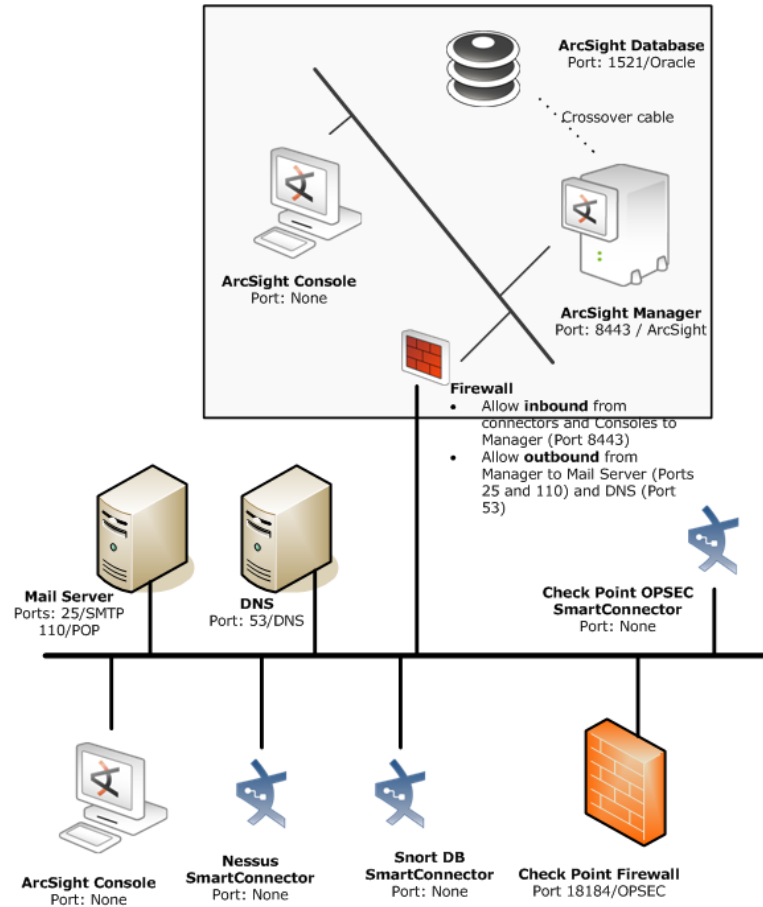
Apply the principle of least privilege when creating user accounts in ArcSight and when granting access to resources or events. Users should not have more privileges than their tasks require.

## Physical Security for the Hardware

In addition to establishing security policies for passwords, keystores, and other software facilities, it is important to provide physical security for the hardware used by the ArcSight ESM system. Physical hardware includes computers running ArcSight Console, Manager, Database, and SmartConnector software, as well as the network which connects them.

Physical access to computers running ArcSight software must be restricted. Windows computers that run ArcSight software require network domain passwords to authenticate

users, because the operating system may cache passwords used for logging into ArcSight components.



**Figure 1-6** Physical security for hardware

Typical ArcSight deployment, illustrating the technique of deploying ArcSight Manager and Database behind a firewall. The ports listed in the above graphic are open ports on the device for server connections.

- Use the locking mechanisms provided by most rackmount cases to prevent malicious/accidental tampering with the machine.
- Use locks on disk drive enclosures.
- Use redundant power and uninterruptible power supplies (UPS).
- Protect the BIOS (x86 systems only) or firmware (IBM and Sun systems):
  - ◆ Set up a BIOS/firmware password; disable all floppy and CD-ROM drives for booting so that the system can only be booted from the hard disk.
  - ◆ Disable COM, parallel, and USB ports so that they can't be used to extract data.
  - ◆ Disable power management.

## Operating System Security

- On Linux, set up a boot loader password to prevent unauthorized people from booting into single user mode (see the LILO or GRUB documentation for details).

- On Linux, disable reboot by Ctrl-Alt-Del in `/etc/inittab`. Comment out the line that refers to “ctrlaltdel.”
- Set up a screen saver that prompts for a password with a moderately short delay (such as five minutes).
- Disable power management in the OS.
- When installing the OS, select packages individually. Only install what you know will be needed. You can always install missing packages as you encounter them.
- Run automated update tools to obtain all security fixes. Visit <http://windowsupdate.microsoft.com> for Windows systems and run the Microsoft Security Baseline analyzer to get missing patches. Use up2date on Red Hat Linux (may require Red Hat Network subscription). For Solaris, check <http://sunsolve.sun.com>.
- Uninstall (or at least turn off) all services that you don't need. In particular: finger, r-services, telnet, ftp, httpd, linuxconf (on Linux), Remote Administration Services and IIS Services on Windows.
- On Unix machines, disallow remote root logins (for OpenSSH, this can be done using the `PermitRootLogin` no directive in `/etc/ssh/sshd_config`). This will force remote users to log in as a non-root user and su to root, thus requiring knowledge of two passwords to gain root access to the system. Restrict access to su, using a “wheel group” pluggable authentication module (PAM) so that only one non-root user on the machine can su to root. Make that user different from the arcsight user. That way, even if the root password is known and an attacker gains access through ArcSight in some way, they won't be able to log in as root.
- Rename the Administrator/root account to make brute force attacks harder.

## General Guidelines and Policies about Security

Educate system users about “social engineering” tricks used to discover user account information. No employee of ArcSight will ever request a user's password. When ArcSight representatives are on site, the administrator of the system will be asked to enter the password and, if needed, to temporarily change the password for the ArcSight team to work effectively.

Educate users to use secure means of communication—such as SSL to upload to `software.arcsight.com` or PGP for email—when transferring configuration information or log files to ArcSight.

Set up a login banner stating the legal policies for use of the system and the consequences of misuse. (Instructions for creating a login banner vary by platform.) ArcSight Consoles can also display a custom login banner. Contact ArcSight Customer Support for more information.

Choose secure passwords. (No password used in two places, seemingly random character sequences, eight characters or longer, containing numbers and special (non-letter) characters). Passwords are used in the following places—if any one is breached, the system is compromised:

- All database accounts (arcsight, SYS, SYSTEM)
- The arcsight user and root user on the system that runs the Manager
- The oracle user and root user on the system that runs the Database
- All users created in ArcSight
- The SSL keystores
- The boot loader (Linux)



- The BIOS (x86 systems only)
- The RADIUS node secret
- The LDAP password for ArcSight Manager (w/ basic authentication only), where applicable

Consider purchasing and using a PKI solution to enable SSL client authentication on Consoles and SmartConnectors.

Consider purchasing and using a two-factor authentication solution such as RSA SecurID.

Make sure that all the servers with which ArcSight interacts (DNS, Mail, RADIUS, etc.) are hardened equivalently.

Use a firewall and intrusion detection systems to secure the network that runs the ArcSight Manager and ArcSight Database.

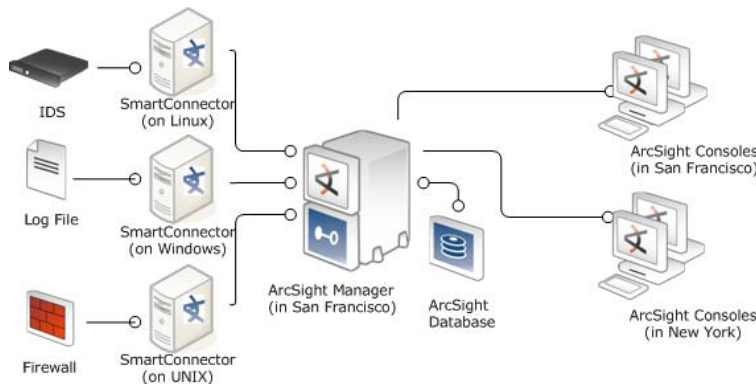
## Deployment Scenarios

You can deploy ArcSight ESM in a number of ways depending on your business needs and budget. The following are a few recommended scenarios.

You can mix the deployment principles described for one scenario with another. For example, you can implement a distributed deployment (Scenario 3) in which the lower-level managers are standalone systems (as described in Scenario 1) but the top-level manager is implemented in a transparent failover configuration (Scenario 2).

### Scenario 1: A simple, monolithic deployment

As shown in the illustration below, in a simple deployment an ArcSight Manager, ArcSight Database, and SmartConnectors are installed on three distinct systems. In this example, the three SmartConnectors are installed on distinct systems as well; however, you can have the three SmartConnectors installed on a single system (if the total event per second from the three SmartConnectors does not exceed the recommended value).



**Figure 1-7** A Simple, Monolithic Deployment

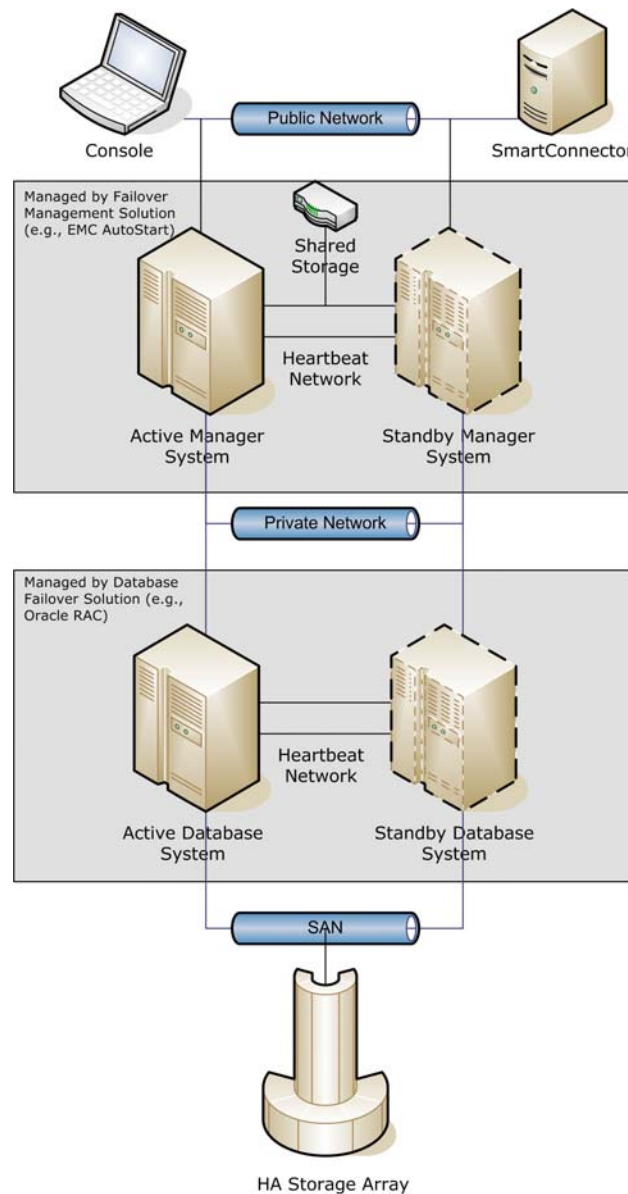
### Scenario 2: A high availability, transparent failover deployment

As shown in the illustration below, you can set up two ArcSight Managers in a failover group using a third-party Failover Management (FM) software solution. One of the Managers in this group is active, while the other one is on standby. If the FM software

detects that the ArcSight Manager service is not running on the active Manager, it tries to restart the service. If the service restart fails, the FM software shuts down the service on the active Manager and brings it up on the standby Manager.

Clients—SmartConnectors, ArcSight Console, ArcSight Web—connect to the virtual IP address that the FM software assigns to the failover group. Therefore, when the standby Manager becomes active, the clients continue to connect to the same IP address as before although the physical system they are connecting to is different.

In addition to the Managers, the database servers are also set up using a database-specific FM software. The active ArcSight Manager connects to the virtual IP address of the failover group of the database servers. All database files and the Manager directory to which the active Manager frequently writes its state must be on shared storage so that they are available to the active and standby systems at any time.

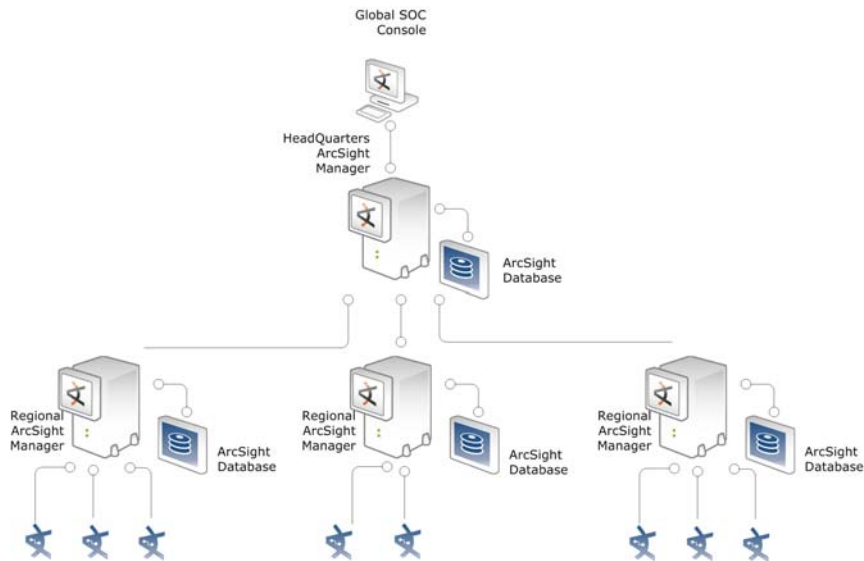


**Figure 1-8** A High Availability, Transparent Failover Deployment

## Scenario 3: A hierarchical deployment

As shown in the illustration below, you can deploy ArcSight Managers such that data from lower-level Managers is forwarded to a central, top-level Manager. This type of deployment works well for organizations that want to set up Managers according to organizational units, organizations with geographically dispersed locations, and MSSPs.

The lower-level managers collect and process events from their local SmartConnectors. In addition, these Managers forward key events to the central Manager thus enabling the central Manager to provide a holistic view of the security status of the entire network.

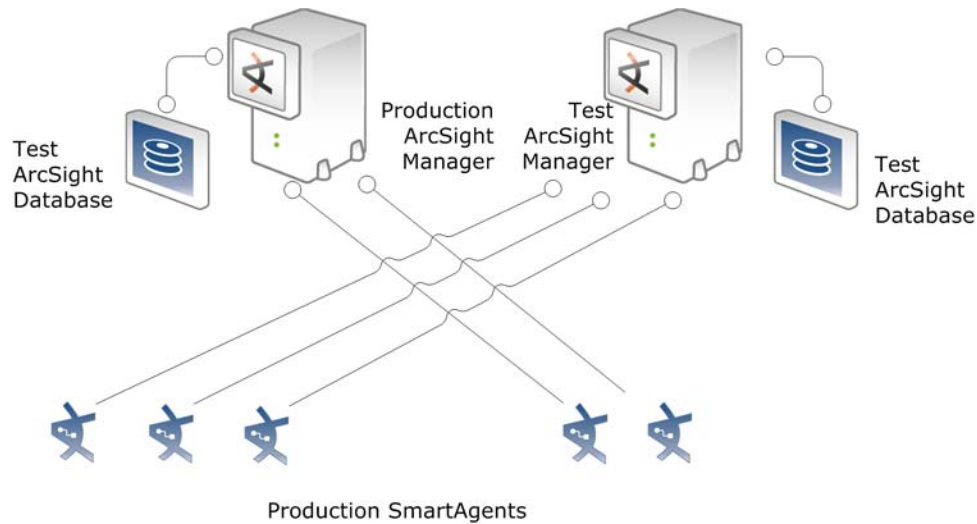


**Figure 1-9** A Hierarchical Deployment

## Scenario 4: A test environment deployment

As shown in the illustration below, you can set up your production SmartConnectors to forward events to two ArcSight Managers--to a production Manager and to a separate ArcSight Manager running in a test environment. By doing so, you can test rules, filters, or

any other changes on your test environment Manager before implementing them in your production environment.



**Figure 1-10** A Test Environment Deployment

## Where to go From Here

Here are the steps you will use to install and configure ArcSight:

**DBMS and ArcSight Database Installation.** ArcSight Database installation installs Oracle DBMS Enterprise Edition with partitioning support. Once the DBMS is installed, you configure the database and partition policies. You can also use your existing Oracle installation.

**ArcSight Manager Installation.** Once the DBMS has been established, you will install the ArcSight Manager, establish initial users, and configure options such as e-mail notification.

**ArcSight Console Installation.** Install and configure the ArcSight Console, then start ArcSight Manager and run the ArcSight Console to confirm successful installation. The ArcSight Console also provides more visibility when you install Connectors, which you will do in the next and final installation step.

**ArcSight SmartConnectors Installation.** Install SmartConnectors on a preferably dedicated UNIX or Windows machine.

**ArcSight Web Installation.** ArcSight Web is a standalone web server that interacts with the Manager and can operate outside a firewall that protects the Manager. Thus users can use supported browsers to access information from the Manager. You can install ArcSight Web on the same host as the ArcSight Manager or on a separate machine that has network access to the Manager.

# Installing ArcSight Database

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The first step in the process of installing the ArcSight system is installing and configuring the ArcSight database and its underlying database management system.

This chapter contains the following topics:

- [“Key Database Installation Success Factors” on page 21](#)
- [“Supported Platforms for Database Installation and Upgrade” on page 22](#)
- [“General Guidelines for Installing Oracle” on page 22](#)
- [“Preparing your Platform for Database Installation” on page 29](#)
- [“Installing or Upgrading ArcSight Database and Oracle” on page 34](#)
- [“Restarting or Reconfiguring ArcSight Database” on page 65](#)
- [“Configuring Partition Management” on page 66](#)
- [“Uninstalling the ArcSight Database Software” on page 76](#)

The ArcSight Database Installer installs Oracle Database Management System (DBMS) and the ArcSight Database software. However, if you are planning to use an existing Oracle installation, see [Appendix A, Configuring an Existing Oracle Installation, on page 149](#).

## Key Database Installation Success Factors

- Carefully plan your database deployment based on your performance and data retention requirements. Follow platform-specific configuration instructions and prepare data volumes as described.
- Set up e-mail notification when you install the Manager. The ArcSight configuration wizard makes this a simple process, requiring only that an SMTP server be addressable from the Manager host.
- Do not ignore e-mail messages about ArcSight Database from the ArcSight Manager. Messages with WARNING or ERROR on the subject line indicate that the database could stop accepting security events in the near future.

Customizing any aspect of the underlying DBMS, beyond what is described in this chapter, may cause malfunction of ArcSight components. ArcSight Database is only tested and certified using the DBMS configuration described here. If you must customize the DBMS, deploy changes provisionally and monitor ArcSight logs closely.

## Supported Platforms for Database Installation and Upgrade

ArcSight recommends installing Oracle 10g. The following operating system platforms and database versions are supported.

Operating System	Database	Typical System Configuration
Windows Server 2003 SP1 (32-bit)	Oracle 10.2.0.4	x86-compatible multi-CPU system with 2-16 GB RAM
Windows Server 2003 R2 SP2 (32-bit and 64-bit)		
Microsoft Windows Server 2008 (32-bit and 64-bit)		
Red Hat Enterprise Linux 4.0 AS (RHEL 4 AS), update 7 (32-bit and 64-bit)	Oracle 10.2.0.4	x86-compatible multi-CPU system with 2-16 GB RAM
Red Hat Enterprise Linux 5.0 AS (RHEL 5.2 AS), update 2 (32-bit and 64-bit)		
SUSE Linux 10 SP1 Enterprise Server (64-bit)		
Sun Solaris 9 (64-bit)	Oracle 10.2.0.4	Sparc-compatible multi-CPU system with 2-16 GB RAM
Sun Solaris 10 (64-bit)		
IBM AIX 5L, Version 5.3 (5.3.0.70) (64-bit)	Oracle 10.2.0.4	Power PC multi-CPU system with 2-16 GB RAM, 2 GB disk space

+ See [“Uninstalling the ArcSight Database Software” on page 76](#) for additional steps you must perform if you apply an Oracle patch or patch set to this configuration.



Refer to the ArcSight ESM Product Lifecycle document available on the ArcSight Customer Support website for the most current information on supported platforms.

## General Guidelines for Installing Oracle

Below are some of the guidelines for installing the Oracle software:

## Storage Guidelines

The following table lists typical disk space requirements for installing Oracle10g:

Space type	Amount of space required
Temporary Space	<code>\$TEMP</code> or <code>\$TMPDIR</code> (/tmp, by default) on Unix and <code>%TEMP%</code> on Windows. Must have at least 65 MB available.
Unix Swap Space	(Unix only) Oracle recommends a minimum of two times physical memory for swap space. The ArcSight Database Installer enforces this recommendation if physical memory is less than 4 GB. On machines with more than 4 GB, the installer requires a minimum swap space equal to physical memory size.
Oracle Installation	At least 4 GB in the Oracle installation directory.
ArcSight Database Software	At least 1 GB in the ArcSight Database installation directory.

ArcSight recommends that you use the Stripe and Mirror Everything (SAME) layout for efficiency and space economy, and define volumes as listed below. SAME simplifies sizing and management of a volume without impacting performance. In addition, Oracle recommends using SAME for its databases.

Volume Name	Contents	Typical Size	I/O Load
SYSTEM	Oracle installation	2 GB	Moderate
DATABASE	Oracle default tablespaces and ArcSight tablespaces	Hundreds of GB	High
REDO	Oracle redo log files	10-20 GB	Highest
ARCHIVE	Archived Oracle redo log files and ArcSight partition archives (if Partition Archiver is enabled)	Up to hundreds of GB	Low



- 1 Typically, the Oracle software is installed on the same drive where the system operating system is installed and user home directories reside. It is not necessary to have a separate volume for Oracle installation.
- 2 You must always create a separate REDO volume to hold redo logs. Do not use the DATABASE volume for this purpose. Additionally, always place the active redo logs on a separate volume from the one used for archived redo logs. ArcSight does not recommend using the same shared volume for redo logs and archived redo logs as it can impact performance.

ArcSight recommends RAID level 1+0 and level 0+1, in order of preference, due to its combination of performance and reliability and does not support RAID 5 for the ArcSight Database.

## Volume 1: SYSTEM Volume

### Oracle installation directory

The SYSTEM volume stores the Oracle installation. The Oracle installation directory contains Oracle DBMS software. ArcSight recommends that you install Oracle in the default location whenever possible: `/home/oracle` on Unix or Linux, or `C:\oracle` on Windows.

Before installing Oracle, ensure that the Oracle installation directory has adequate available space.

On Unix or Linux, Oracle's Universal Installer, which is invoked in silent mode by ArcSight's Database Installer, cannot check available disk space if you use a symbolic link to the installation directory.

The initial Oracle installation directory size in the previous table includes:

Size	For...
2 GB	Oracle10g installation files
2 GB	ArcSight Database Installer staging space for uncompressed Oracle installation files. The ArcSight Installer extracts the contents of the compressed installation files into the stage subdirectory. The Installer will delete the stage subdirectory when the installation is complete.

Data redundancy is essential for production setups, as loss of information in the SYSTEM volume can leave the database in a state that would require time-consuming recovery. Consequently, a RAID1 (mirroring) configuration is recommended.

### ArcSight Database Software

Install the ArcSight Database software in its default location (`/usr/local/arcsight/db` on Unix or Linux, or `C:\arcsight\db` on Windows). Before installing a new version, rename the existing directory by adding the old version number to the directory name.

## Volume 2: DATABASE Volume

The DATABASE volume holds these tablespaces:

Oracle's default tablespaces:

- SYSTEM
- SYSAUX (for 10g)
- INDX
- UNDOTBS1
- TEMP

ArcSight tablespaces:

- ARC\_SYSTEM\_DATA
- ARC\_SYSTEM\_INDEX



- ARC\_EVENT\_DATA
- ARC\_EVENT\_INDEX
- ARC\_UNDO
- ARC\_TEMP



By default, the Oracle default tablespaces are in the Oracle software installation directory. If the Oracle software installation directory is not mirrored, you must put them on the DATABASE volume.

Due to size and I/O load, NAS (Network Attached Storage) or SAN (Storage Area Network) technology is typically used for the DATABASE volume.

Even though NAS is supported, you have to be aware that the database is very I/O intensive. So, replacing the dedicated connection with a shared network layer could lead to performance issues.

## SYSTEM

The SYSTEM tablespace holds all tables of the Oracle data dictionary.

## SYSAUX

The SYSAUX tablespace is an auxiliary tablespace to SYSTEM. Many database components use the SYSAUX tablespace as the default location to store data.



The database instance created by the ArcSight's embedded Oracle installer (ArcSight Database installer) has the SYSTEM and SYSAUX tablespaces set to autoextend. These tablespaces will grow in the initial few days after installation as the event collection ramps up. They will stabilize subsequently in terms of size. However, the size of these tablespaces will continue to be a small fraction of the space used by ARC\_EVENT\_DATA tablespace. If you installed Oracle without using ArcSight's embedded Oracle installer, ensure that you have turned autoextend on for SYSTEM and SYSAUX tablespaces.

## INDX

This tablespace holds the indices on the tables of the Oracle data dictionary.

## UNDOTBS1

This is Oracle's default UNDO tablespace. An undo tablespace is used to hold the old image to enable a roll back of a transaction and to provide a consistent image to queries that are run after a transaction is initiated but before it is committed. This volume has random read/write I/O.

## TEMP

The TEMP tablespace is the default temporary tablespace for the instance and is created during instance creation. This tablespace is used by Oracle's administrative accounts—SYS and SYSTEM. ArcSight schema owner uses another temporary tablespace called ARC\_TEMP, which is created during ArcSight Database initialization.

## ARC\_SYSTEM\_DATA

ARC\_SYSTEM\_DATA stores ArcSight resources such as system objects. Unless very large active lists or large number of assets are used, the space requirements for ARC\_SYSTEM\_DATA are rather moderate; typically, a few GB.

I/O usage on ARC\_SYSTEM\_DATA is rather moderate in comparison with ARC\_EVENT\_DATA, since it is mostly human-driven, and ArcSight Manager memory caches reduce the number of queries substantially.

### **ARC\_SYSTEM\_INDEX**

ARC\_SYSTEM\_INDEX holds indexes that enable efficient queries against the data in ARC\_SYSTEM\_DATA. The I/O load on this tablespace is moderate. ArcSight Manager caches data from ARC\_SYSTEM\_DATA.

### **ARC\_EVENT\_DATA**

The ArcSight event data tablespace (ARC\_EVENT\_DATA) stores all events that are online and accessible from the ArcSight Console. Therefore, this tablespace typically has a very large number of I/O operations, both reads and writes. Writes are caused by inserting new events, as well as by event annotations caused by users or rules. Even though the majority of writes are append operations, the majority of I/O operations on this volume use random access. Write pauses are rare, due to the constant incoming stream of events.

Read operations take place at the same time. These are driven by active channels engaged in the ArcSight Console and ArcSight Web, and by reports and other components of the ArcSight Manager that need to read events. Read operations are mostly random, depending on the various queries. Certain operations, such as running a report, can cause spikes in read I/O, but active channels typically provide a solid base load, depending on filter complexities and time ranges.

### **ARC\_EVENT\_INDEX**

ARC\_EVENT\_INDEX is the largest tablespace and holds indices that enable very efficient queries against the data in ARC\_EVENT\_DATA. Typically, the indices use more disk space than the actual data.

Again, most I/O load occurs in the ARC\_EVENT\_INDEX tablespace. Compare this to ARC\_EVENT\_DATA, where most write operations are somewhat sequential and read operations are random. Both write and read operations in ARC\_EVENT\_INDEX are random.

### **ARC\_UNDO**

This tablespace is used instead of Oracle's default tablespace UNDO. Because there can be only one active tablespace, once ARC\_UNDO is created successfully, the ArcSight Database Configuration Wizard flags the default UNDO tablespace UNDOTBS1 as inactive. Keep UNDOTBS1 in the database in case ARC\_UNDO gets corrupted.

### **ARC\_TEMP**

The ARC\_TEMP tablespace stores temporary query results; for example, sorting. This tablespace is typically moderate in size and I/O load.

## **Volume 3: REDO Volume**

The REDO volume holds Oracle redo logs. These logs are written at a high rate, and sequentially. They are read during database startup, redo log archiving, and during recovery, all of which are not relevant during everyday operation.

The ArcSight Database Installer creates three or four redo log groups (each with a single member). The number of redo log files and their default sizes depend on the template used to create the ArcSight Database. If you anticipate frequent data updates, increase the size to 3 MB each or add an additional redo log group.

You must always create a separate REDO volume to hold redo logs. Do not use the DATABASE volume for this purpose.

Given the small size but high I/O load, either high-performance direct-attached storage or NAS/SAN technology are typically used for the REDO volume.

## Volume 4: ARCHIVE Volume

This volume can be split into two volumes:

- For archived Oracle redo logs

This volume is required only if Oracle is running in ARCHIVELOG mode, which is required for hot backup.

- For ArcSight partition archives

This volume is required only if Partition Archiver is enabled.

### ArcSight Partition Archives

This volume holds a directory with archived partitions. Archived partitions contain event data, typically one day's worth per partition. They are compressed using zip, bzip2 or gzip. When brought back online (through the ArcSight Console), the files are decompressed in the same directory and made available to Oracle.

Typically, contents are written to the archived partitions directory once a day when the oldest online partition is archived. When a partition is reactivated, it is decompressed in this directory and queries against data in this partition are run against the ARCHIVE volume. No additional data can be inserted into this partition.

Given the large size but typically low I/O rate, inexpensive near-line storage or SATA-based SAN volumes are often used for the ARCHIVE volume.

### Archived Oracle Redo Logs

This volume is required only if automatic redo log archiving is enabled, which ArcSight recommends for production instances. Installations that perform hot backups (using a tool such as Oracle's Recovery Manager, RMAN, or Veritas Net Backup for Oracle) must enable automatic redo log archiving.

Without archived redo logs, the Oracle database may not be recoverable after a disk crash.

The size of this volume depends on the number of events. If a 2 GB redo log is filled in 30 minutes on average, you will need at least 48 GB of disk space to store one day's archived redo logs. How long you need to preserve archived redo logs depends on your backup schedule.

When automatic redo log archiving is enabled, monitor the disk space usage for the redo log archive destination and purge old archived redo logs periodically. External tools can be used to compress the archived redo logs.

If there is no available space on the redo log archive destination, Oracle will hang without warning. If this happens, make more space available by either adding capacity to the volume or by deleting old archived redo logs. When space is available, Oracle will resume (a restart is not required).

Given the large size, SATA-based SAN volumes are often used for the ARCHIVE volume. However, this volume cannot be slower than the REDO volume. Otherwise, the database may hang periodically until the redo log archiver has caught up with the redo log writer.

## Oracle Control Files

By default, Oracle creates the three copies of the Control File in the same location as Oracle's default tablespaces under the Oracle software installation directory, namely `$ORACLE_HOME/oradata` on Unix and Linux, and `%ORACLE_HOME%\oradata` on Windows.

It is very important to distribute three copies of the control file to three different volumes, preferably not in `$ORACLE_HOME`, and back up the control files whenever the database structure is changed. Adding a data file, for example, represents a change to the database structure.

## Selecting an ArcSight Database Template

The ArcSight Database Installation Wizard presents a range of pre-defined templates that initialize ArcSight's Database. The templates include:

Size	Use
Small	For pilot installation
Medium	Small production environments
Standard	Typical production environments
Large	Large production environments
Extra Large (X-Large)	Very large production environments (See details below.)
Extra, Extra Large (XX-Large)	Very large production environments (See details below.)

The template you select for the Oracle instance creation will depend on the capacity and performance requirements of the ArcSight security management system you want to deploy.

ArcSight Database templates specify:

- Required minimum memory capacity
- Required minimum disk space
- Number of redo logs
- Redo log file size
- Minimum sizes for ArcSight tablespaces
- Required file system types

Other factors, such as other applications to be installed on the database machine, may affect your template decision. The table below lists the assumptions and configurations for the database templates provided.

ArcSight recommends dedicating a machine to the ArcSight Database. The operating system chosen often suggests a hardware platform. For Intel-based platforms (Windows or Linux), for example, two or more P4 Xeon processors is a typical configuration.

Template	CPUs	Memory	Disk
Small (Quick Demos only)	1	512 MB	16 GB
Medium (Tests/Pilots only)	1	1 GB	32 GB
Standard (Typical Production)	2	2 GB	64 GB
Large (Large Production) 64-bit machines only	4 <sup>2</sup>	4 GB	128 GB
X-Large (Large data files) 64-bit machines only	4	8 GB	256 GB
XX-Large (Large data files) 64-bit machines only	8	16 GB	256 GB

Minimum Disk Space assumptions:

- Disk space required for Oracle software installation is not included.
- The online retention period is set to the default value of 30 days.
- The online reserve period is set to the default value of 14 days.
- Minimum sizes for ARC\_UNDO and ARC\_TEMP are set to the recommended values.

For the Large template on 32-bit Windows, add the /3GB option to `boot.ini` and reboot Windows before creating the ArcSight instance.

## Preparing your Platform for Database Installation

### UNIX Platforms

ArcSight Database can be installed on AIX, Linux, or Solaris platforms.

If the 'oracle' group and the default Oracle software owner account (that is, 'oracle') do not exist on your database host, the database installer automatically creates them. However, if you have any restrictions or password policies in place that will prevent the installer from creating the group or the owner account, you must create them manually before launching the installer.

If the installer creates the owner account automatically, you must set a password for that account after the installation is complete.

If you created the account manually, you must make sure you set a password for the account during account creation.

## Preparing a Linux System

Perform the following steps to prepare Linux for the installation of ArcSight Database:

- 1 Make sure that your Linux system meets the requirements listed in [“Supported Platforms for Database Installation and Upgrade”](#) on page 22.
- 2 Verify that the following required packages are installed:

On Red Hat Enterprise Linux 4.0 32 bit:

```
binutils-2.15.92.0.2-13.EL4
compat-db-4.1.25-9
compat-libstdc++-296-2.96-132.7.2
gcc-3.4.3-22.1.EL4
gcc-c++-3.4.3-22.1.EL44
glibc-2.3.4-2.9
glibc-common-2.3.4-2.9
libstdc++-3.4.3-22.1
libstdc++-devel-3.4.3-22.1
make-3.80-5
pdksh-5.2.14-30
sysstat-5.0.5-1
setarch-1.6-1
```

On Red Hat Enterprise Linux 4.0 64 bit:

```
compat-db-4.1.25-9.x86_64
gcc-3.4.3-22.1.x86_64
gcc-c++-3.4.3-22.1.x86_64
glibc-2.3.4-2.x86_64
glibc-common-2.3.4-2.x86_64
gnome-libs-1.4.1.2.90-44.1.x86_64
libstdc++-3.4.3-22.1.x86_64
libstdc++-devel-3.4.3-22.1.x86_64
make-3.80-5.x86_64
pdksh-5.2.14-30.x86_64
sysstat-5.0.5-1.x86_64
compat-libstdc++-33-3.2.3-47.3.x86_64
glibc-kernheaders-2.4-9.1.87.x86_64
```

```

glibc-headers-2.3.4-2.9.x86_64
libaio-0.3.103-3.x86_64 (both ARCHs are required.)
libaio-0.3.103-3.i386 (both ARCHs are required.)
glibc-devel-2.3.4-2.9.x86_64 (both ARCHs are required.)
glibc-devel-2.3.4-2.9.i386 (both ARCHs are required.)

On Red Hat Enterprise Linux 5 (32-bit and 64-bit)

make-3.81-3.el5(i386)
binutils-2.17.50.0.6-6.el5(i386)
gcc-gfortran-4.1.2-42.el5(i386)
gcc-c++-4.1.2-42.el5(i386)
gcc-4.1.2-42.el5(i386)
libaio-0.3.106-3.2(i386)- both 32 bit and 64 bit rpms are needed
compat-db-4.1.25-9(i386)
compat-libstdc++
glibc-common-2.5-24(i386)
glibc-devel-2.5-24(i386)
glibc-headers-2.5-24(i386)
glibc-2.5-24(i686)
glibc-common-2.5-24(i386)
libstdc++-4.1.2-42.el5(i386)
libstdc++-devel-4.1.2-42.el5(i386)

```



If any of these packages are not installed, you may want to reinstall Linux.

- 3 Remember to run the ArcSight Database Installer as root for the installation to be successful.
- 4 Make sure that the ports listed in the ["Protecting ArcSight Manager" on page 11](#) are open in order to facilitate a smooth communication between the ArcSight Manager and the database.



RedHat Linux 4 has firewall enabled by default, which will cause the ArcSight setup and configuration programs to fail. Since ArcSight Manager needs to communicate with the database machine, you must open the ports listed in the ["Protecting ArcSight Manager" on page 11](#) on the Manager and database machines before proceeding with the ArcSight Manager setup.

- 5 Run the hostname command and check that it returns the fully-qualified host name in the form "hostname.domainname."

If not, do the following:

- a** Set the host name to a fully-qualified name with the following command:  

```
hostname hostname.domainname
```
- b** Edit the file `/etc/sysconfig/network` to set the host name to the same fully-qualified name permanently.
- 6** Check `/etc/hosts` and make sure the entry for localhost is "127.0.0.1 localhost.localdomain localhost"
- 7** Run the ping command to verify the host names for both the Manager machine and the database machine are resolvable from both sides.
- 8** Make sure that you have selected at least the "minimal" package group option while configuring your RHEL4u6 AS 32bit system

## Preparing a Solaris System

Perform the following steps to prepare Solaris for the installation of ArcSight Database:

- 1** Make sure that your Solaris system meets the requirements listed in ["Supported Platforms for Database Installation and Upgrade" on page 22](#).
- 2** Log in as root and run the `ulimit -a` command to view the currently defined system limits. Make sure that the limits below are set to the following:
  - ◆ Set the "cpu time" to "unlimited"
  - ◆ Set the "file size" to "unlimited"
  - ◆ Set the "data seg size" to "unlimited" or to at least "1048576"
  - ◆ Set the "stack size" to at least "32768"
  - ◆ Set the "open files" to at least "4096"
  - ◆ Set the "virtual memory" to "unlimited" or to at least "4194304"
- 3** Remember to run the ArcSight Database Installer as root in order for the installation to be successful.
- 4** Make sure that you choose the Developer package when installing Solaris so that Oracle will be able to link its executables during the installation process. Make sure the command `/usr/sbin/prtconf` is available and that `/usr/sbin` is included in root's shell environment variable PATH.



Instead of installing the Developer package, you can install the following packages in your environment: SUNWlibm, SUNWlibms, SUNWsprot, SUNWtoo, SUNWi10f, and SUNWXWfnt.

---

- 5** Verify that the following required packages are installed:

On Solaris 9/10 64 bit:

`SUNWarc`

`SUNWbtool`

`SUNWhea`

`SUNWlibm`

`SUNWlibms`



```

SUNWsprt
SUNWtoo
SUNWilof
SUNWilcs
SUNWil5cs
SUNWxfnt
SUNWspox

```

You can run the following Solaris command to check whether these packages are installed or not:

```

# pkginfo -i SUNWarc SUNWbtool SUNWhea SUNWlibm SUNWlibms
SUNWsprt SUNWspox SUNWtoo SUNWilof SUNWilcs SUNWil5cs
SUNWxfnt

```

You should also apply the latest Solaris Operating System patches. Check <http://sunsolve.sun.com> for Solaris patches.

- 6 If Perl is not installed, download the binary distribution from <ftp://ftp.sunfreeware.com/pub/freeware/sparc> and install it.



The Oracle patchset installer also requires the SUNWuiu8 Iconv modules for UTF-8 locale, and the SUNWuiu8x Iconv modules for UTF-8 locale (64-bit).

- 7 The installer edits `/etc/system` to specify kernel parameters for shared memory segments and semaphores which Oracle uses at startup. Lines that start with “set shmsys:” or “set semsys:” are deleted and the following lines are added, replacing SHMMAX with the total memory required by the ArcSight Database Template you selected, in bytes. (Multiplied by 1,048,576 to convert megabytes to bytes.)

```

set shmsys:shminfo_shmmx=SHMMAX

set shmsys:shminfo_shmmn=1

set shmsys:shminfo_shmmni=512

set shmsys:shminfo_shmseg=64

set semsys:seminfo_semmns=512

set semsys:seminfo_semmni=512

set semsys:seminfo_semopm=64

set semsys:seminfo_semmsl=1024

set semsys:seminfo_semvmx=32767

```

The installer will prompt you to reboot for changes to `/etc/system` to take effect.

## Preparing a Windows System

Perform the following steps to prepare Windows for the installation of ArcSight Database:

- 1 Make sure that your Windows system meets the requirements listed in [“Supported Platforms for Database Installation and Upgrade”](#) on page 22.
- 2 ArcSight requires a clean database machine. If Oracle was previously installed on the database machine, reinstall the operating system before proceeding further.
- 3 Remember to run the ArcSight Database Installer as the local ‘Administrator’ user for the installation to be successful.

## Installing or Upgrading ArcSight Database and Oracle



ESM v4.5 does not support Oracle 9x. If your current ESM installation uses Oracle 9x, you are required to upgrade it to Oracle 10g. If you would like to upgrade to Oracle 10.2.0.4, you will be required to first upgrade your Oracle software to a minimum of Oracle 10.2.0.2 **before** you upgrade to Oracle 10.2.0.4.

To upgrade to Oracle 10.2.0.2, run the following command from the ESM v4.0 SP1 ArcSight Database `bin` directory:

```
arcsight databasesetup
```

and follow the wizard screens. Select **Upgrade Oracle 9i instance to 10gR2** when prompted. See the *ArcSight Installation and Configuration Guide, v4.0 SP1* for details.

Once you have upgraded to Oracle 10.2.0.2, you can use the ESM v4.5 ArcSight Database software to upgrade to Oracle 10.2.0.4

---

The installation or upgrade process involves these steps:

- 1 Install the ArcSight Database software.
- 2 Depending on your current setup, select from one of these actions:
  - ◆ A brand new install
  - ◆ A new ArcSight install that will use pre-existing Oracle 10g software
  - ◆ A new ArcSight installation that will use pre-existing Oracle 10g software and a 10g instance
  - ◆ An existing ArcSight installation with Oracle 10g software and a 10g instance (that is, an upgrade candidate)



---

If you choose to upgrade from Oracle 10.2.0.2 to 10.2.0.4, make sure that you have Oracle 10gR2 installed on your system. Otherwise you will encounter an error message.

---

The wizards for each of these actions are described in detail next.



---

If the database installation or upgrade process exits at any step in the following procedure, you can restart it with this command:

```
arcsight database install
```

## Installing the ArcSight Database Software

Once you have prepared your system as described earlier in this chapter and read the prerequisites, you are ready to install or upgrade the ArcSight Database component and, if needed, the Oracle 10g database software.

Follow these steps to install the ArcSight Database software:

- 1 Download the ArcSight Database installation file, and if needed, the Oracle 10g database files appropriate for your platform from <https://software.arcsight.com>. Copy all the files (without extracting their contents) to a temporary directory.

The following files are available.

Platform	Oracle 10g Database Files	
	64-bit	32-bit
Windows	AMD64: 102010_win64_x64_database.zip p6810189_10204_MSWIN-x86-64.zip	IA32: 10201_database_win32.zip p6810189_10204_win32.zip
Linux	AMD64: 10201_database_linux_x86_64.cpio.gz p6810189_10204_Linux-x86-64.zip	IA32: 10201_database_linux32.zip p6810189_10204_Linux-x86.zip
Solaris	10gr2_db_sol.cpio.gz p6810189_10204_SOLARIS64.zip	
AIX	10gr2_aix5l64_database.cpio.gz p6810189_10204_AIX5L	

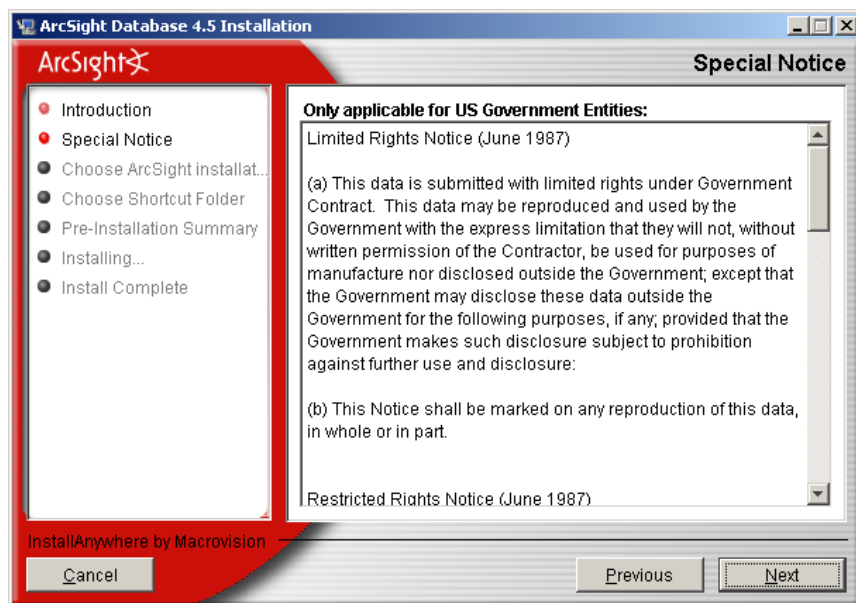
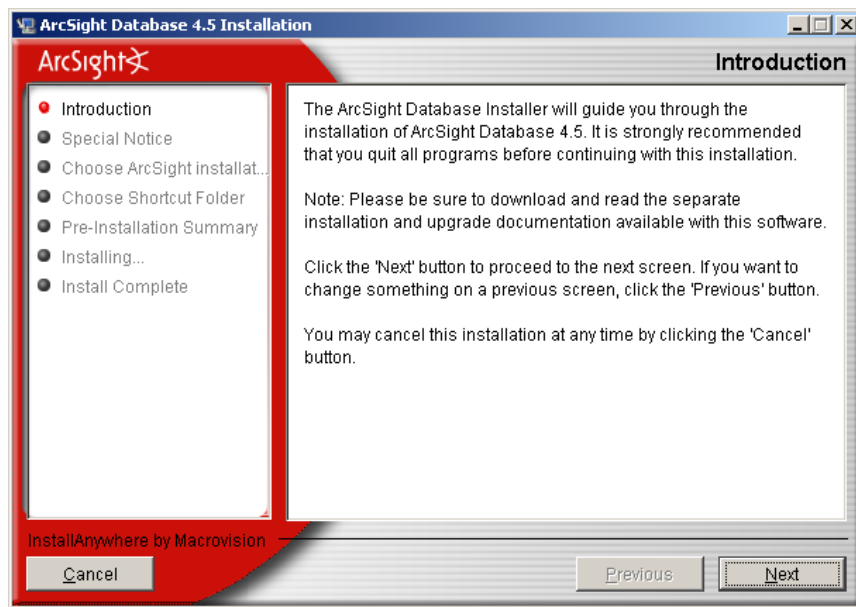
Platform	ArcSight Installation file
Windows	ArcSight-4.5.x.nnnn.y-DB-Win.exe
Linux	ArcSight-4.5.x.nnnn.y-DB-Linux.bin
Solaris	ArcSight-4.5.x.nnnn.y-DB-Solaris.bin
AIX	ArcSight-4.5.x.nnnn.y-DB-AIX.bin

- 2 Run the appropriate self-extracting ArcSight installation file for your platform.



A Windows system was used for the sample installation. If you are installing your database on a Unix based system, you will notice a few Unix-specific screens.

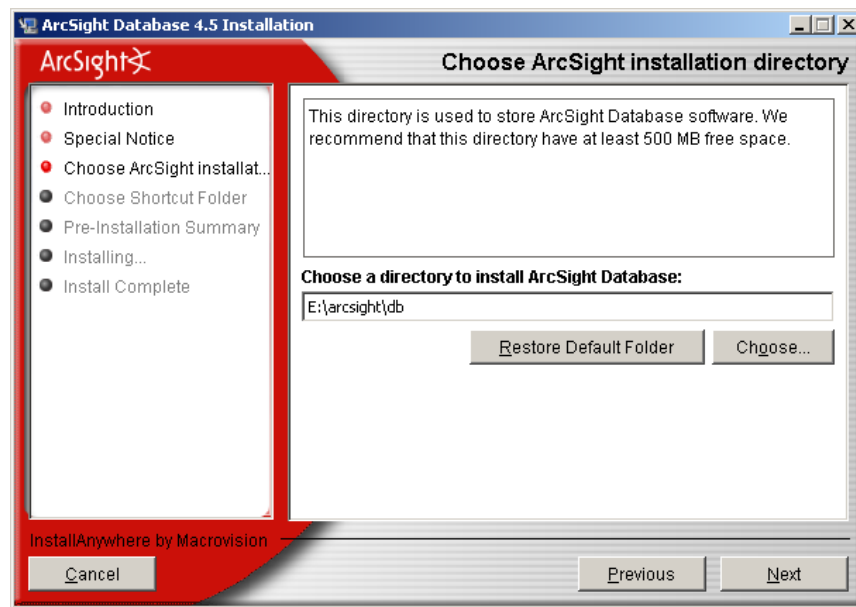
Screens that summarize your selections or the ones that report progress on the installation are not shown in this sample installation.



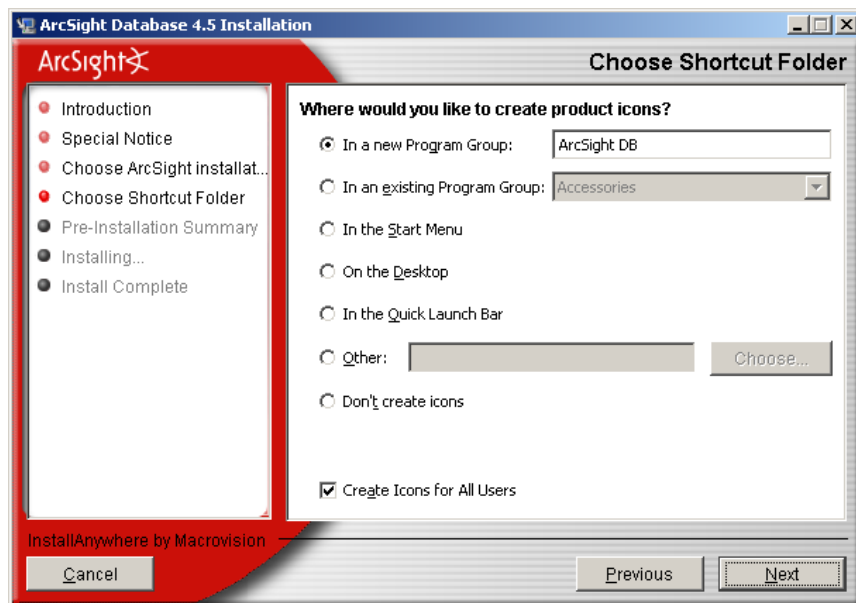
### 3 Choose ArcSight Installation Directory:



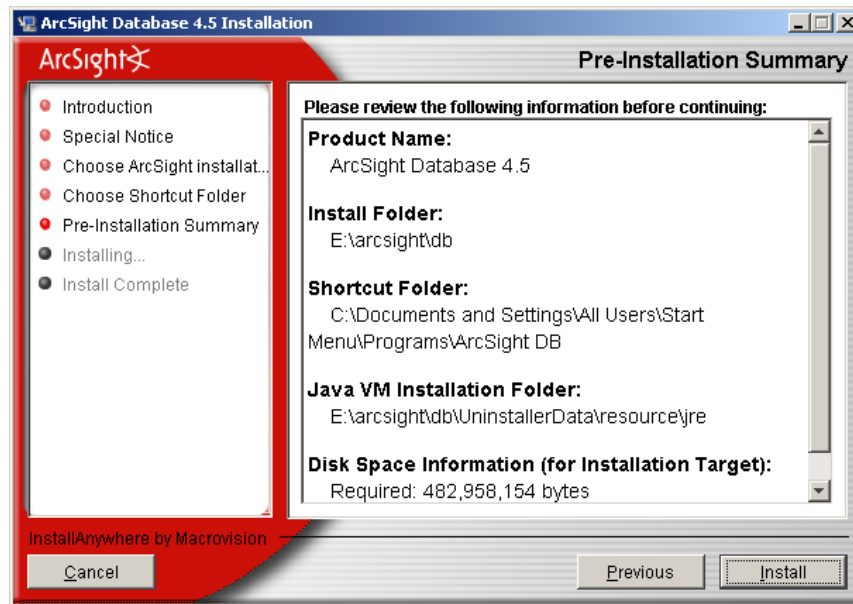
If the directory you choose already exists, the installer will clear any contents that exist in the directory. If you do not want to delete the existing contents of the directory, you may want to specify a new location for the current installation.



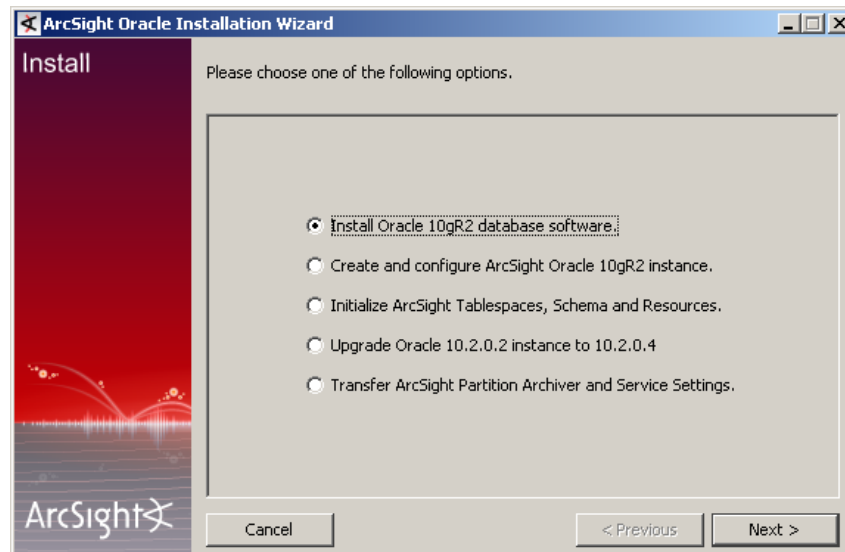
#### 4 Choose Shortcut Folder:



## 5 Pre-installation Summary:



## 6 In the following screen, select from one of the following options. The following table will help you select the option appropriate for you.



Current Setup	Use This Option
A new install	#1—Install Oracle 10gR2 database software. Refer to <a href="#">“Installing Oracle 10g Database Software”</a> on page 40.
A new ArcSight installation that will use a pre-existing Oracle 10g software	#2—Create and configure ArcSight Oracle 10gR2 instance. Refer to <a href="#">“Creating a New Oracle 10g Instance”</a> on page 44.

Current Setup	Use This Option
A new ArcSight installation that will use a pre-existing Oracle 10g software and a 10g instance	#3—Initialize ArcSight Tablespaces, Schema, and Resources. Refer to <a href="#">“Initializing ArcSight Tablespaces, Schema, and Resources” on page 49.</a>
An existing ArcSight installation with Oracle 10.2.0.2 software and a 10.2.0.2 instance	#4—Upgrade Oracle 10.2.0.2 Instance to 10.2.0.4. Refer to <a href="#">“Upgrading Oracle 10.2.0.2 Instance to Oracle 10.2.0.4” on page 62.</a>
An existing ArcSight installation with Oracle 10.2.0.2 instance and an Oracle 10.2.0.2 software	#5—Transfer ArcSight Partition Archiver and Service Settings

If you chose option #1, go to [“Installing Oracle 10g Database Software” on page 40.](#)

If you chose option #2, go to [“Creating a New Oracle 10g Instance” on page 44.](#)

If you chose option #3, go to [“Initializing ArcSight Tablespaces, Schema, and Resources” on page 49.](#)



If you do not have root access to your database machine, you will not be able to initialize tablespaces, schema, and resources using this interface. To initialize tablespaces, schema, and resources in that case, run this command in `<ARCSIGHT_HOME>\bin`:

```
arcsight database init
```

If you chose option #4, go to [“Upgrading Oracle 10.2.0.2 Instance to Oracle 10.2.0.4” on page 62.](#)



If you choose to upgrade from Oracle 10.2.0.2 to 10.2.0.4, make sure that you have Oracle 10gR2 installed on your system. Otherwise, you will encounter an error message.

You can ignore option #5. This option is used to transfer Partition Archiver settings from an existing installation and is only applicable if you are upgrading ArcSight Database.

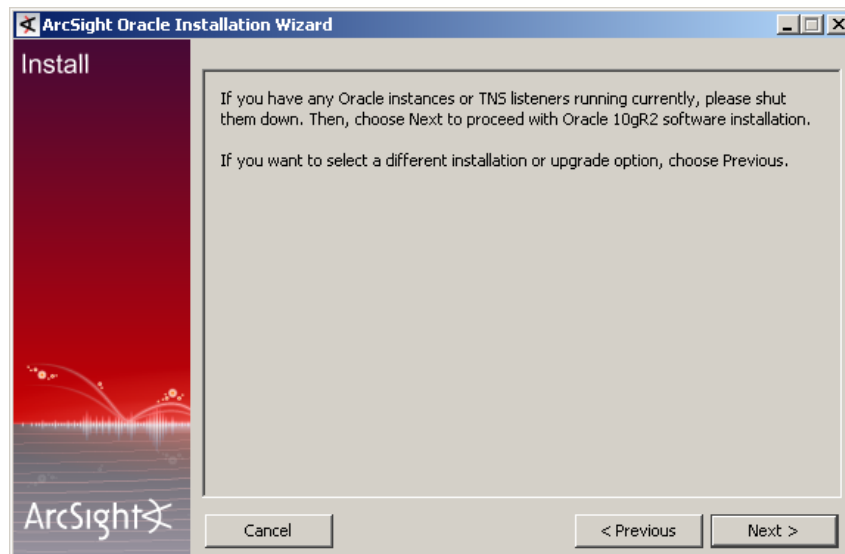
## Installing Oracle 10g Database Software



If you are upgrading from Oracle 10.2.0.2 to Oracle 10.2.0.4 and you want to keep the Oracle 10.2.0.2 installation, you need to specify a new path for the “Oracle Installation Directory” in the ArcSight Oracle Installation Wizard at the appropriate screen.

If the directory you choose already exists, the installer will clear any contents that exist in the directory. If you do not want to delete the existing contents of the directory, you may want to specify a new location for the current installation.

- 1 If you are upgrading from Oracle 10.2.0.2, the following screen prompts you to shut down currently running Oracle instances or TNS listeners.



To shut down TNS listeners, run this command on the database machine:



Make sure you have set the environment variables `ORACLE_HOME` and `ORACLE_SID` to appropriate values before running the commands below.

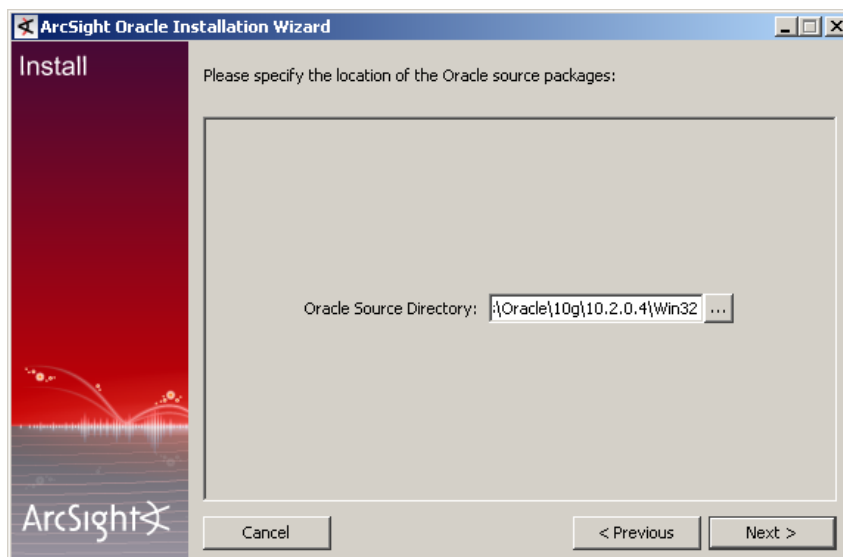
```
% arcdbutil lsnrctl stop
```



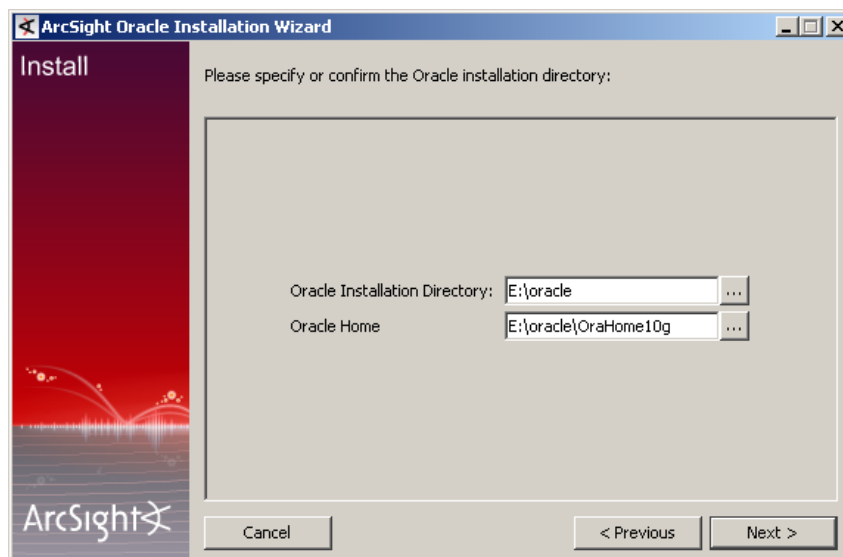
To shut down an Oracle instance, run this command on the database machine:

```
% arcdbutil sql  
Enter user-name: / as sysdba  
SQL> shutdown immediate  
SQL> exit
```

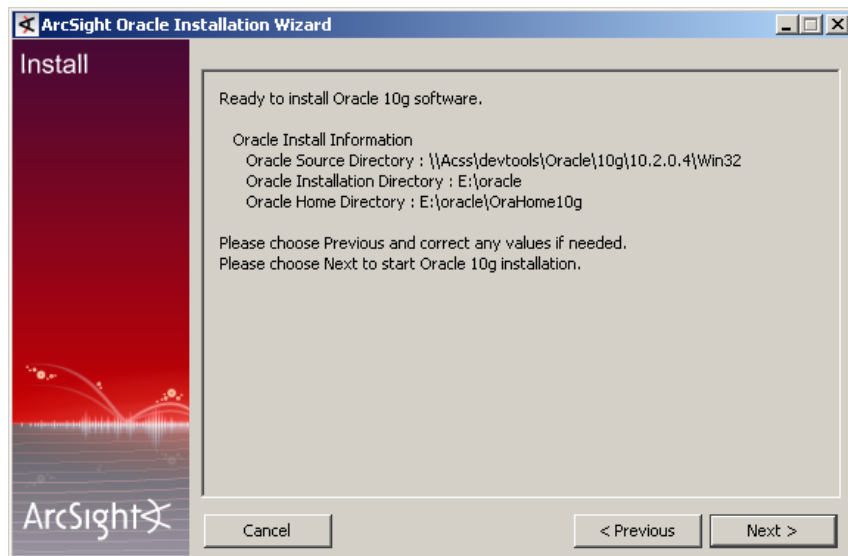
- 2 Enter the location where you copied the Oracle 10.2.0.4 database software files in Step 1 of [“Installing the ArcSight Database Software”](#) on page 34.:



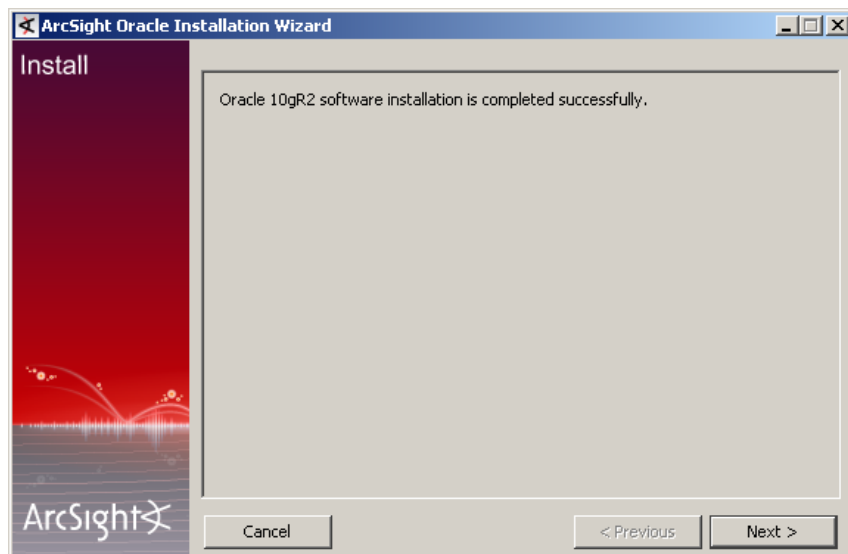
- 3 Specify or confirm Oracle installation directory and click **Next**:



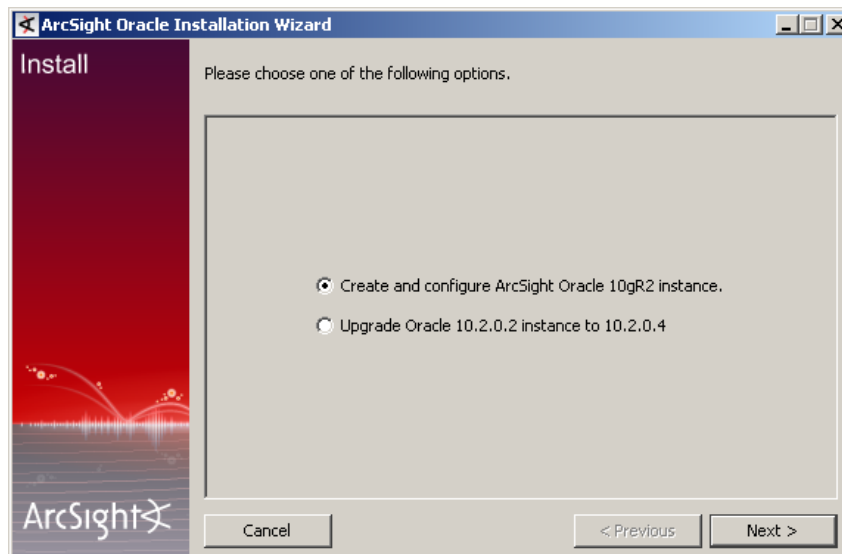
- 4 Make sure that all the locations you specified are correct and click **Next**.



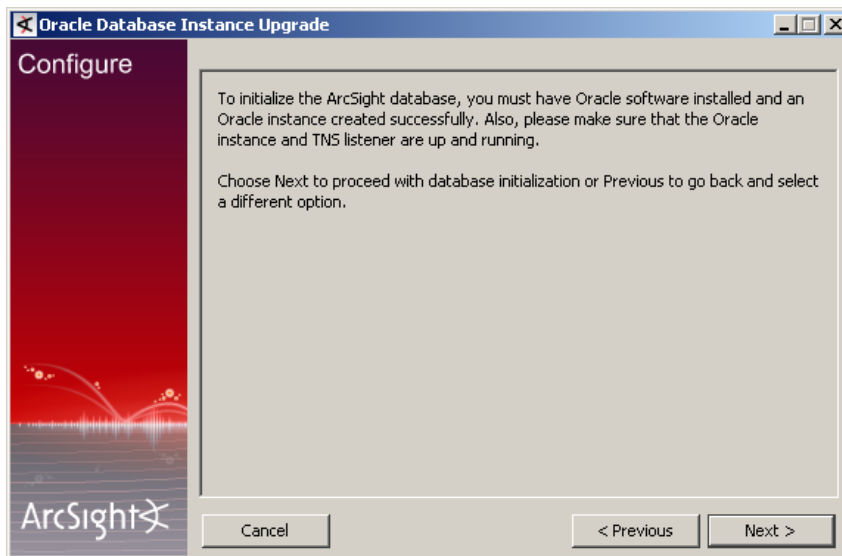
You will see the following screen when the Oracle installation completes.



- 5 Select whether you want to create and configure the ArcSight Oracle instance or you want to upgrade an existing Oracle 10.2.0.2 instance.



- 6 If you choose to create an Oracle database instance you will see the following screen:



- 7 Follow the procedure described in [“Creating a New Oracle 10g Instance”](#) on page 44.

## Creating a New Oracle 10g Instance



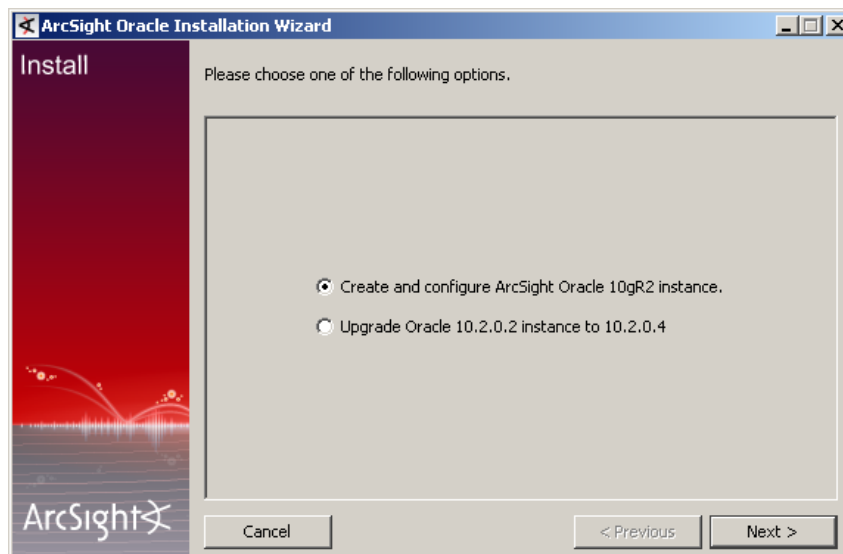
**Setting the Database Block Size:** ArcSight embedded Oracle installer will create the instance with a default block size of 16K. Note that the database block size is a parameter that can only be configured BEFORE the instance has been created. If you determine that your Operating System and hardware would function more optimally with a different block size, you will have to edit the ArcSight template to change the block size. Before you choose to create the ArcSight Oracle instance, edit the file in `<ARCSIGHT_HOME>/installer/Oracle10g/<platform>/dbca/ArcSight_<size>.dbt` in a text editor. Search for "db\_block\_size" and replace its default value "16384" with, for example, "32768" for a 32K block size.

- 1 In the following screen, select from one of the following options. The following table will help you decide the option to select.

Current Setup	Use This Option
A new install	#1—Create and configure ArcSight Oracle 10gR2 instance
An existing ArcSight installation with Oracle 10.2.0.2 database and a 10.2.0.2 instance	#2—Upgrade Oracle 10.2.0.2 instance to 10.2.0.4

If you chose option #1—Create and configure ArcSight Oracle 10gR2 instance—in the previous screen, go to the next step.

If you chose option #2—Upgrade Oracle 10.2.0.2 instance to 10.2.0.4—go to ["Upgrading Oracle 10.2.0.2 Instance to Oracle 10.2.0.4" on page 62](#).



- 2 If you are creating a new instance, you will need to enter the following parameters in the next screen.

**ORACLE\_SID**—System ID (SID) for the ArcSight Database. By default, arcsight. The global database name and the TNS service name will be set to the value you specify for this parameter. The Oracle SID cannot exceed 8 characters.

**ArcSight Database Template**—The template that determines the configuration (for example, memory allocation) of the ArcSight Database you want to create. By default, [ArcSight\\_Standard.dbt](#) (Standard).

Depending on the platform, you can choose from XX-Large, X-Large, Large, Standard, Medium, and Small. For more information about ArcSight Database templates, see [“Selecting an ArcSight Database Template” on page 28](#).

**Database Character Set**—The language that Oracle should use to operate; for example, English. By default, your operating system setting.

**Allowed TNS Clients**—A comma-separated list of host names or IP addresses that are allowed to connect to this database.



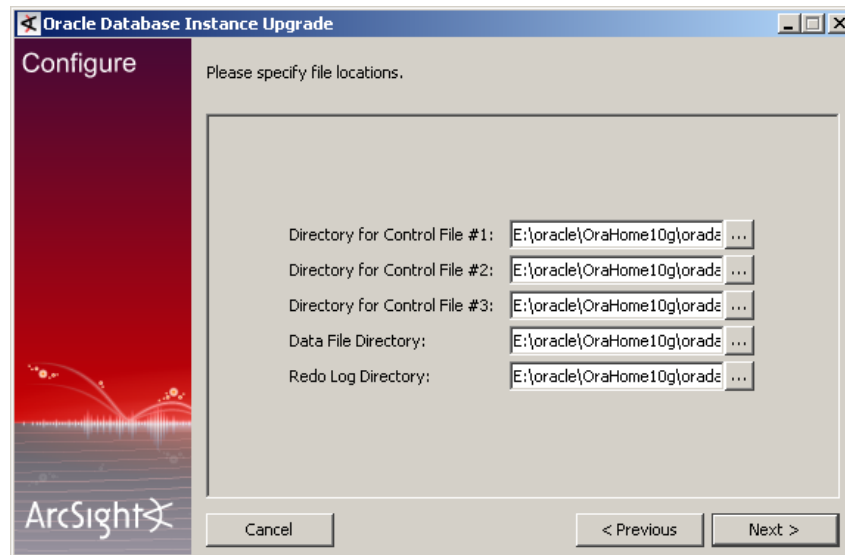
The database machine will only accept connection requests from the specified client list. If the ArcSight Manager is running on another host (as recommended), you must include both the 'localhost' and the ArcSight Manager host in the list. The installer automatically replaces 'localhost' with the actual IP address of the local host. By default, localhost.

- 3 Enter the following parameters in the next screen. Although default directory locations are filled for you, ArcSight recommends that you specify directory locations on separate disks for each of these files to prevent loss from hard disk failures.

**Directory for Control File #1, #2, and #3**-- The directories where the copies of Oracle's control files are stored. By default, [<ORACLE\\_HOME>/oradata/ORACLE\\_SID](#).

**Data File Directory**-- The directory where default data files for Oracle's Data Dictionary will be stored. You need at least 400 MB available disk space for this directory. By default, [<ORACLE\\_HOME>/oradata/ORACLE\\_SID](#).

**Redo Log Directory**-- The directory where Oracle's redo logs will be stored. By default, `<ORACLE_HOME>/oradata/ORACLE_SID`.



- 4 Specify the following redo archive options in the next screen:

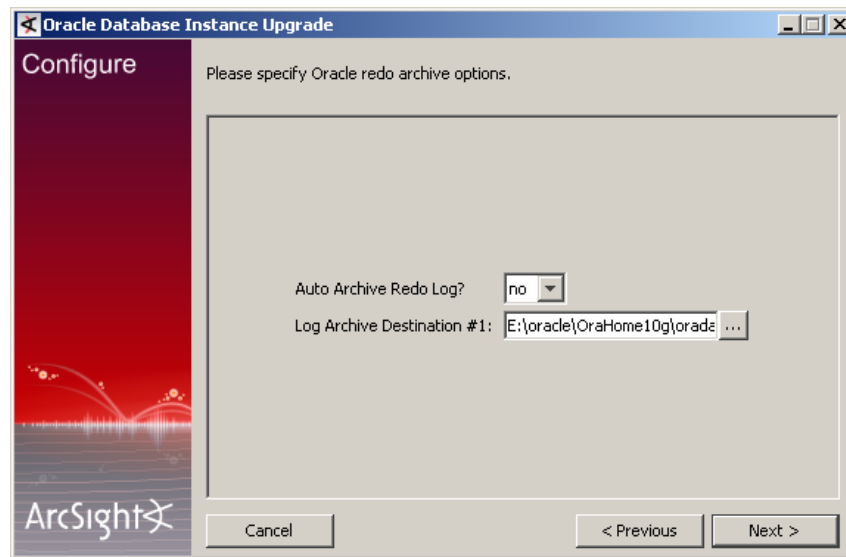
**Auto Archive Redo Log**-- Specify whether to enable automatic log archiving. Note that Redo log archiving requires a large amount of additional disk space and will impact database performance. Therefore, you should only enable log archiving in situations where you cannot tolerate any loss of data from disk crashes. By default, no.

**Log Archive Destination #1**-- The directory to store archived redo log files if you enabled automatic redo log archiving.

Oracle can store archive redo logs in multiple log archive destinations (directories or services) simultaneously for redundancy or other purposes. You can add up to 9 more different log archive destinations later, manually.



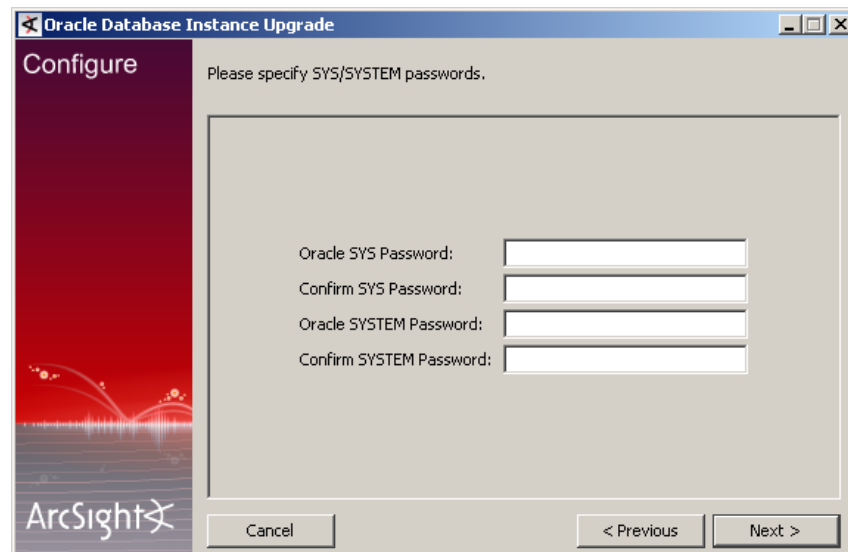
The log archive destination cannot be on a raw disk partition.



- 5 Enter the following information for the next screen:

**Oracle SYS Password**—Password for the Oracle superuser, SYS. By default, none.

**Oracle SYSTEM Password**—Password for the Oracle admin account. By default, none.



- 6 Enter the following information for the next screen which collects the passwords for the system user accounts:



If you select **no** as your answer to the question “Install Enterprise Manager?”, you do not need to enter the Oracle DBSNMP and Oracle SYSMAN passwords.

**Oracle DBSNMP Password**— Password for the Management Agent component of Oracle Enterprise Manager used to monitor and manage the database.

**Oracle SYSMAN Password**— Password for the default super user account used to set up and administer Enterprise Manager.



Although you can install the Oracle Enterprise Manager client using ArcSight's Oracle 10g Installer, you must acquire licensing and support from Oracle directly.

Oracle Database Instance Upgrade

Configure

Please specify Enterprise Manager options.

Install Enterprise Manager ? no

Oracle DBSNMP Password:

Confirm DBSNMP Password:

Oracle SYSMAN Password:

Confirm SYSMAN Password:

Cancel < Previous Next >

Click **Next** to continue.

Oracle Database Instance Upgrade

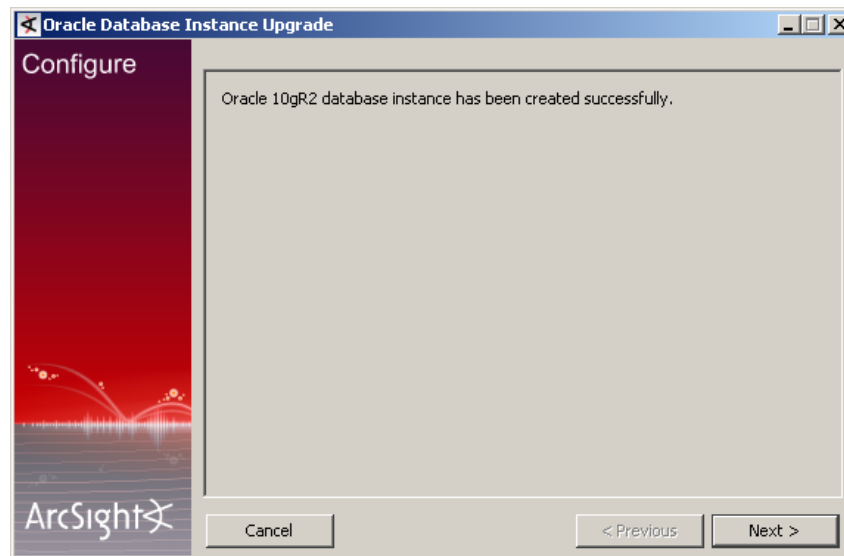
Configure

Ready to create Oracle instance.

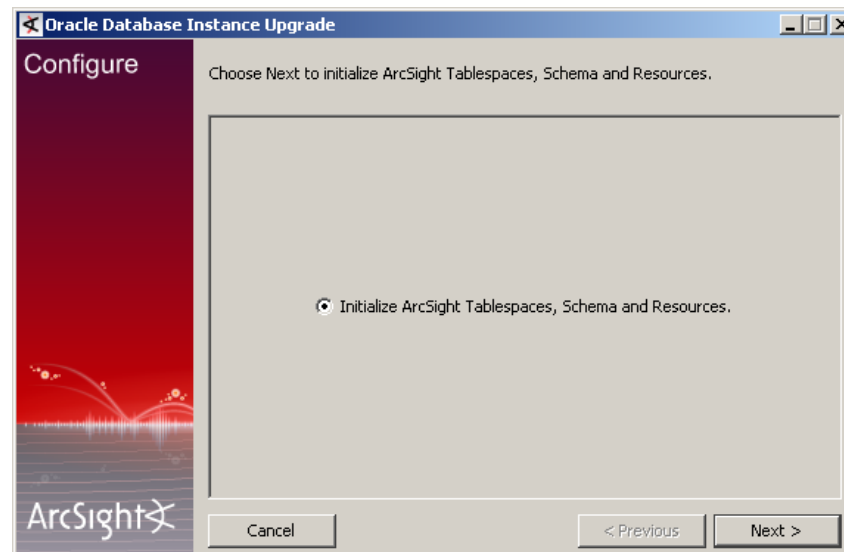
Choose Next to start the Oracle instance creation or Previous to go back and make changes.

Cancel < Previous Next >





- 7 Click **Next** to start initializing ArcSight tablespaces, schema, and resources. Follow the procedure described in [“Initializing ArcSight Tablespaces, Schema, and Resources”](#) on page 49.



## Initializing ArcSight Tablespaces, Schema, and Resources

- 1 You must check the status of the TNS listener and Oracle 10g instance to make sure they are up and running. The following screen prompts you to do so.

To check the TNS listener, run this command on the database machine:

```
% arcdbutil lsnrctl status
```

If the TNS listener is not up, run this command to start it:

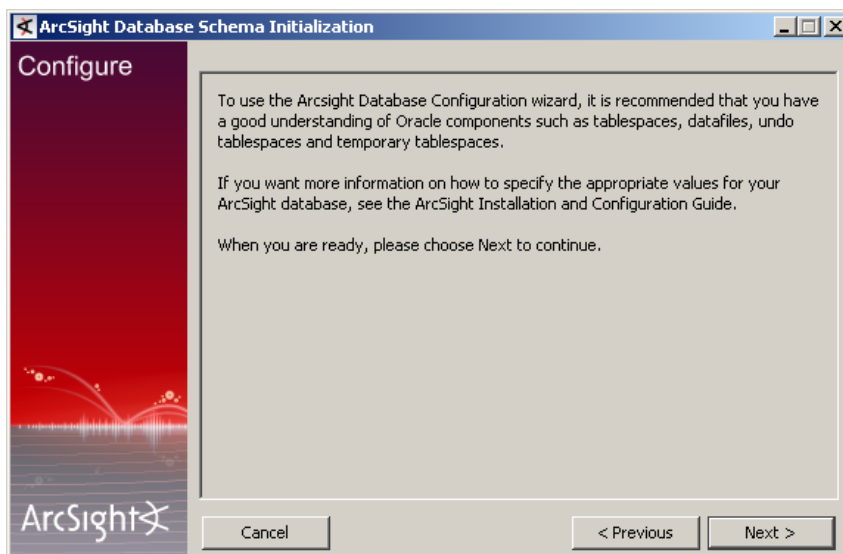
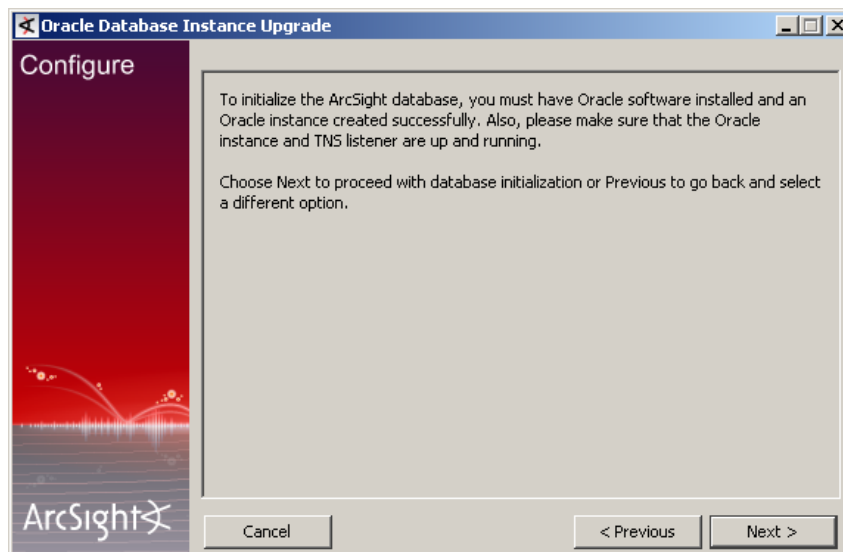
```
% arcdbutil lsnrctl start
```

To check the status of the Oracle instance, run this command on the database machine:

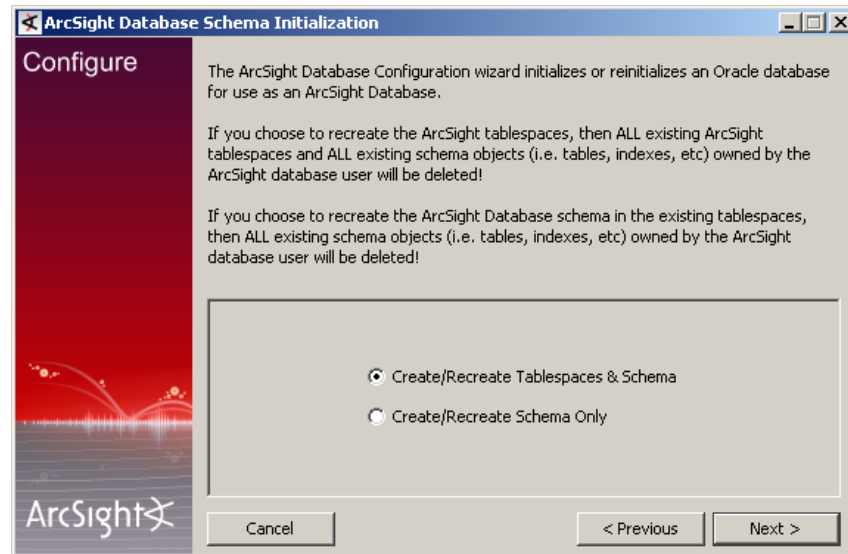
```
% arcdbutil sql  
  
Enter user-name: / as sysdba  
  
SQL> select * from dual;  
  
SQL> exit
```

To start the Oracle instance, run this command on the database machine:

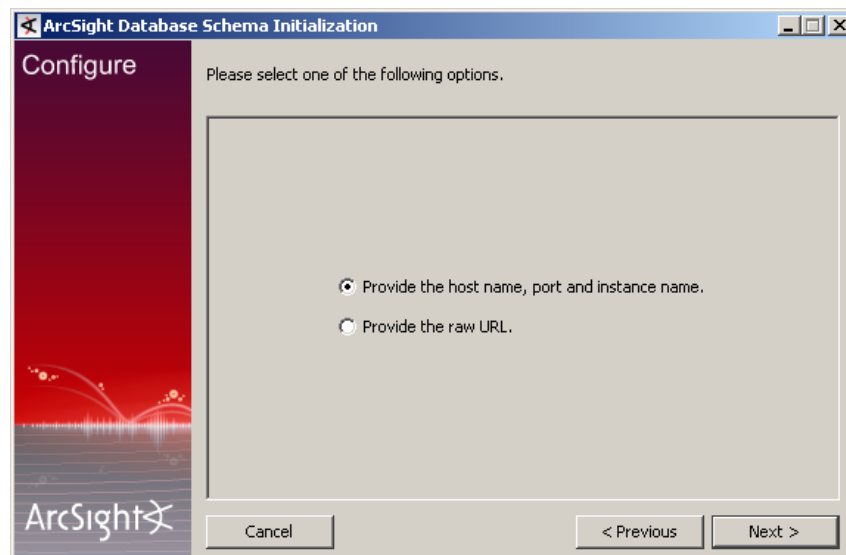
```
% arcdbutil sql  
  
Enter user-name: / as sysdba  
  
SQL> startup immediate  
  
SQL> exit
```



- 2 Select the first option, **Create/Recreate Tablespaces and Schema**, to create table spaces for your Oracle instance and the ArcSight Schema.



- 3 Select the first option to provide the host name, port and instance name.



- 4 Enter the following information in the next screen:

**Database Host Name**—The IP address of the machine on which you are installing the database.

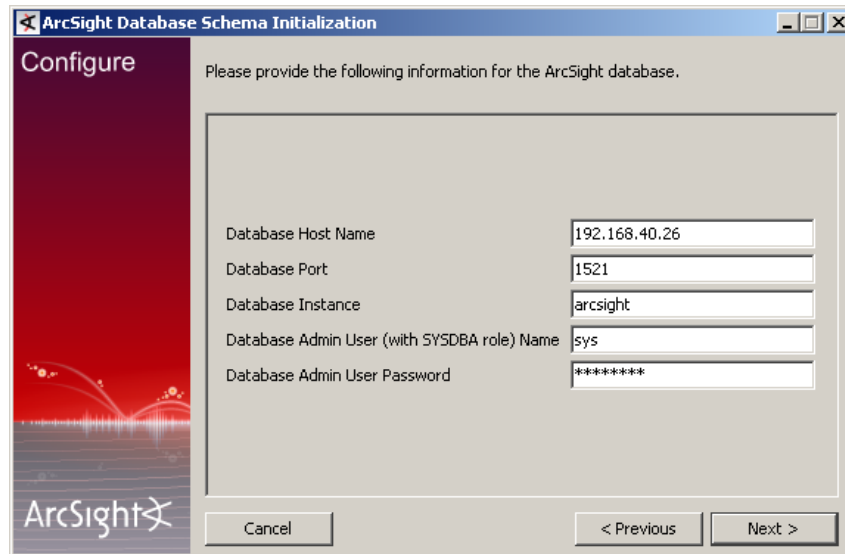
**Database Port**—The TCP port number on which the Oracle listener listens for connections. By default, 1521.

**Database Instance**—The Oracle database instance System ID (SID) that you specified when you created the Oracle instance earlier.

**Database Admin User Name**—The Oracle super user name. By default, SYS.

**Database Admin User Password**—The password for the Oracle super user account.

**Database OS user name**—The Oracle user name you specified when installing the database. By default, oracle.



ArcSight Database Schema Initialization

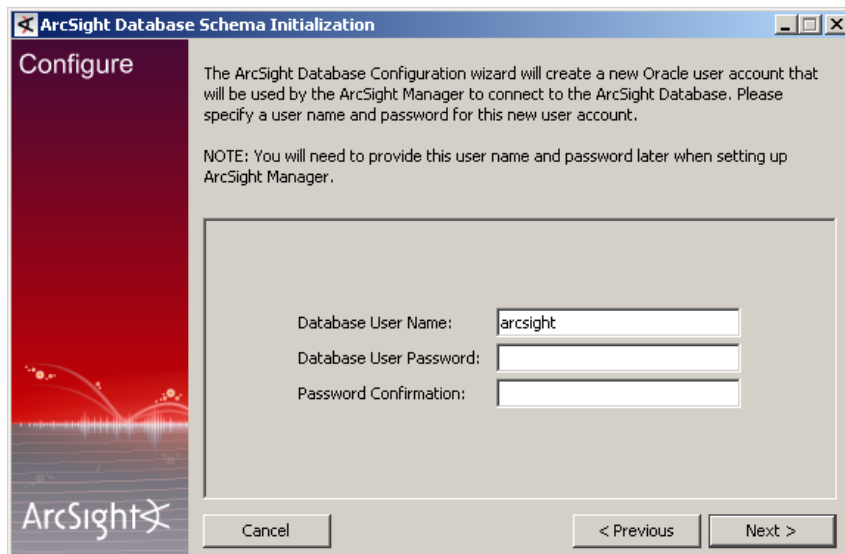
Configure

Please provide the following information for the ArcSight database.

Database Host Name	<input type="text" value="192.168.40.26"/>
Database Port	<input type="text" value="1521"/>
Database Instance	<input type="text" value="arcsight"/>
Database Admin User (with SYSDBA role) Name	<input type="text" value="sys"/>
Database Admin User Password	<input type="password" value="*****"/>

Buttons: Cancel, < Previous, Next >

- 5 Enter a Database User Name and User Password.



ArcSight Database Schema Initialization

Configure

The ArcSight Database Configuration wizard will create a new Oracle user account that will be used by the ArcSight Manager to connect to the ArcSight Database. Please specify a user name and password for this new user account.

NOTE: You will need to provide this user name and password later when setting up ArcSight Manager.

Database User Name:	<input type="text" value="arcsight"/>
Database User Password:	<input type="password"/>
Password Confirmation:	<input type="password"/>

Buttons: Cancel, < Previous, Next >

- 6 Enter the name for System User

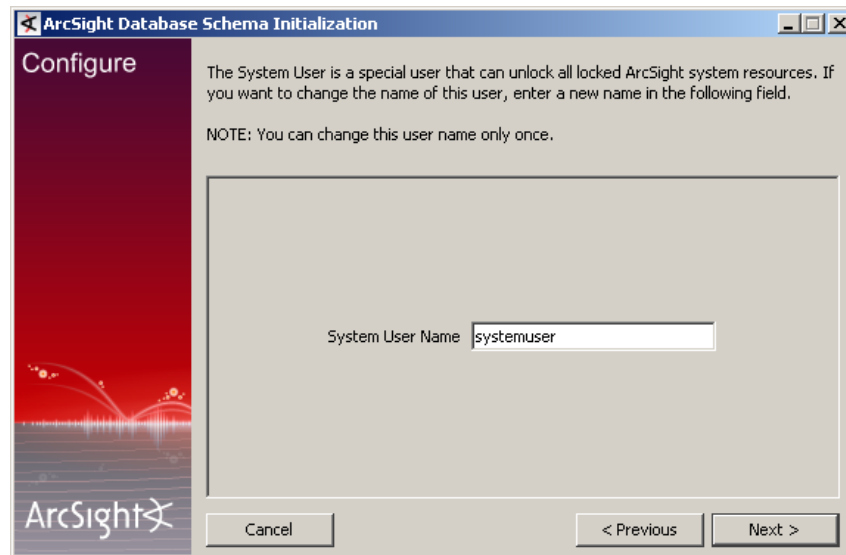
During the installation process, a set of predefined content called the System Core content is installed by default. This content provides the foundation building blocks for the ArcSight ESM system to work.

System Core content is available in the Core group under the ArcSight System sub-tree of each resource tree. For example, core content for the Filters resource is available in [/All Filters/ArcSight System/Core](#).

The modification of System Core content can adversely impact the operation of ArcSight ESM, therefore, it is locked by default. ArcSight strongly recommends against unlocking or modifying this content. However, a special user called the system user is created automatically during the installation. This user can lock and unlock ArcSight Core Content if there is a need.

The system user is configured as 'systemuser' by default. ArcSight recommends that you change this name to a non-standard name. This name can be changed only once. For example, once you change the name to 'coreuser', you cannot change this name again.

If you want to change the name of system user, enter a new name in the following screen and click **Next**.



**7** Enter information for these tablespaces in the next few screens:

- ◆ ARC\_SYSTEM\_DATA
- ◆ ARC\_SYSTEM\_INDEX
- ◆ ARC\_EVENT\_DATA
- ◆ ARC\_EVENT\_INDEX
- ◆ ARC\_UNDO
- ◆ ARC\_TEMP

For information about these table spaces, see [“Volume 2: DATABASE Volume” on page 24](#).

Enter the following information for each tablespace:

**Data File Path**—The directory where the data files for this tablespace will be created. The user that runs Oracle (typically, oracle) needs to have write privileges on this directory.

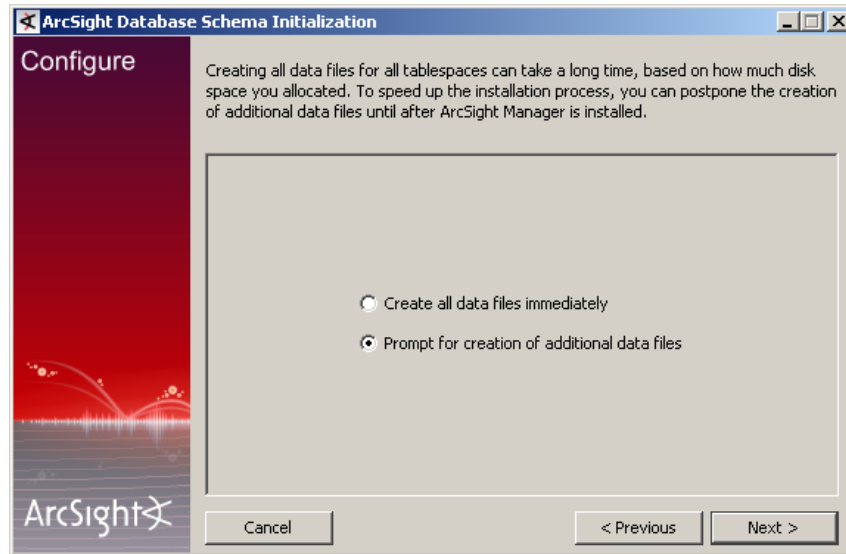
**Data File Size**—The size of each individual data file.

**Number of Data Files**—The number of data files that will be created for the tablespace.

**8** Because the creation of all data files for all tablespaces can be time consuming, the following screen gives you an option to create the minimum number of files per tablespace—that is, one file per tablespace—and delay the creation of additional files until after you have completed the database configuration process. ArcSight recommends selecting the option to delay the creation of additional files.

**Create all data files immediately**—Create all files before proceeding further.

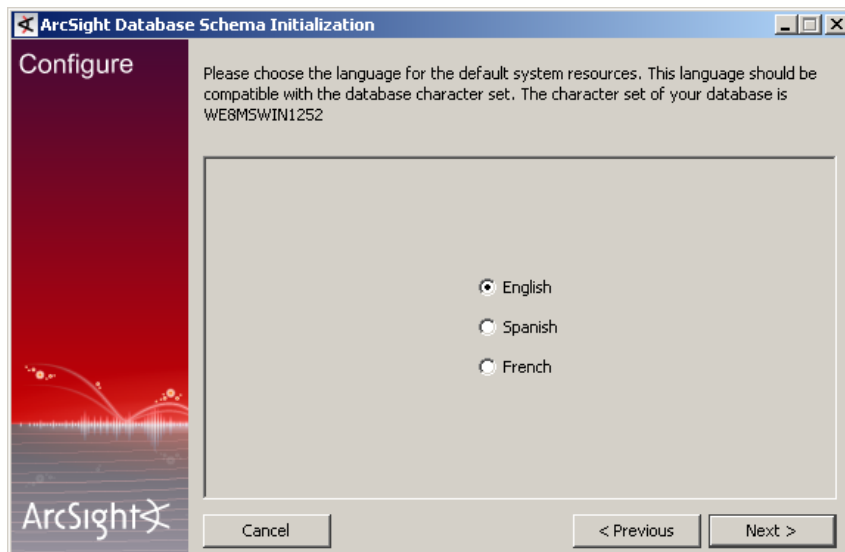
**Prompt for creation of additional data files**—Delay the creation of additional data files.



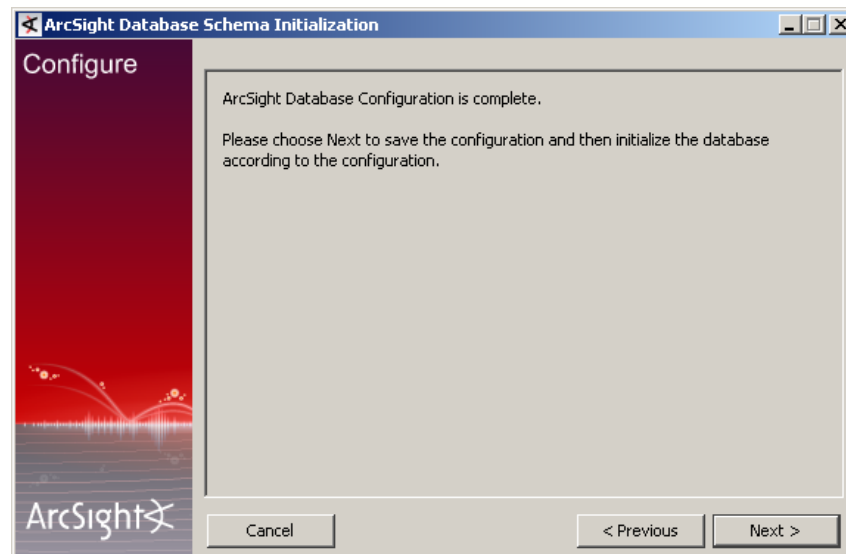
- 9 In [Step 2 on page 44](#) if you had chosen a database character set that supports more than one language supported by ESM, you will see the following screen requesting you to select a language for installing your system resources in:



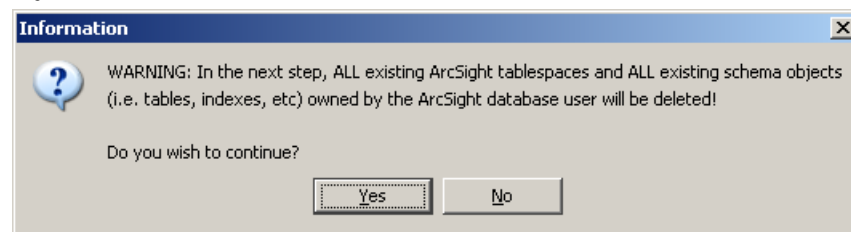
The choices for language selection in the screen below will vary depending upon the character set you selected. The choices shown in the screenshot below appear if you selected UTF8 character set.



- 10 Click **Next** to save the configuration.



You will see a warning message saying that all existing tablespaces and schema objects will be deleted.



To initialize the database schema, you must specify the parameters in the next few screens. For more information about these parameters, see [“Configuring Partition Management” on page 66](#)

- 11 You will be prompted to choose a method for partition retention. You can select between Time Based Retention and Space Based Retention:

**Time Based Retention**—If you select this option, the partitions will be retained in the database for the number of days that you specify in the 'Online Retention Period' field in the next panel of this wizard.

**ArcSight Database Schema Initialization**

**Configure**

Specify the number of days that new partitions are created in advance and that past partitions will be retained in database for active use and in offline archive for long-term storage.

For more information on how to set these very important parameters, see ArcSight Installation and Configuration Guide.

Online Retention Period (days)

Online Reserve Period (days)

Offline Archive Period (days)

Cancel < Previous Next >

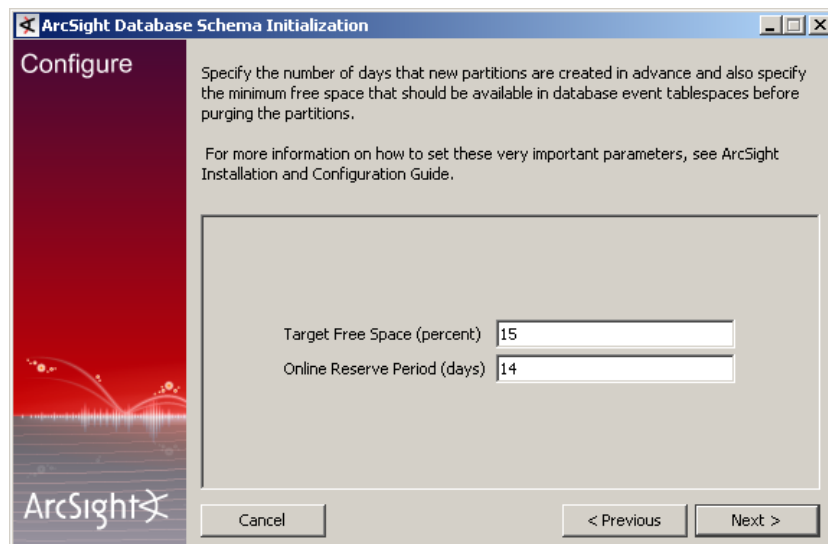
**Space Based Retention**—If you select this option, your partitions will be retained based on the amount (percentage) of free space available in your database. Once the amount of free space available reaches the percentage that you specify in 'Target Free Space' field in the next panel of this wizard (by default 15%), the oldest retained partition gets dropped.



Using Partition Archiver with space based retention feature is not supported.

If you configure space based retention, the Partition Manager gets scheduled to run four times in 24 hours or once every 6 hours. When the Partition Manager runs, it calculates the free space in the database. As soon as it detects that the free space available is less than the percentage that you have specified as the Target Free Space, it drops the oldest retained partition and continues to drop the next oldest partition until the available free space reaches the Target Free Space percent that you have specified. However, the Partition Manager makes sure to retain the two most recent partitions even if the amount of free space in the database falls below the Target Free Space. For example if today is Wednesday, the Partition Manager makes sure to at least retain partitions from Monday and Tuesday even though that might mean leaving less than the target free space in the database. Audit events get generated every time a partition is dropped.





**ArcSight Database Schema Initialization**

**Configure**

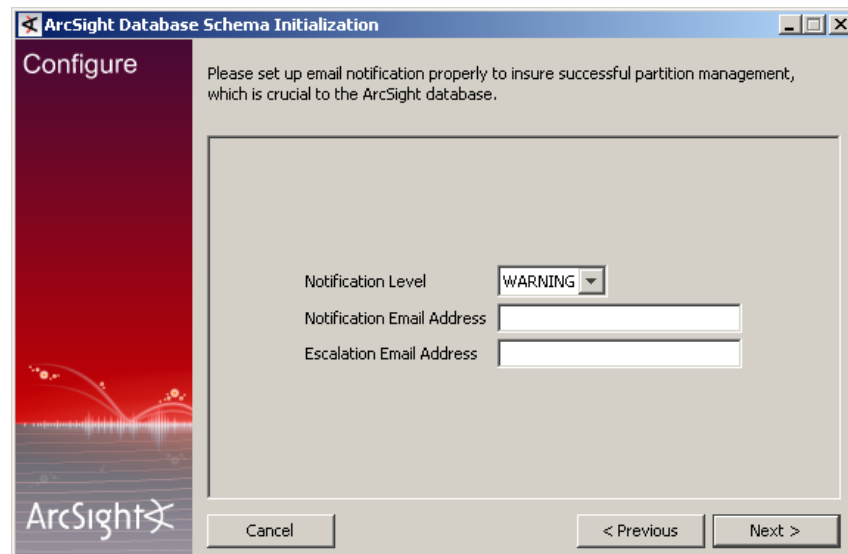
Specify the number of days that new partitions are created in advance and also specify the minimum free space that should be available in database event tablespaces before purging the partitions.

For more information on how to set these very important parameters, see ArcSight Installation and Configuration Guide.

Target Free Space (percent)

Online Reserve Period (days)

- 12** In the next screen enter the email notification to be sent in the event that the Partition Manager encounters a problem.



**ArcSight Database Schema Initialization**

**Configure**

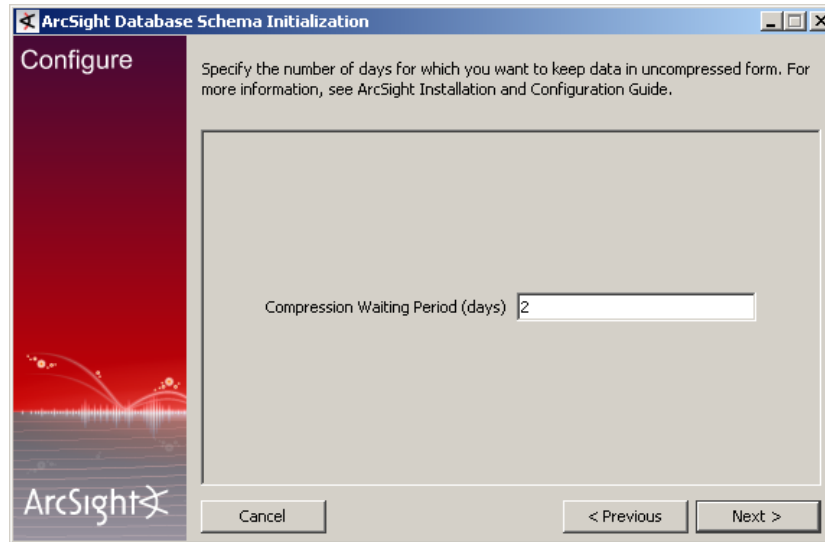
Please set up email notification properly to insure successful partition management, which is crucial to the ArcSight database.

Notification Level

Notification Email Address

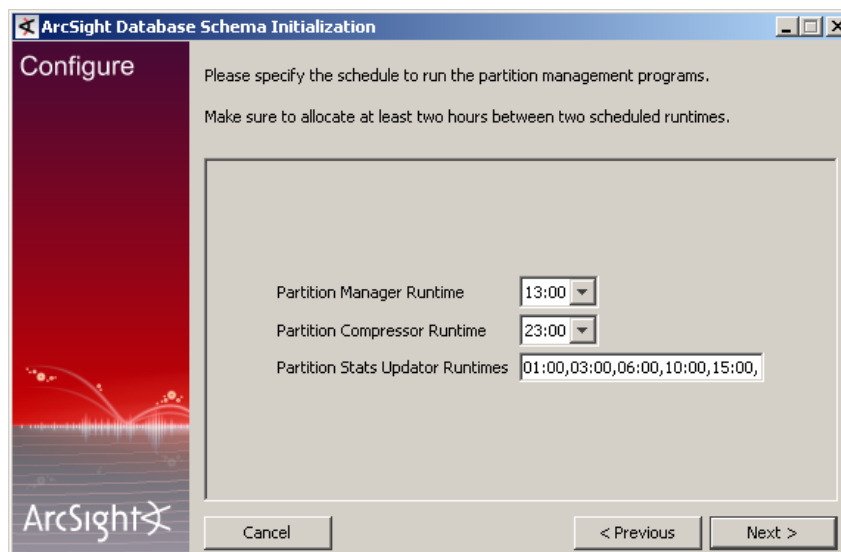
Escalation Email Address

- 13** Enter the number of days that you want to keep the partition in an uncompressed form.



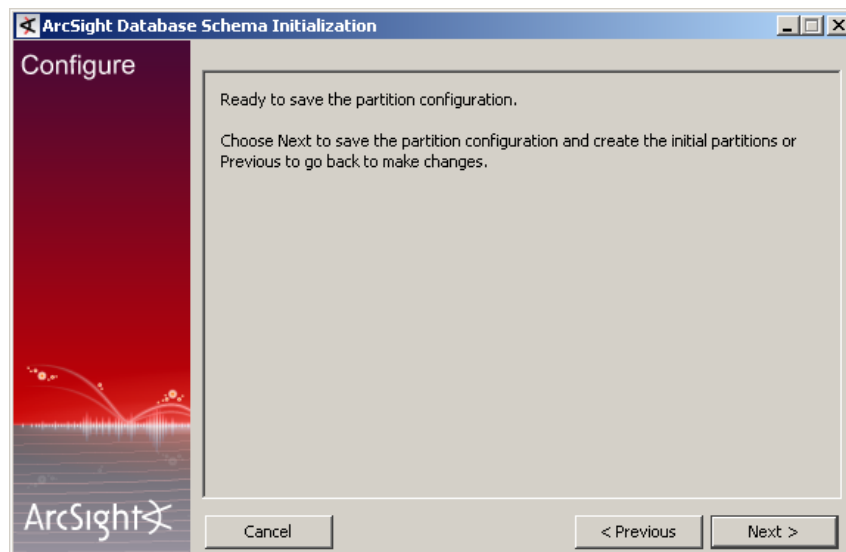
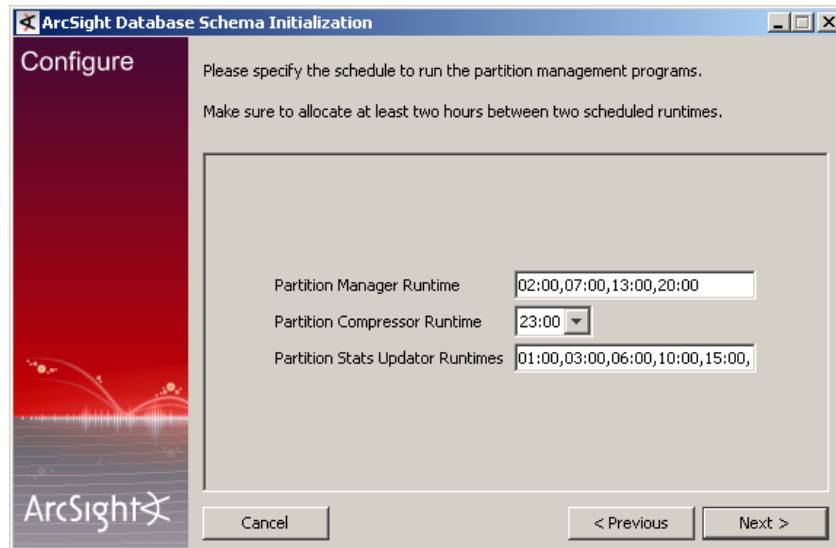
The screenshot shows the 'ArcSight Database Schema Initialization' window with the 'Configure' tab selected. The window title is 'ArcSight Database Schema Initialization'. The left sidebar has a red background with the ArcSight logo. The main area has a light gray background. The text 'Specify the number of days for which you want to keep data in uncompressed form. For more information, see ArcSight Installation and Configuration Guide.' is displayed. Below this, there is a text box labeled 'Compression Waiting Period (days)' with the value '2' entered. At the bottom, there are three buttons: 'Cancel', '< Previous', and 'Next >'.

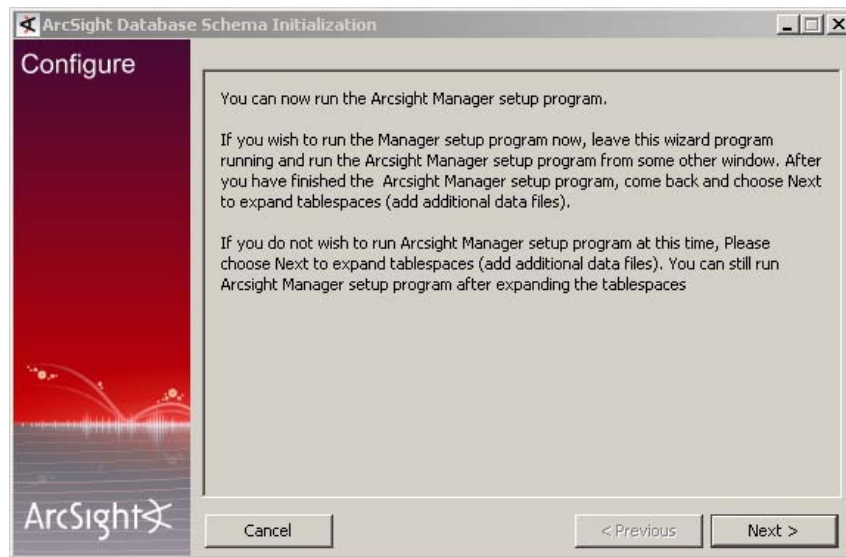
- 14** If you had selected time based retention, the Partition Manager runs only once in 24 hours, and you can configure that time in the following panel.



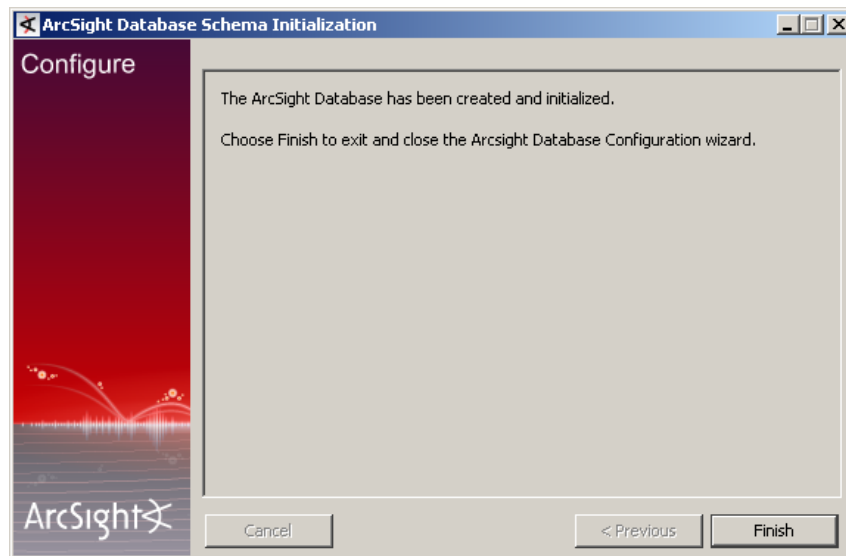
The screenshot shows the 'ArcSight Database Schema Initialization' window with the 'Configure' tab selected. The window title is 'ArcSight Database Schema Initialization'. The left sidebar has a red background with the ArcSight logo. The main area has a light gray background. The text 'Please specify the schedule to run the partition management programs. Make sure to allocate at least two hours between two scheduled runtimes.' is displayed. Below this, there are three rows of configuration options: 'Partition Manager Runtime' with a dropdown menu showing '13:00', 'Partition Compressor Runtime' with a dropdown menu showing '23:00', and 'Partition Stats Updator Runtimes' with a text box containing '01:00,03:00,06:00,10:00,15:00,'. At the bottom, there are three buttons: 'Cancel', '< Previous', and 'Next >'.

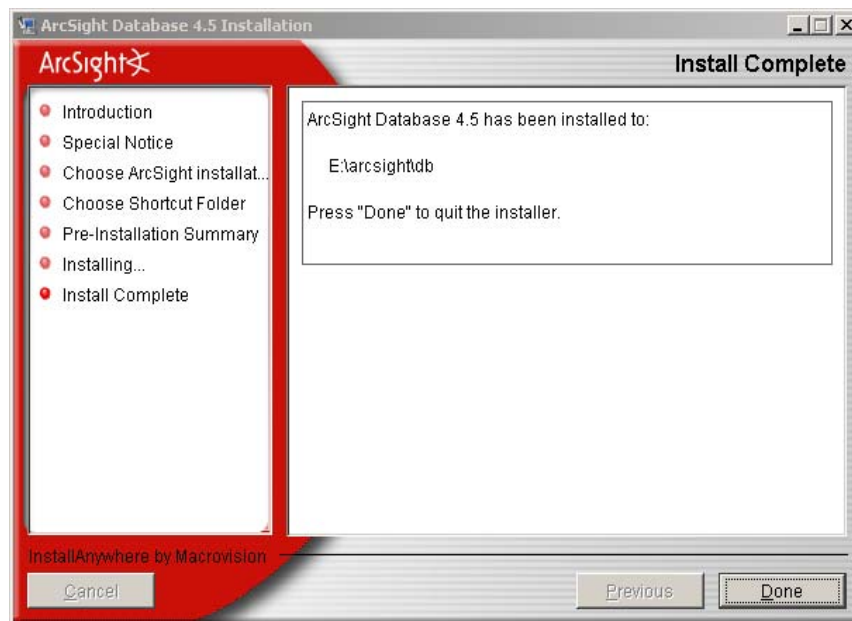
If you had configured space based retention, the Partition Manager will run 4 times in 24 hours, so you will be prompted to enter the four Partition Manager runtimes. These run times should be exactly 6 hours apart from each other.





You have installed the Oracle 10g database and the ArcSight Database component.





- 15** Make sure to run the following command (while logged in as sysdba) to update the IO transfer speed in the database. If you do not run this script, Oracle defaults to a very low IO transfer speed estimate that adversely affects the query execution plan.

```
% arcdbutil sql
```

```
Enter user-name: / as sysdba
```

```
SQL> @ARCSIGHT_HOME\utilities\database\oracle\common\sql\
GatherSystemStats.sql
```



This script should be run every time you make any storage hardware changes that affects IO transfer speeds.

## Upgrading Oracle 10.2.0.2 Instance to Oracle 10.2.0.4



ESM v4.5 does not support Oracle 9x. If your current ESM installation uses Oracle 9x, you are required to upgrade it to Oracle 10g. If you would like to upgrade to Oracle 10.2.0.4, you will be required to first upgrade your Oracle software to a minimum of Oracle 10.2.0.2 **before** you upgrade to Oracle 10.2.0.4.

To upgrade to Oracle 10.2.0.2, run the following command from the ESM v4.0 SP1 ArcSight Database `bin` directory:

```
arcsight databasesetup
```

and follow the wizard screens. Select **Upgrade Oracle 9i instance to 10gR2** when prompted. See the *ArcSight Installation and Configuration Guide, v4.0 SP1* for details.

Once you have upgraded to Oracle 10.2.0.2, you can use the ESM v4.5 ArcSight Database software to upgrade to Oracle 10.2.0.4



We strongly suggest that you do a full backup of your database before you begin the upgrade process.

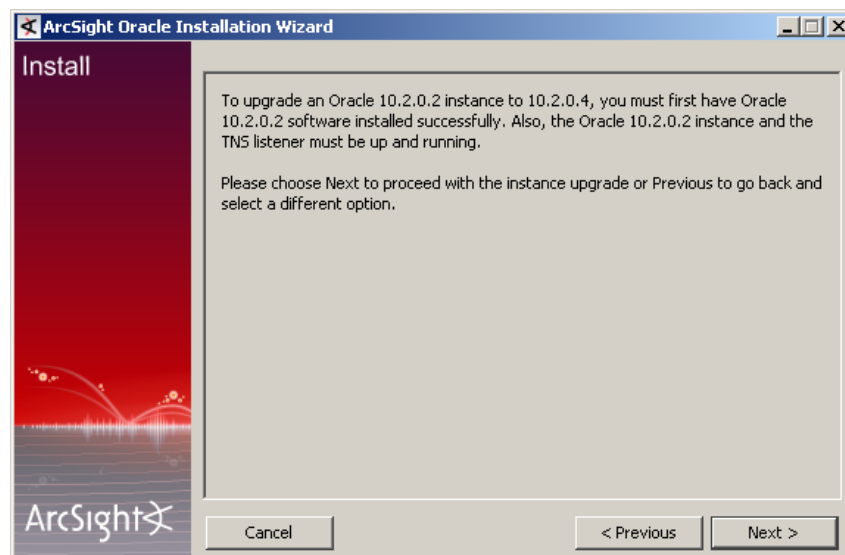


Make sure to close any open SQL connections to Oracle database before proceeding further.

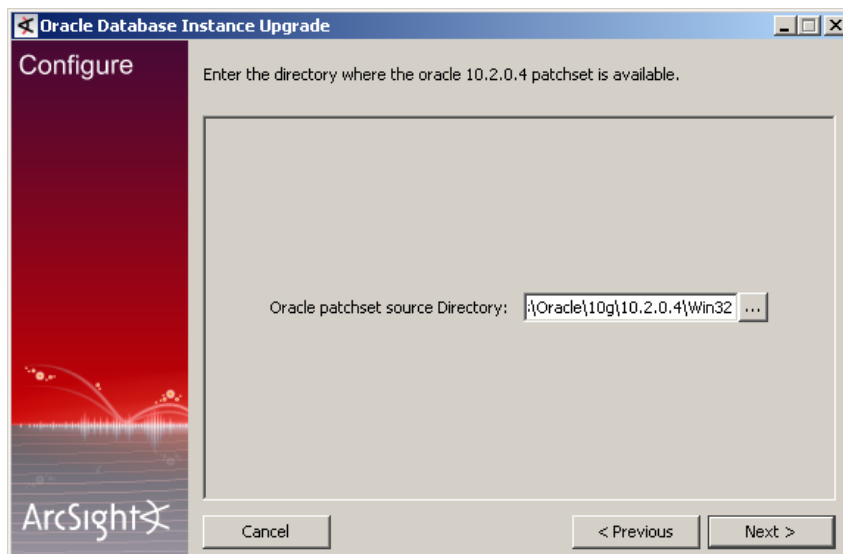
Make sure that the TNS listener and the Oracle instance are up and running. Shut down all services.

Make sure that the ArcSight Manager, Web, and Partition Archiver are shut down.

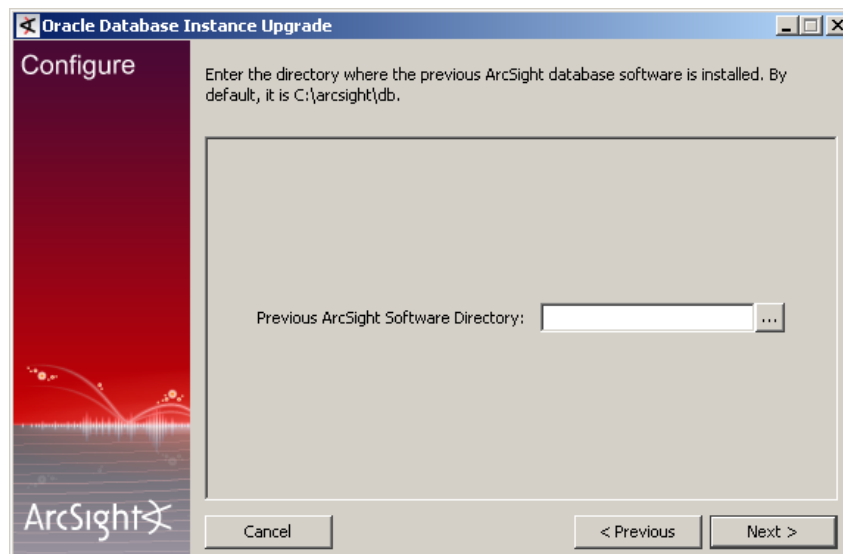
- 1 If you are upgrading Oracle 10.2.0.2 instance to 10.2.0.4, you will be prompted to make sure that you have the Oracle software installed.



- 2 Enter the location of the Oracle 10.2.0.4 source directory.

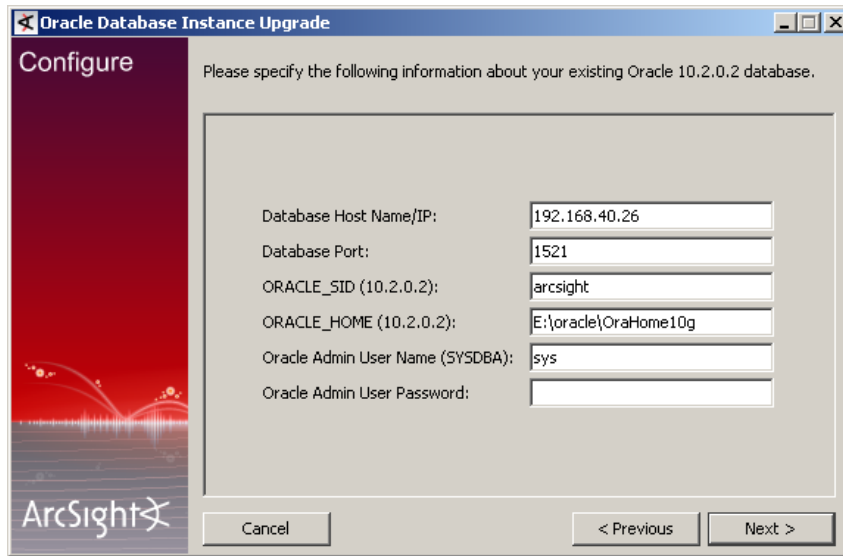


- 3 Enter the location where your current ArcSight Database exists.



The installation wizard uses this information to retrieve the database settings.

- 4 Enter the following information about your Oracle 10.2.0.2 installation.

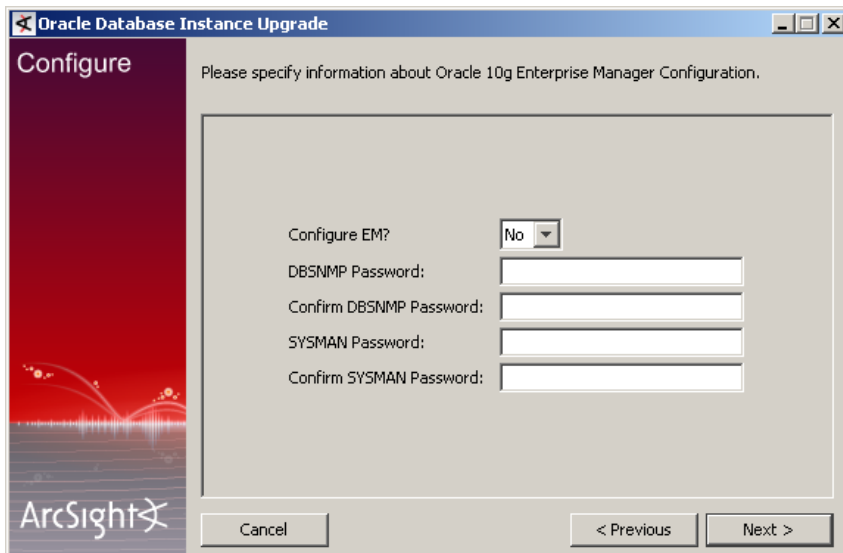


The dialog box is titled "Oracle Database Instance Upgrade" and has a "Configure" tab. It contains a text area with the instruction: "Please specify the following information about your existing Oracle 10.2.0.2 database." Below this are six input fields:

Field Label	Value
Database Host Name/IP:	192.168.40.26
Database Port:	1521
ORACLE_SID (10.2.0.2):	arcsight
ORACLE_HOME (10.2.0.2):	E:\oracle\OraHome10g
Oracle Admin User Name (SYSDBA):	sys
Oracle Admin User Password:	

At the bottom are three buttons: "Cancel", "< Previous", and "Next >". The ArcSight logo is in the bottom left corner.

- 5 Enter the information about the Oracle Enterprise Manager:



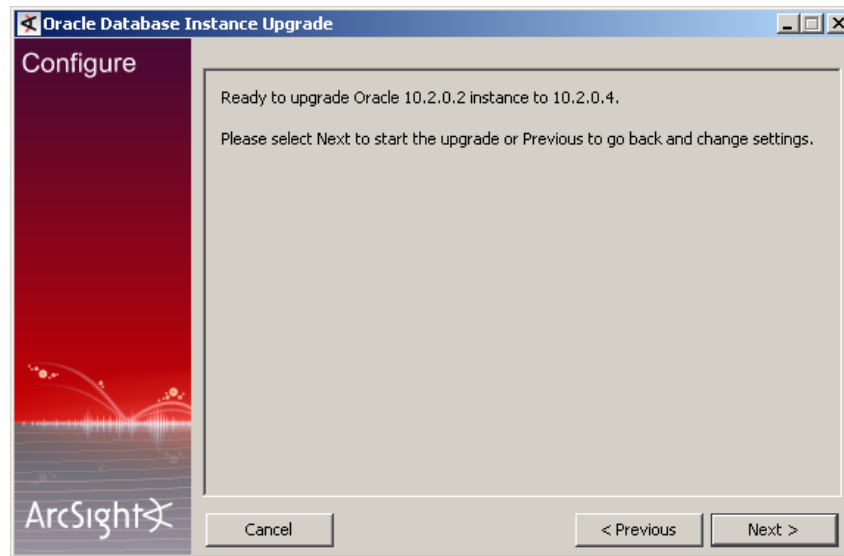
The dialog box is titled "Oracle Database Instance Upgrade" and has a "Configure" tab. It contains a text area with the instruction: "Please specify information about Oracle 10g Enterprise Manager Configuration." Below this are five input fields:

Field Label	Value
Configure EM?	No
DBSNMP Password:	
Confirm DBSNMP Password:	
SYSMAN Password:	
Confirm SYSMAN Password:	

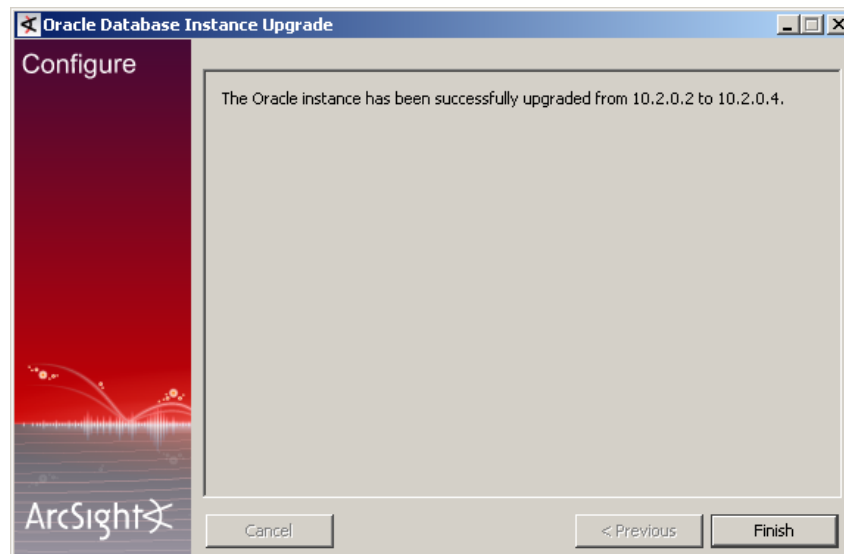
At the bottom are three buttons: "Cancel", "< Previous", and "Next >". The ArcSight logo is in the bottom left corner.



- 6 You will see the following screen saying that Oracle is ready to be upgraded. Click **Next** if you do not want to make any changes to the previous panels



- 7 While Oracle is getting upgraded, you can check the percent complete status of your upgrade in the `\OraHome10g\cfgtoollogs\dbua\logs\silent.log` file.
- 8 Once the upgrade completes, you will see a panel saying so.



You are done upgrading Oracle.

## Restarting or Reconfiguring ArcSight Database

If you exit the ArcSight Database Configuration Wizard at any step or need to re-initialize Oracle at a later date, run the following command in `<ARCSIGHT_HOME>\bin` to restart the configuration process:

```
arcsight database init
```

Re-initialization will delete all resource and event data. However, the wizard allows you to avoid recreating the ArcSight Database user account and tablespaces.

# Configuring Partition Management

To improve overall system performance and availability, and to enhance the ease of data management, the ArcSight Database component utilizes several advanced features available in underlying DBMS products (such as Oracle), including table and index partitioning. Table and index partitioning allow large tables and their indexes to be split into individually managed smaller pieces, while retaining a single application-level view of the data.

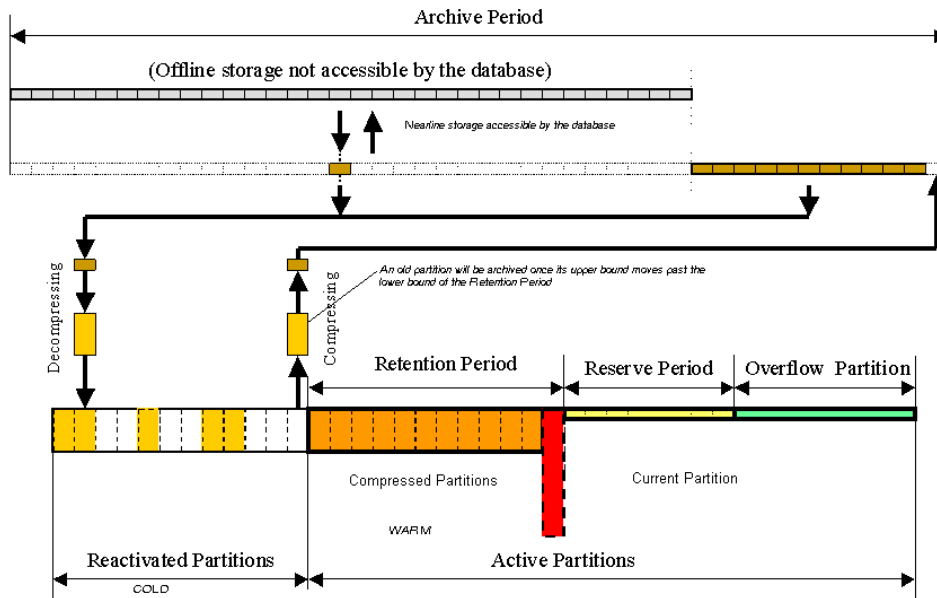
In version 3.0 and later, ArcSight offers advanced life-cycle management facilities for security-event data partitions as an optional feature. This feature fully automates the database partition management process so that partitions containing old event data can be saved in offline archives automatically, and later be easily brought back online so security analysts can conduct forensic analyses using historical data from those archived partitions. This feature offers the ability to dramatically reduce the online storage requirements for the ArcSight Database.

## Overview

The ArcSight Database uses partitioned tables for event data with the event end-time column as the partitioning key. By default, these tables are logically divided into daily partitions with midnight (local time) as the partition boundaries.

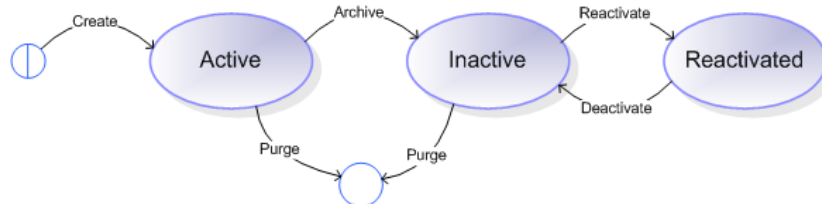
The following diagram illustrates the overall design for database partition management in the ArcSight Database when partition archiving is enabled.

As the diagram shows, partition archives are first created on online storage devices that are accessible to the database server. Depending on the amount of online storage available, partition archives can remain on the online storage device or be put on removable storage media such as tapes or DVDs. They can be taken offline anytime because archived partitions are no longer part of the database. However, before an archived partition can be reactivated for historical replays, it must be mounted again on a storage device that is accessible to the database server.



**Figure 2-1** ArcSight Database Partition Management (Process View)

The ArcSight Partition Manager, a component in the ArcSight Manager, together with Partition Archiver running on the Database server, manages the life-cycle of partitions, from creation to elimination, as shown in the following state diagram:



**Figure 2-2** Partition state diagram

The database initialization process includes various parameters related to partition management, including the archive period, the retention period, the reserve period, the invocation mode and scheduled runtime for the Partition Manager and, if archiving is enabled, the invocation mode of the Partition Archiver.

During the startup process, based on the current partition management configuration in the database, the ArcSight Manager creates one or more scheduled tasks for the Partition Manager, the Partition Compressor, the Partition Statistics Updater, and the Partition Archiver.



During the partition archiving process, the Partition Archiver creates some temporary objects which are automatically deleted on the completion of the process. Do not schedule database backups while the partition archiving is in progress in order to avoid these temporary objects from being persisted in your database.

If the Partition Manager is set to run in AUTOMATIC mode, at its scheduled runtime, it performs the appropriate management operations on all active partitions. More specifically, under normal operational conditions, the Partition Manager will:

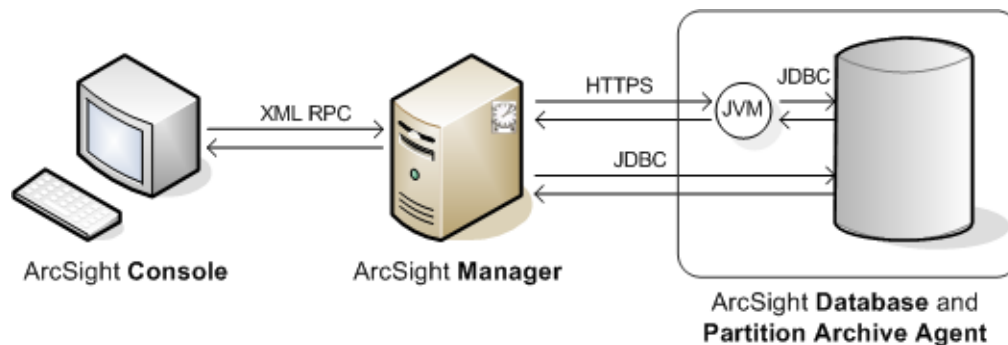
- Purge the oldest active partition that moves outside of the current Retention Period if the Partition Archiving feature is not enabled;
- Repair the newest reserve partition if its creation process was not fully successful;
- Create a new reserve partition by splitting the current Overflow Partition;

Successful partition management is crucial to database health and performance. Therefore, the Partition Manager should never be disabled for production systems.

Without up-to-date statistics, the query performance of your Oracle database will degrade dramatically. The Partition Statistics Updater will update the statistics for the Current Partition at the times you specify, if it is enabled.

If the Partition Compressor is set to run in AUTOMATIC mode, at its scheduled runtime, it will compress past partitions in the Retention Period that have not been compressed yet and update their statistics once the compression process is completed successfully.

If Partition Archiver is set to run in AUTOMATIC mode, and Partition Archiver is installed and configured properly on the same computer as the database server and it will be running. At its scheduled runtime, Partition Manager will send appropriate archive management commands to Partition Archiver. This process is illustrated by the following diagram:



**Figure 2-3** Archive management command traffic.

The archive process can also be initiated interactively using the ArcSight Console, providing that the Partition Archiving feature is enabled and set up properly and the user has the appropriate access permissions.

The process of reactivating and deactivating an archived partition is normally initiated manually from an ArcSight Console.

The process of archiving and reactivating a partition may take anywhere from a few minutes to several hours, depending on the size of the partition.

Unlike automatic archiving, the process of reactivating and deactivating an archived partition normally involves some human interaction.

If the archive file for an archived partition is already (or still) available in the archive directory, a user in the ArcSight user group "Administrators" will be authorized to send the reactivation command to the Partition Archiver. If the archive file is stored on removable

storage media in an offline location like a tape shelf, the administrative user may have to send a request to a Data Center operator to mount the tape and copy the archive file to the archive directory before he or she can actually reactivate the partition.

If you want to keep the archive file in the Archive Directory after the partition is reactivated successfully, you must set the partition management configuration parameter Archive File Option to KEEP. With the KEEP option, partitions can be reactivated and deactivated any number of times, without requiring human interaction such as copying the archive file from a tape.

Reactivated partitions are deactivated automatically by the Partition Archiver once they move past the Archive Period. Such a partition will then be purged the next time Partition Archiver runs. Normally, once the forensic analysis is completed, an administrative user will manually deactivate a reactivated partition using the ArcSight Console.



Once a Partition Archiver operation--archive, reactivate, or deactivate--completes successfully on a resource, the group of that resource is appropriately changed. For example, when a partition is reactivated, the group is changed from "Inactive Partition" to "Reactivated Partition."

When you initiate a Partition Archiver operation from the Console, check the following to ensure that the operation completes successfully:

- Check Partition Archiver logs on the database machine to ensure that the group change took place.
- Refresh the partition resource in the Console to confirm the new group. (Right-click the resource and select Refresh from the drop-down menu to refresh a resource.)

Do not issue a duplicate command on the same partition while the first operation is still in progress.

The archive file for an archived partition is named in the form of "arc\_event\_PartitionName.FileExtension", where FileExtension can be "zip" for ZIP (the default archive type), "tar.gz" for GZIP, and "tar.bz2" for BZIP2.

Partition Names are unique date stamps and they are permanent. Never change partition names.

Do not rename the archive files. Archive files must be available in the directory specified by the Archive Directory field in the partition resource before the partition can be reactivated.

## Partition Configuration Parameters

Certain Partition Management configuration parameters (such as the Archive Directory) are dynamic. You may change dynamic parameters without restarting the ArcSight Manager, but changes to static parameters will not become effective until the ArcSight Manager is restarted. For example, the Manager must be restarted after changing the configuration to

enable or disable Partition Manager, Compressor, Archiver, or Statistics Updater, or to change their scheduled runtimes, because these parameters are static.

Name	Type	Default Value	Valid Value	More Information
Partition Manager Runtime	Static	13:00	00:30 - 23:30	<ul style="list-style-type: none"> <li>Duration of task: Very Short</li> <li>Initiated by Partition Manager in ArcSight Manager</li> <li>Typically, takes a few seconds to one minute to create a new partition</li> </ul>
Retention Period	Dynamic	30 (days)	$\geq 2$ (See Note 1)	
Reserve Period	Dynamic	14 (days)	$\geq 7$	
Partition Compressor Runtime	Static	23:00	00:30 - 23:30	<ul style="list-style-type: none"> <li>Duration of task: Long</li> <li>Initiated by Partition Compressor in ArcSight Manager</li> <li>CPU and I/O intensive</li> <li>Typically, takes one to two hours to complete (See Note 2)</li> </ul>
Compression Waiting Period	Dynamic	2 (days)	$\geq 2$	

Name	Type	Default Value	Valid Value	More Information
Partition Stats Updater Runtimes	Dynamic	01:00, 03:00 06:00, 10:00 15:00, 21:00	A comma-separated list of runtimes in the form hours:minutes	<ul style="list-style-type: none"> <li>Duration of task: Increases with each subsequent run</li> <li>Initiated by Partition Statistics Updater in ArcSight Manager</li> <li>CPU intensive</li> <li>Typically takes a few minutes for early runs and up to two hours for late runs (See Note 2)</li> </ul>
Partition Stats Update Sample Size	Dynamic	1.0 (percent)	0.01 - 5.0	Specifies the size of the random sample of the rows in a partition
Partition Archiver Mode	Static	DISABLED	AUTOMATIC, DISABLED	
Partition Archiver Runtime	Static	19:00	00:30 - 23:30	<ul style="list-style-type: none"> <li>Duration of task: Long</li> <li>Executed by Partition Archiver on the database machine</li> <li>I/O intensive</li> <li>Typically takes up to two hours (See Note 2)</li> </ul>
Archive Period	Dynamic	0 (Days)	>=0	
Archive Type	Dynamic	ZIP - On Windows (see Note 5) GZIP - on UNIX and Linux (See Note 3)	For Windows: ZIP, UNCOMPRESSED For UNIX and Linux: ZIP, GZIP, BZIP2, UNCOMPRESSED (See Note 3)	UNCOMPRESSED, a new option introduced in version 3.5 SP2, leaves the files in the partition uncompressed. See <a href="#">Appendix B, Using UNCOMPRESSED Archive Type</a> , on page 153.

Name	Type	Default Value	Valid Value	More Information
Archive Directory	Dynamic	None	An existing directory to which the Oracle software owner has write privileges. (See Note 4)	
Archive File Option	Dynamic	KEEP	KEEP, DELETE	Specifies whether to keep or delete the archive file in the Archive Directory after the partition is reactivated successfully
Notification Level	Dynamic	WARNING	INFO, WARNING	Specifies the minimum level for which a notification is generated. If INFO is specified, a notification is generated for all information messages, warnings, and errors. If WARNING is specified, a notification is generated for all warnings and errors.
Notification Email Address	Dynamic	None	Any valid e-mail address, or a comma separated list of e-mail addresses	If the value is set to default, the Error Notification e-mail address configured for ArcSight Manager is used.
Escalation Email Address	Dynamic	None	Any valid e-mail address, or a comma separated list of e-mail addresses	This e-mail address must be different from the one specified for Notification E-mail Address





- 1 If you decrease the retention period, Partition Archiver archives all partitions that are now outside of the retention period. Because larger than usual amount of data will be archived at once, ensure that you have enough free space in the archive directory for it before you decrease the retention period.
- 2 Duration depends on partition size, database configuration, and concurrent workload.
- 3 On Solaris, you must install the GNU version of tar and make it the default by either deleting the Solaris version or adding the GNU version of tar ahead of other versions to the PATH variable.  
  
Solaris version of the tar command has a file size limit of 8 GB which prevents Partition Archiver from creating a tar file for partitions larger than 8 GB. Therefore, you must use the GNU version of tar.  
  
The GNU version of tar for Solaris is available at <http://www.sunfreeware.com>.  
  
If you do not want to install the GNU version of tar, select ZIP.  
  
On Linux, GNU tar is available by default. Therefore, you do not need to do anything.
- 4 The Archive Directory must be created in advance and the Oracle software owner user must have full access to this directory. Make sure you have enough space in the file system/volume for this directory. ArcSight recommends that you create the Archive Directory on a separate file system/volume.

## Changing Partition Management Configurations

To change Partition Manager configuration parameters, log in to the database machine as the Oracle software owner, go to `<ARCSIGHT_HOME>\bin` and run:

```
arcsight database pc
```

## Setting Up Partition Archiver

After the ArcSight Manager is running, you can optionally configure the Partition Archiver on the ArcSight Database host.



If you configure Partition Archiver as a service and later try to start it as a process from the command line, you will get an error saying that the Partition Archiver cannot be started and the `partitionarchiver.log` file cannot be accessed. This happens because when the Partition Archiver starts as a service, the `partitionarchiver.log` file gets created by the root user. But, when you start the Partition Archiver as a process, since you logged in as the oracle user, the `partitionarchiver.log` file gets created by the oracle user.  
  
To work around this, you should change the `partitionarchiver.log` file owner from root to oracle.

You must be logged in as the Oracle software owner (by default, 'oracle' on UNIX and Administrator on Windows) to configure Partition Archiver. The wizard will configure Partition Archiver as a standalone application and register it with the ArcSight Manager.

To configure Partition Archiver:

- 1 From the database `<ARCSIGHT_HOME>/bin`, run the setup program:  
  

```
arcsight agentsetup -w
```
- 2 Select **Run Connector in default mode** when prompted.

- 3 Enter the Manager's Hostname and Port.
- 4 Enter the name and password for the user that Partition Archiver uses to run.
- 5 Select whether you want to install Partition Archiver as a service.

ArcSight recommends that you install it as a service and do not change the default values unless necessary. Partition Archiver must be run as the Oracle software owner (that is, oracle, by default) on UNIX and as a user (Administrator, by default) on Windows in the local user group ORA\_DBA.

To install Partition Archiver as a service on UNIX, log in as root and run the following command:

```
<ARCSIGHT_HOME>/bin/arcsight agentsvc -i -u OracleSoftwareOwner
```

where OracleSoftwareOwner is oracle by default.

If need be, you can re-register Partition Archiver using the following command:

```
<ARCSIGHT_HOME>/bin/arcsight agentsvc -r
```

Then run the command to install it as a service:

```
<ARCSIGHT_HOME>/bin/arcsight agentsvc -i -u OracleSoftwareOwner
```

- 6 Specify the Oracle software owner (.\\Administrator, by default) and its password. Although you can use another user in the local group ORA\_DBA, it is not recommended. Partition Archiver cannot run as the default Local System account.

## Starting and Stopping Partition Archiver

To start or stop Partition Archiver as a Windows service, log in as Administrator and use the Windows services applet to start or stop the service.

To start or stop Partition Archiver as a Unix service, log in as root and run:

```
/etc/init.d/arc_oraclepartitionarchiver_db {start|stop}
```



To run Partition Archiver in standalone mode, log in as the Oracle software owner and run:

```
<ARCSIGHT_HOME>/bin/arcsight agents
```

---

## Re-registering Partition Archiver with ArcSight Manager

Partition Archiver communicates with the ArcSight Manager using the same infrastructure that the SmartConnectors use. However, unlike SmartConnectors, only one instance of Partition Archiver can be registered with the Manager at any given time. If you try to register Partition Archiver more than once with the same Manager, it will fail.

If you need to re-register Partition Archiver with a Manager, you must first delete the instance that is currently registered with it. Then, follow instructions in [“Setting Up Partition Archiver” on page 73](#).

## Deleting the Partition Archiver Service

To delete an existing Partition Archiver service, follow these steps:

- 1 Log in as the Oracle software owner, oracle on UNIX and Administrator on Windows (by default).
- 2 Run this command:

```
<ARCSIGHT_HOME>/bin/arcsight agentsvc -r
```

If the above command fails, you must manually clean up the existing set up using these instructions:

- a** Delete the service configuration file as follows:

```
user/agent/default/agent.wrapper.conf
```

- b** Delete the service, as follows:

On UNIX, log in as root and run these command:

```
rm /etc/init.d/arc_oraclepartitionarchiver_db
```

```
rm /etc/rc?.d/*arc_oraclepartitionarchiver_db*
```

On Windows, run this command in `<ARCSIGHT_HOME>`:

```
bin\util\win32\ invoker remove arc_oraclepartitionarchiver_db
```

## Reinstalling the Partition Archiver Service

To reinstall the Partition Archiver service, follow these steps:

- 1 Log in as the Oracle software owner (by default, oracle on UNIX and Administrator on Windows).
- 2 Run this command:

UNIX: `<ARCSIGHT_HOME>/bin/arcsight agentsvc -i -u oracle`

WINDOWS: `<ARCSIGHT_HOME>\bin\arcsight agentsvc -i -u  
.\Administrator -p AdministratorPassword`

## Changing the Password for Partition Archiver

Partition Archiver logs in to the ArcSight Database with the same user name and password as the ArcSight Manager uses. If you change the password for the ArcSight Database user, run the command `arcsight database pc` to update the password and restart the Partition Archiver service so that Partition Archiver can continue to log in.

Remember to renew the password for the ArcSight Database user if your company has a database password renewal policy in place. Otherwise, both the ArcSight Manager and Partition Archiver will not be able to log in to the database.

## Uninstalling the ArcSight Database Software

Stop ArcSight Database before uninstalling it.

To uninstall on Windows, open the **Start** menu. Run the Uninstall ArcSight Database 4.5 program found under All Programs | ArcSight Database. If a shortcut to the ArcSight Database was not installed on the Start menu, locate the `<ARCSIGHT_HOME>\UninstallerData` folder and double-click:

`Uninstall_ArcSight_DB.exe`

To uninstall on Unix hosts, open a command window on the `<ARCSIGHT_HOME>/UninstallerData` directory and run the command:

`./Uninstall_ArcSight_DB`

The Uninstall utility removes files and folders that were installed during the database installation. It does not remove any files or folders created after the installation, such as log or configuration files. Additionally, this utility only removes the ArcSight components of the database and does not uninstall the Oracle database.



The UninstallerData directory contains a file `.com.zerog.registry.xml` with Read, Write, and Execute permissions for everyone. On Windows hosts, these permissions are required for the uninstaller to work. However, on UNIX hosts, you can change the permissions to Read and Write for everyone (that is, 666).



The Uninstaller does not remove all the files and directories under the database home folder. Please delete these folders manually after the uninstallation is complete.

---

# Installing ArcSight Manager

---

This chapter describes the installation and configuration of the ArcSight Manager.



Do not install the ArcSight Manager unless the ArcSight Database is installed and operating.

---

The Manager is installed after the ArcSight database is up and running.

This chapter covers the following topics:

- [“ArcSight Manager Supported Platforms” on page 78](#)
- [“Installing the Manager” on page 79](#)
- [“Starting and Stopping the Manager” on page 107](#)
- [“Verifying the Manager Installation” on page 107](#)
- [“Reconfiguring ArcSight Manager” on page 108](#)
- [“Uninstalling ArcSight Manager” on page 110](#)

## ArcSight Manager Supported Platforms

The following operating system platforms are supported. The sections which follow describe more detailed requirements by platform.



While single-CPU and single-core systems are not supported, the ArcSight Manager does support multiple-CPU and dual-core systems.



On 64-bit machines a minimum of 4 GB RAM is required.

Platform	Supported Operating System	Typical System Requirements
Linux	RHEL v4 AS update 7 (32 bit and 64-bit) RHEL v5 AS update 2 (32 bit and 64-bit) SUSE Linux 10 SP1 Enterprise Server (64-bit)	x86-compatible multi-CPU system with 2-4 GB RAM, 2 GB disk space.
Microsoft Windows	Microsoft Windows Server 2003 R2 SP2 (32-bit and 64-bit) Microsoft Windows Server 2008 (32-bit and 64-bit)	x86-compatible multi-CPU system with 2-4 GB RAM, 2 GB disk space.
Solaris	Sun Solaris 9 (64-bit) Sun Solaris 10 (64-bit)	Sparc-compatible multi-CPU system with 2-4 GB RAM, 2 GB disk space.
IBM AIX	AIX 5L 5.3 (5.3.0.70) 64-bit	Power PC multi-CPU system with 2-16 GB RAM, 2 GB disk space



Refer to the ArcSight ESM Product Lifecycle document available on the ArcSight Customer Support website for the most current information on supported platforms.

The machine hosting the ArcSight Manager should be similar in capacity to the ArcSight Database host, because each will process the same volume of events. More CPUs are desirable for Manager machines, but memory is not as important as it is on Database machines. Disk space for a typical Manager machine might consist of two 72 GB mirrored drives.

The capability of the Manager host platform will determine the number of concurrent Console users and their perceived performance during peak event-per-second episodes. Console performance estimates depend on the number of static viewers compared to more stressful uses such as ad-hoc query and report generation.

## Installing the Manager



In some Solaris environments, when upgrading the ESM Manager and also when installing the solution packages, these actions do not complete. This could possibly be due to your Solaris system not meeting the minimum system requirements.

Check [“ArcSight Manager Supported Platforms” on page 78](#) to make sure that your Solaris system meets the minimum system requirements and retry.

ArcSight Manager requires that a ArcSight Database be installed prior to starting the Manager installation. For optimal performance, ArcSight recommends that you install the Manager on a different host than the database machine.

To install ArcSight Manager, run the self-extracting archive file that is appropriate for your target platform. Insert the ArcSight Installation CD-ROM or go to the directory where the ArcSight Manager Installer is located.

Create an ArcSight user, usually named ‘arcsight,’ to own the installation. Log in as the ArcSight user before running the Manager Installation Wizard. The ArcSight Manager Installation Wizard for each platform is described in the following table:

Platform	Installation File
Windows	<a href="#">ArcSight-4.0.x.nnnn.y-Manager-Win.exe</a> <a href="#">ArcSight-4.0.x.nnnn.y-Manager-Win64.exe</a>
Linux	<a href="#">ArcSight-4.0.x.nnnn.y-Manager-Linux.bin</a> <a href="#">ArcSight-4.0.x.nnnn.y-Manager-Linux64.bin</a>
Solaris	<a href="#">ArcSight-4.0.x.nnnn.y-Manager-Solaris.bin</a>
AIX	<a href="#">ArcSight-4.0.x.nnnn.y-Manager-AIX.bin</a>

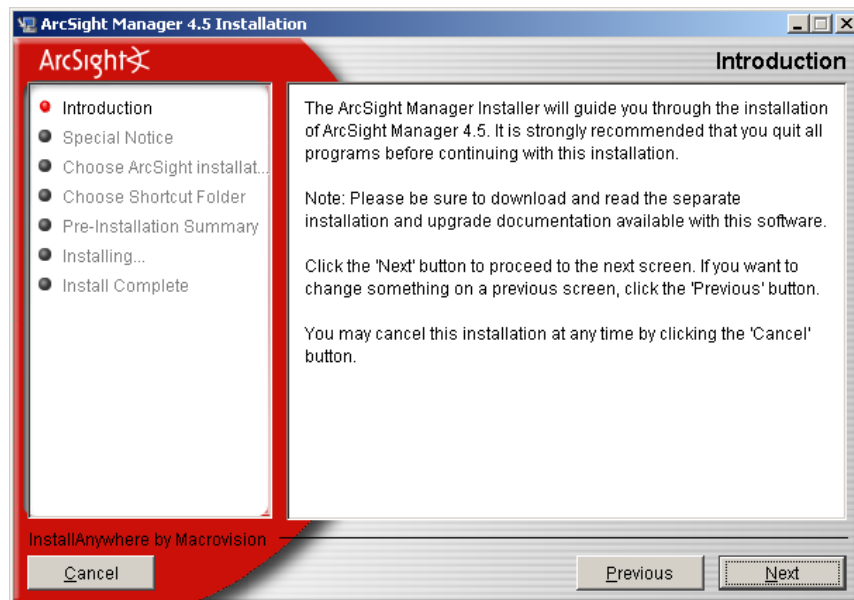
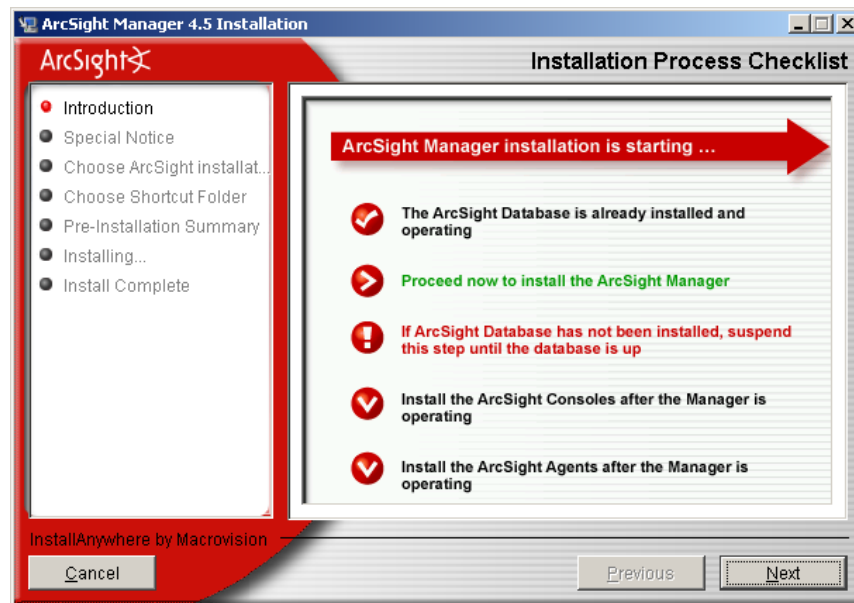
Logon as the ArcSight user and run the installation file to extract and run the ArcSight Manager Installer. To run the graphical user interface version, X-Windows must be installed and properly configured.

The ArcSight Manager installation program provides a summary of the ArcSight Manager installation process and any prerequisite steps you should perform before commencing the installation. The sequential steps of the process are listed on the left side of the wizard and will track your progress. You may click **Cancel** at any time, but the ArcSight Manager will only be usable if you complete the installation wizard successfully. If you need to return to a previous step, it is usually possible to click the **Previous** button to go back and change your entry.

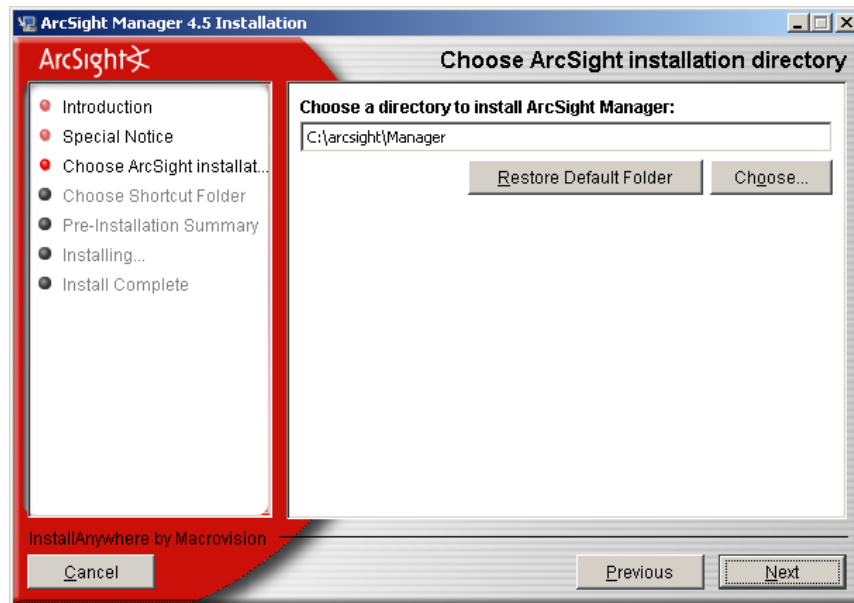
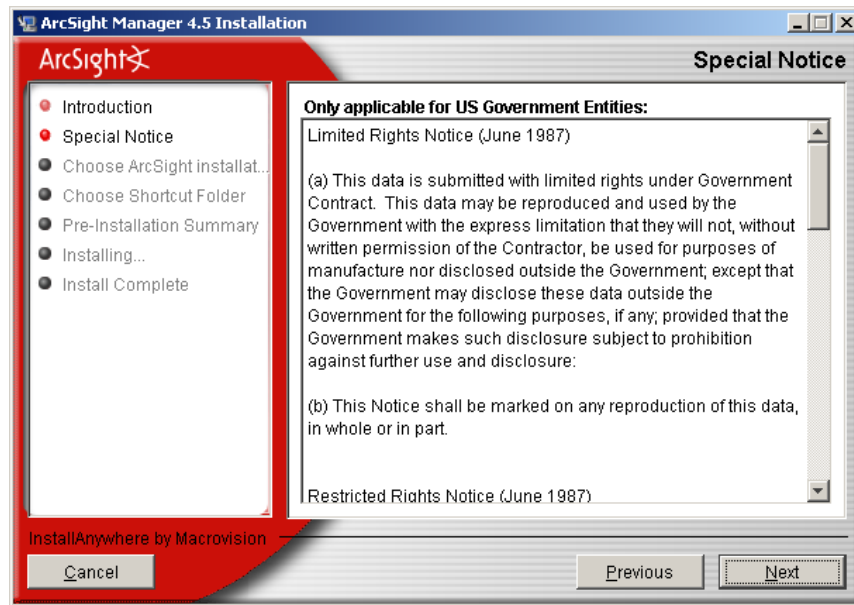


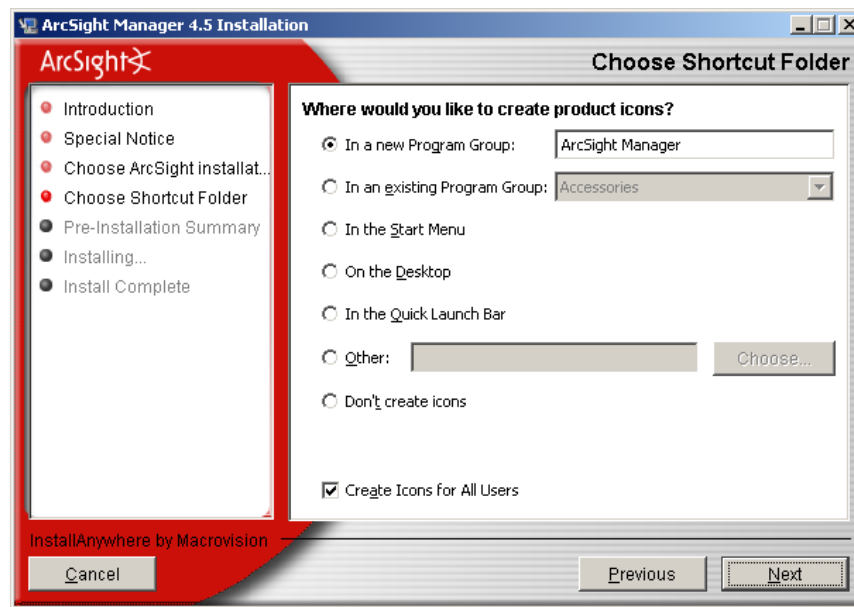
A Windows system was used for the sample installation. If you are installing your Manager on a Unix based system, you will notice a few Unix-specific screens.

Screens that summarize your selections or the ones that report progress on the installation are not shown in this sample installation.

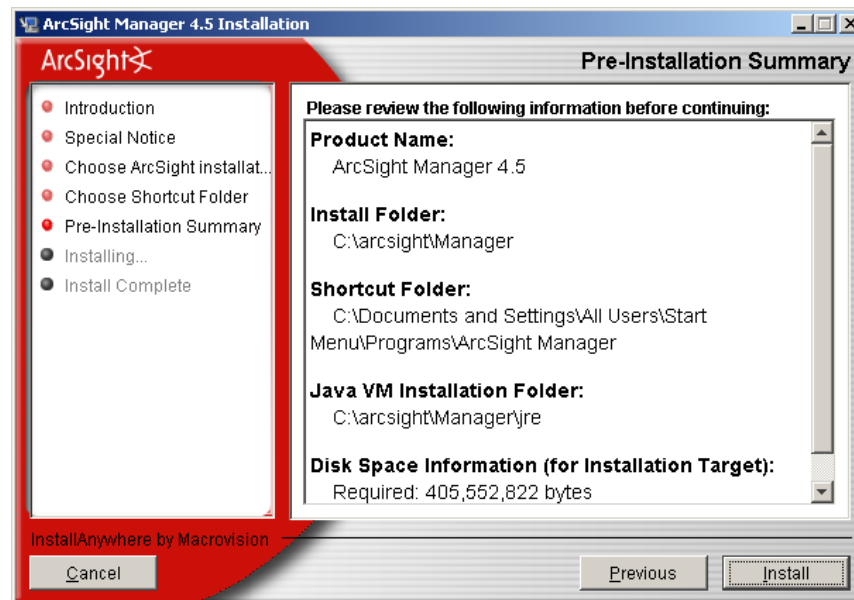








Review the summary. If anything is incorrect, click **Previous** to make changes. When you are ready to proceed, click **Install**.



The Installing ArcSight Manager screen appears during installation. You may click **Cancel** to quit and install ArcSight Manager at another time.

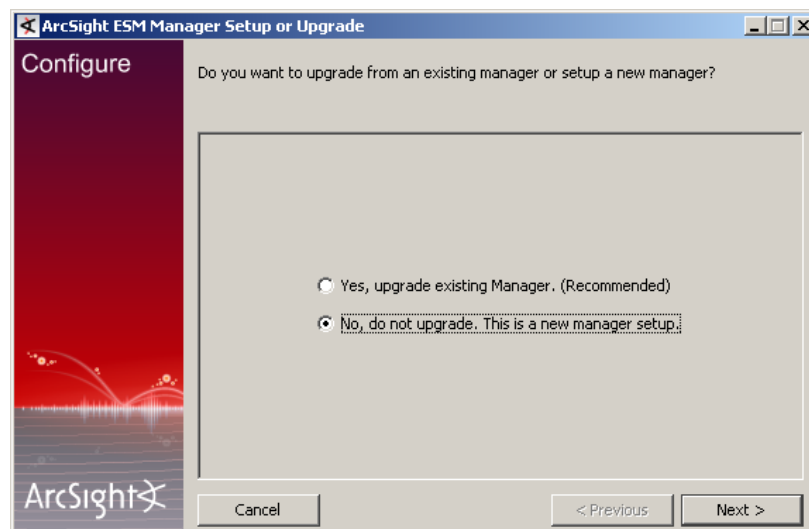


After the Manager has been installed, you will see the first configuration screen as shown below.



If you are installing in console mode you will have to manually run the setup program by typing `arcsight managersetup` in the installed `<ARCSIGHT_HOME>/bin` directory.

The wizard prompts you to select if you would like to transfer configuration options from a previous installation of ArcSight Manager.

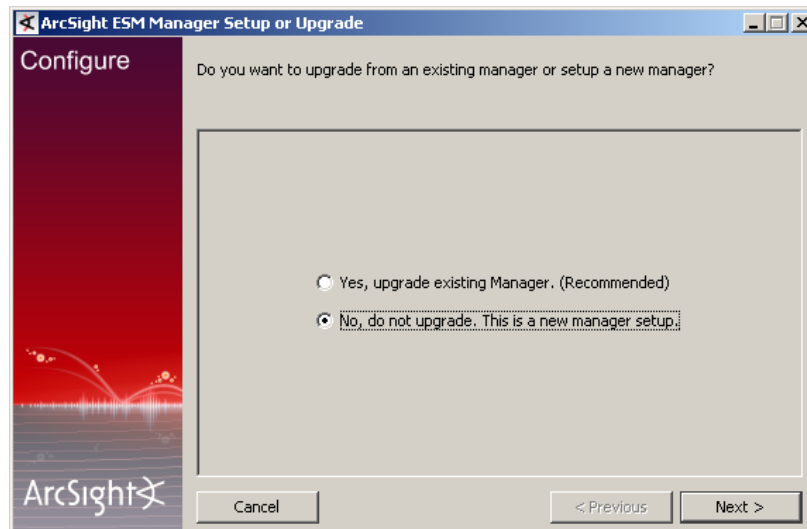


To configure ArcSight Manager, select **No do not upgrade. This is a new manager setup.** and click **Next**.

## Transferring Configuration from an Existing Installation

If you are installing the Manager in console mode, you will need to run `managersetup` program from the Manager's `bin` directory to start the configuration.

The wizard asks if you would like to transfer configuration options from a previous installation of ArcSight Manager. Since this is a new installation, choose **No, do not upgrade. This is a new Manager setup** to create a new, clean installation and click **Next**.



## Selecting the Mode in which to Configure ArcSight Manager



The FIPS 140-2 mode is not supported for ArcSight Express.

Next, you will see the following screen:



To configure Manager in Default mode, select the **Run manager in default mode** radio button and click **Next**.

## Configuring the Manager's Host Name, Port, and Location

The ArcSight Manager Configuration Wizard establishes parameters required for the Manager to start up on the machine on which it is installed and connect to the ArcSight Database. During configuration, you install license keys and specify notification and e-mail options.

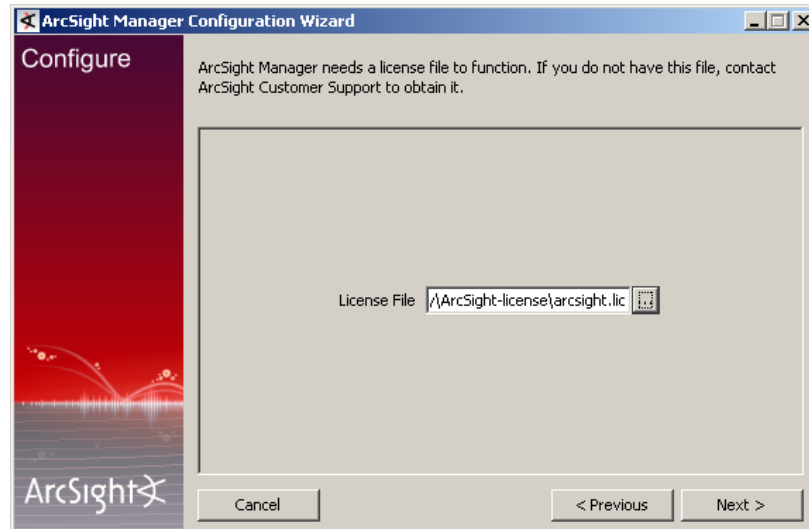


You can re-configure ArcSight Manager at anytime by opening a command window on `<ARCSIGHT_HOME>/bin` and typing the command `arcsight managersetup` within a command prompt window or terminal box.

Parameter	Description
Manager Host Name	Local host name or IP address (or accept the default). Note that this name is what all clients (e.g., ArcSight Console) will need to specify to talk to the ArcSight Manager. Using a host name instead of an IP address is recommended for flexibility. The hostname must match the Common Name of the Manager certificate.
Manager Port	Port number (or accept the default 8443).
Physical Location	Text describing the location of the ArcSight Manager host machine.

After entering the ArcSight Manager host information, click **Next**.

Enter the full path to the `arcsight.lic` file. It will be copied to the appropriate folder by the Configuration Wizard.



## Java Heap Memory Size

The ArcSight Manager Configuration Wizard prompts you to specify the memory heap size the ArcSight Manager will use.



The heap memory size is the amount of memory that ArcSight will allocate for its heap. (Besides the heap memory, ArcSight Manager uses some additional system memory as well.) The recommended size for production deployments is at least 512 MB. (Smaller amounts will affect performance.) It is important that the amount of physical memory available on the system be significantly larger than the amount of heap allocated for the ArcSight Manager, so that there is additional space available for the operating system and for cache use. For example, systems with 1 GB of physical memory should set the maximum heap size no larger than 512 MB. If you specify a heap size of 1 GB, the system should have at least 1.5 GB of physical memory.

Set the memory parameter for the ArcSight Manager host machine from the Java Heap Memory Size drop-down menu and click **Next**.

## SSL Certification Selection

You will be prompted to select the type of SSL certificate you want to use.



### Deciding which SSL certificate to select

ArcSight Manager should be installed with a self-signed or a Certificate Authority (CA) signed SSL certificate. Both are equally secure, however, CA-signed scale better. See *ArcSight ESM version 4.5 Administrator's Guide* for detailed information about certificates.

If you plan on using a CA-signed SSL certificate but do not have one, you can use the demo certificate that ArcSight provides to complete the installation. However, ArcSight strongly recommends that you update it with a signed certificate as soon as possible for the following reasons:

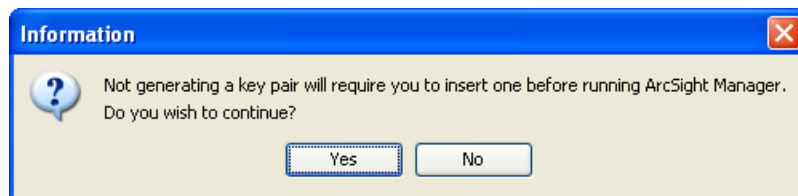
- Demo certificate is not secure. Systems running with this certificate can be easily compromised if attacked.
- When you replace the demo certificate with a signed certificate on the Manager, you have to update the certificate on all Consoles, SmartConnectors, and ArcSight Web servers that communicate with this Manager. This process can be time consuming if you have a large number of SmartConnectors.

For detailed understanding of how SSL is used for communication between ArcSight components, see *ArcSight ESM version 4.5 Administrator's Guide*.

### Selecting the SSL certificate

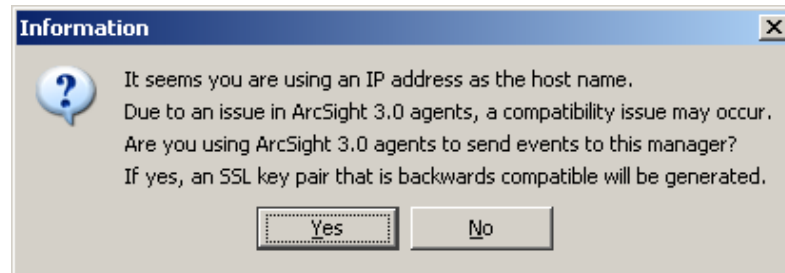
The ArcSight Manager Configuration Wizard prompts you to specify the type of Secured Sockets Layer protocol (SSL) server certificate to use.

To use a CA-signed certificate, select **No key pair**. You will see the following warning:



After completing the Configuration Wizard, follow the procedure described in *ArcSight ESM version 4.5 Administrator's Guide* to install the CA-signed certificate.

To use a self-signed certificate, select **Self-signed key pair**. You will see the following warning:



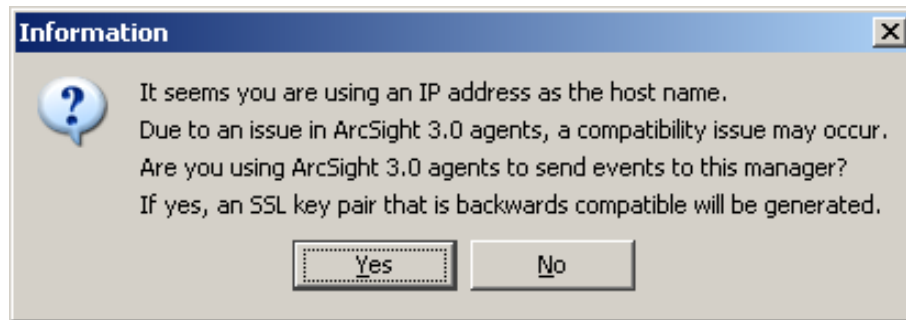
Enter the details of the certificate to be issued:



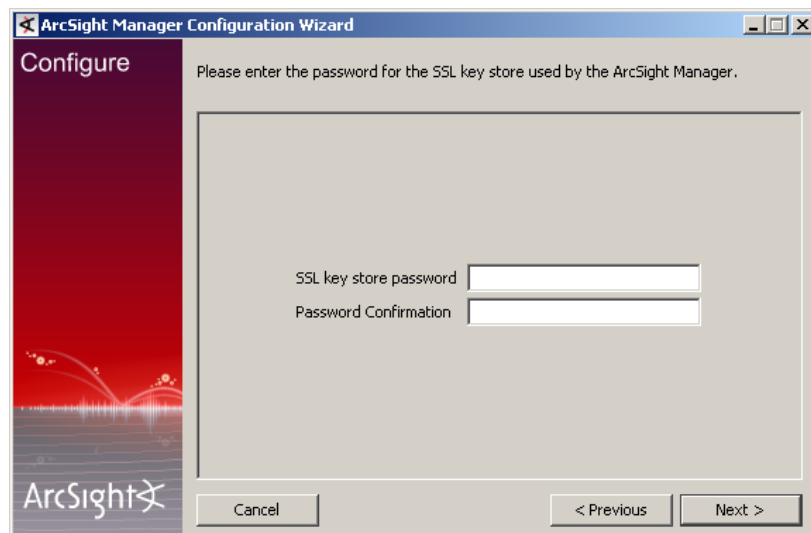


Follow the procedure described in ArcSight ESM *version 4.5 Administrator's Guide* to create a self-signed certificate on the Manager.

To use a demo certificate, select **Demo key pair**. You will see the following warning:



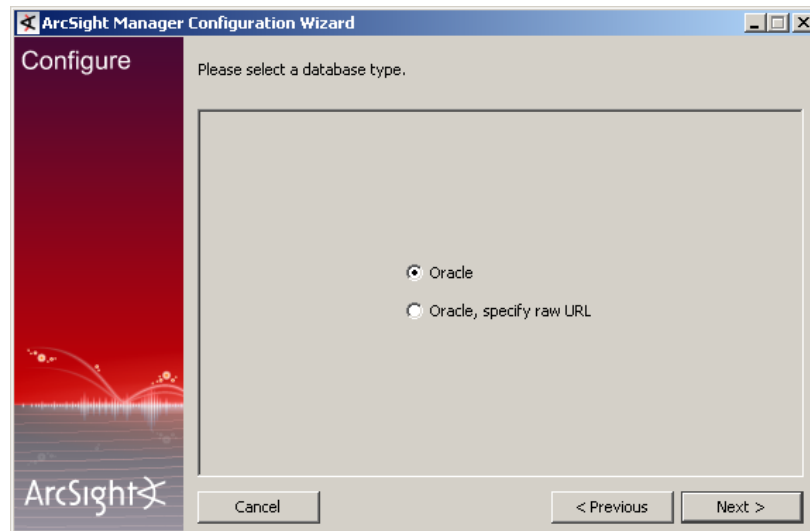
Enter a password for the SSL keystore in the following screen:



After completing the Manager configuration, follow the procedure in ArcSight ESM *version 4.5 Administrator's Guide* to ensure that SmartConnectors, Consoles, and ArcSight Web Servers are configured appropriately for the type of SSL certificate you chose in this step for the Manager.

## Database Connection

The ArcSight Manager Configuration Wizard next prompts you to specify the database to which to connect.



Specify the DBMS on which you installed the ArcSight Database and then click **Next**.

The ArcSight Manager Configuration Wizard next prompts you for information to connect with an ArcSight Database.

The following table describes parameters you need to enter to access the ArcSight Database:

Parameter	Description
Oracle Host Name	Hostname or IP address where the database is installed
Oracle Port	Database communication port
Oracle SID	System identifier for the database
Database User Name	Database user name (same as that specified during ArcSight Database initialization).
Database Password	Database password (same as that specified during ArcSight Database initialization).

After specifying the database connection information, click **Next**

## Authentication

The Configuration Wizard prompts you to select the type of authentication to use when logging into ArcSight Manager or the ArcSight Console.

By default, ArcSight ESM uses its own, built-in authentication, but you can specify third party, external authentication mechanisms, such as RADIUS Authentication, Microsoft Active Directory, LDAP, or a custom JAAS plug-in configuration.

### How external authentication works

ArcSight Manager uses the external authentication mechanism for authentication only, and not for authorization or access control. That is, the external authenticator only validates the information that users enter when they connect to ArcSight Manager by doing these checks:

- The password entered for a user name is valid.
- If groups are applicable to the mechanism in use, the user name is present in the groups that are allowed to access ArcSight Manager.

If a user passes these checks, he/she is authenticated.

Once you select an external authentication mechanism, all user accounts, including the admin account, are authenticated through it.

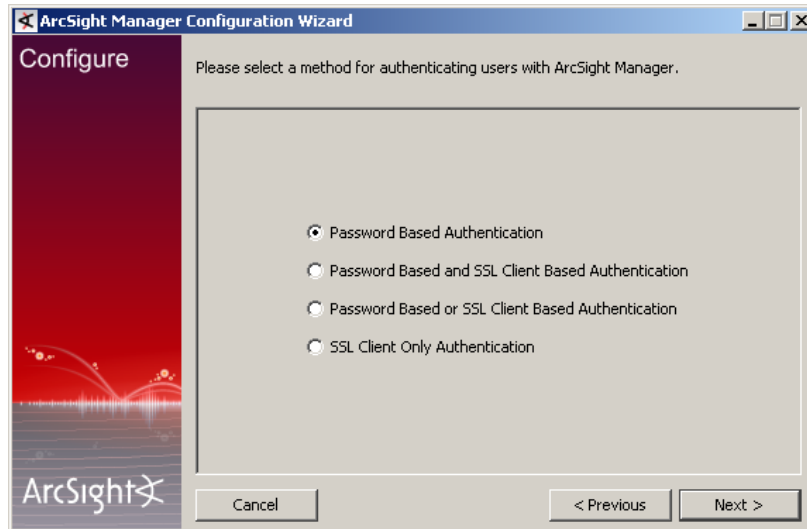
### Guidelines for setting up external authentication

You must follow these guidelines when setting up an external authentication mechanism:

- All users who will be connecting to the Manager must exist on the Manager.
- All user accounts, including admin, must map to accounts on the external authenticator. If the accounts do not map literally, you must configure internal to external ID mappings in the Manager.
- Users do not need to be configured in groups on the Manager even if they are configured in groups on the external authenticator.

- If user groups are configured on the Manager, they do not need to map to the group structure configured on the external authenticator.
- All information entered to set up an external authentication mechanism is case insensitive.
- If you need to impose restrictions on the information a user can access, you need to set up Access Control Lists (ACLs) on the Manager.

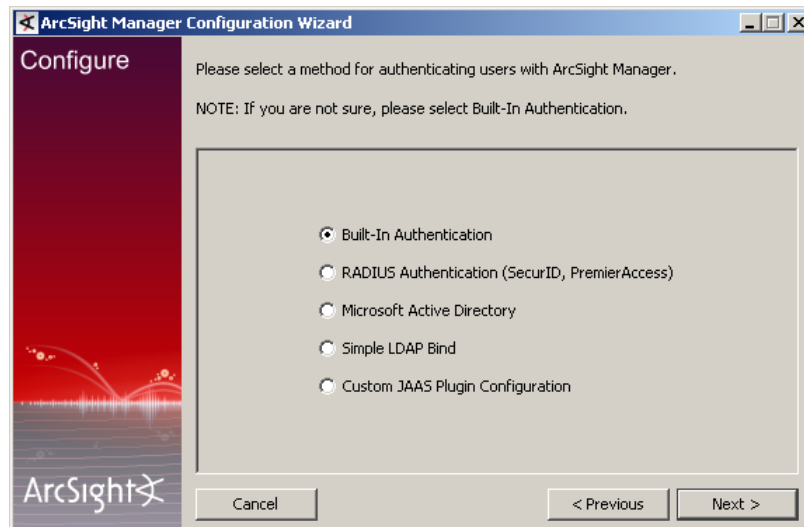
You will be prompted to select a method for authenticating users.



If you configure the Manager using **Password Based and SSL Client Based Authentication** or **SSL Client Only Authentication**, be aware that ArcSight Web does not support these modes. So, if you plan to use ArcSight Web, you will need to configure your Manager to use **Password Based Authentication** or **Password Based or SSL Client Based Authentication** as your authentication method.

## Password Based Authentication

Your authentication will be based upon the User name and Password that you enter when logging into the Console. If you select this option, you will be prompted to select either the ESM built-in authentication or an external authentication method.



### Built-In Authentication

This is the default authentication that ESM uses when you do not specify a third party external authentication method.

If you selected this option, go to [“ArcSight Manager Administrator Account Setup”](#) on [page 99](#) section.

## Setting up RADIUS Authentication

To configure ArcSight Manager for RADIUS Authentication, choose **RADIUS Authentication** and click **Next**. The next panel prompts you for this information.

**ArcSight Manager Configuration Wizard**

**Configure**

Please fill out the following information about the RADIUS server.

Authentication Protocol: PAP

RADIUS Server Host:

RADIUS Server Type: RSA Authentication Manager

RADIUS Server Port: 1812

RADIUS Shared Secret:

Buttons: Cancel, < Previous, Next >

Parameter	Description
Authentication Protocol	Which authentication protocol is configured on your RADIUS server: PAP, CHAP, MSCHAP, or MSCHAP2.
RADIUS Server Host	<p>Host name of the RADIUS server.</p> <p>If you want to specify multiple RADIUS servers for failover, enter comma-separated names of those servers in this field.</p> <p>For example, server1, server2, server3. If server1 is unavailable, server2 is contacted, and if server2 is also unavailable, server3 is contacted.</p>
RADIUS Server Type	<p>Type of RADIUS server:</p> <ul style="list-style-type: none"> <li>• RSA Authentication Manager</li> <li>• Generic RADIUS Server</li> <li>• Safeword PremierAccess</li> </ul>
RADIUS Server Port	Specify the port on which the RADIUS server is running.
RADIUS Shared Secret	Specify the RADIUS shared secret string that will be used to verify the authenticity and integrity of the messages exchanged between the Manager and the RADIUS server.



**ArcSight Manager Configuration Wizard**

**Configure**

Please provide a valid user name and password to test the authentication settings.  
NOTE: This account will only be used for the purpose of this test.

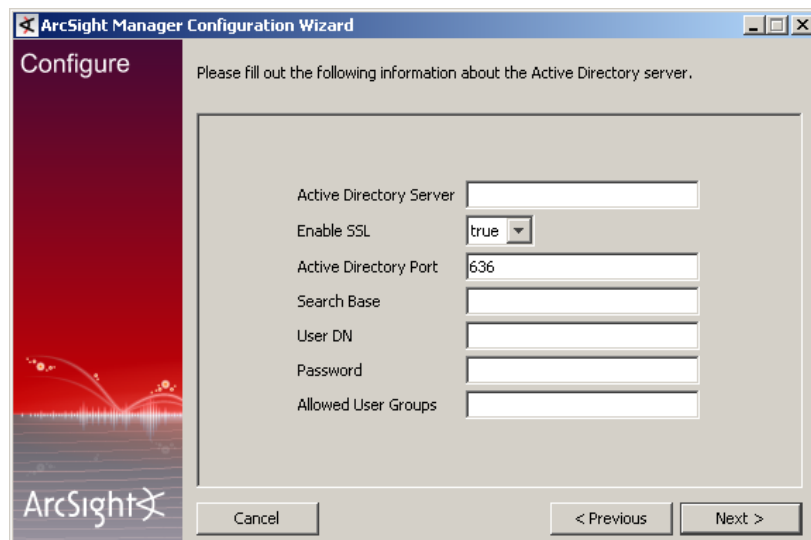
User Name

User Password

Cancel < Previous Next >

### Setting up Active Directory User Authentication

To authenticate users using a Microsoft Active Directory authentication server, choose **Microsoft Active Directory** click **Next**. Communication with the Active Directory server uses LDAP and optionally SSL. The next panel prompts you for this information.



**ArcSight Manager Configuration Wizard**

**Configure**

Please fill out the following information about the Active Directory server.

Active Directory Server

Enable SSL

Active Directory Port

Search Base

User DN

Password

Allowed User Groups

Cancel < Previous Next >

Parameter	Description
Active Directory Server	Host name of the Active Directory Server.
Enable SSL	Whether to use SSL to connect to the Active Directory Server. By default, true (SSL enabled). See <a href="#">"Configuring SSL" on page 96</a> section for more information.
Active Directory Port	Specify the port on which the Active Directory Server is running.

Parameter	Description
Search Base	Search base of the Active Directory domain; for example, DC=company, DC=com.
User DN	Distinguished Name (DN) of an existing, valid user with read access to the Active Directory. For example, CN=John Doe, CN=Users, DC=company, DC=com.  The CN of the user is the "Full Name," not the user name.
Password	Domain password of the user specified earlier.
Allowed User Groups	Comma-separated list of Active Directory group names. Only users belonging to the groups listed here will be allowed to log in.  You can enter group names with spaces.



### Configuring SSL

If you are using SSL between the Manager and your authentication server, you must ensure that the server's certificate is trusted in the Manager's trust store

`<ARCSIGHT_HOME>/jre/lib/security/cacerts`. If the Certificate Authority (CA) that signed your server's certificate is already listed in cacerts, you do not need to do anything. Otherwise, obtain a root certificate from the CA and import it in your Manager's cacerts using the keytoolgui utility. For more information on importing certificates, see Understanding SSL Authentication in *ArcSight ESM version 4.5 Administrator's Guide*.



## Setting up LDAP Authentication

The ArcSight Manager binds with an LDAP server using a simple bind. To authenticate users using an LDAP authentication server, choose **Simple LDAP Bind** and click **Next**. The next panel prompts you for this information.

ArcSight Manager Configuration Wizard

Configure

Please fill out the following information about the LDAP server.

LDAP Server

Enable SSL

LDAP Port

Cancel < Previous Next >

Parameter	Description
LDAP Server	Specify the host name of the LDAP Server.
Enable SSL	Whether to use SSL to connect to the LDAP Server. By default, true (enable SSL). See Configuring SSL on Page 84 for more information.
LDAP Port	Specify the port on which the LDAP Server is running. By default, 636.

ArcSight Manager Configuration Wizard

Configure

Please provide a valid user name and password to test the authentication settings.

NOTE: This account will only be used for the purpose of this test.

User Name

User Password

Cancel < Previous Next >

Enter the above information and click **Next**. The following panel requires you to enter a valid Distinguished Name (DN) of a user (and that user's password) that exists on the LDAP server; for example, CN=John Doe, OU= Engineering, O=YourCompany. This information is used to establish a connection to the LDAP server to test the validity of the information you entered in the previous panel.



The image shows the 'Configure' panel of the ArcSight Manager Configuration Wizard. The title bar reads 'ArcSight Manager Configuration Wizard'. The panel has a red sidebar on the left with the ArcSight logo. The main area is light gray and contains the following text: 'Please provide a valid user name and password to test the authentication settings.' and 'NOTE: This account will only be used for the purpose of this test.' Below this text are two input fields: 'User Name' and 'User Password'. At the bottom of the panel are three buttons: 'Cancel', '< Previous', and 'Next >'.

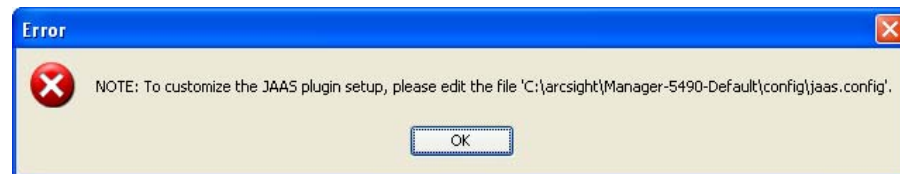


LDAP groups are not supported. Therefore, you cannot allow or restrict logging into the Manager based on LDAP groups.

If you configure your Manager to use LDAP authentication, ensure that you create users on the Manager with their Distinguished Name (DN) information in the external ID field. For example, CN=John Doe, OU= Engineering, O=YourCompany.

### Using a Custom Authentication Scheme

Choose the **Custom JAAS Plug-in Configuration** option if you want to use an authentication scheme that you have built. You must specify the authentication configuration in a `jaas.config` file stored in the ArcSight Manager `config` directory.



### Password Based and SSL Client Based Authentication

Your authentication will be based both upon the username and password combination as well as the authentication of the client certificate by the Manager.

### Password Based or SSL Client Based Authentication

You can either use the username/password combination or the authentication of the client certificate by the Manager to login if you select this option.

## SSL Client Only Authentication

You will have to manually set up the authentication of the client certificate by the Manager. See the *ArcSight ESM Administrator's Guide* for details on how to do this.

## ArcSight Manager Administrator Account Setup

The following table describes parameters required to create the administrator account:

Parameter	Description
Administrator User Name	Administrator's user name
External ID	The CN name used by your PKCS#11 token. It refers to either the: <ul style="list-style-type: none"> <li>Name in the client based SSL certificate.</li> <li>Radius username</li> <li>Active Directory Login name</li> <li>LDAP Login name</li> </ul>
Administrator Password	Administrator's password
Password Confirmation	Re-enter the password to confirm

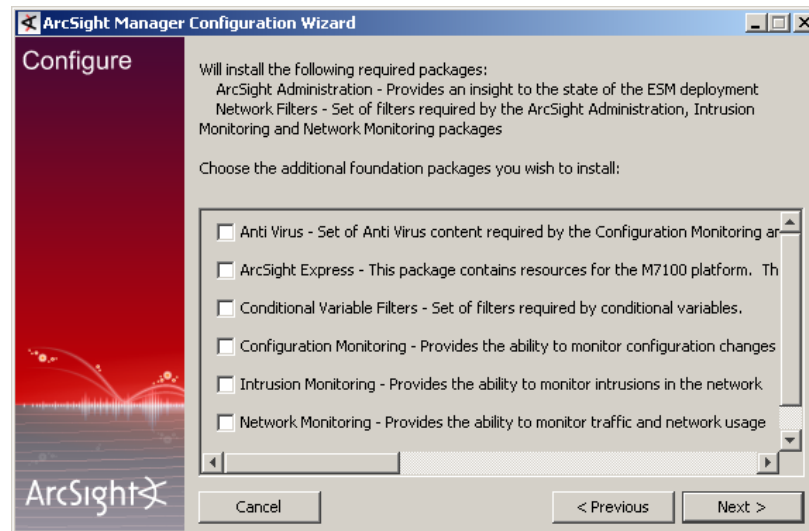
The Administrator user name and password are the user name and password that you will use when you first log in to the ArcSight Console. Using the Console, you can add additional administrators by adding users to the Administrator's group.

When you are finished entering information to create the ArcSight Manager administrator account, click **Next**.

## Select Packages

ArcSight System Content is now delivered in the form of packages. System content packages are automatically installed as a part of ArcSight ESM to provide out-of-box resource suites that you can start using immediately to monitor and protect your network.

By default, the ArcSight Administration package that provides you information about your ArcSight ESM installation is installed. You can select other packages to install from the list.



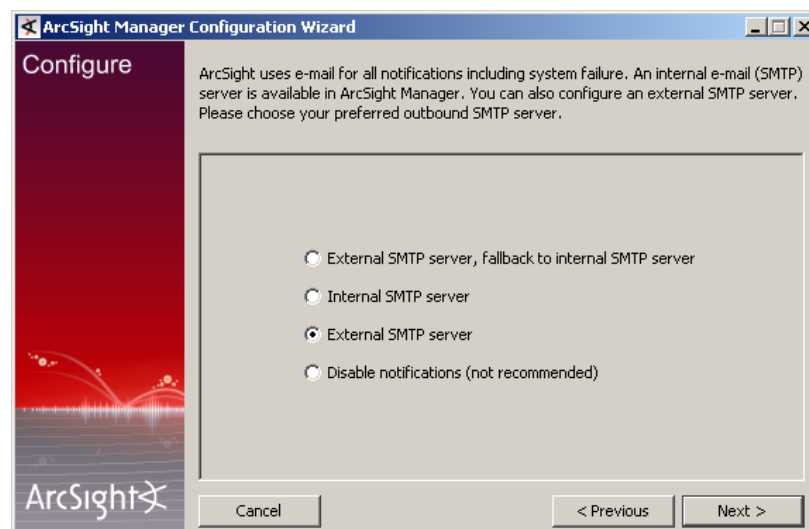
For more information about packages, see the ArcSight ESM *System Content Guide*.

## Mail Server

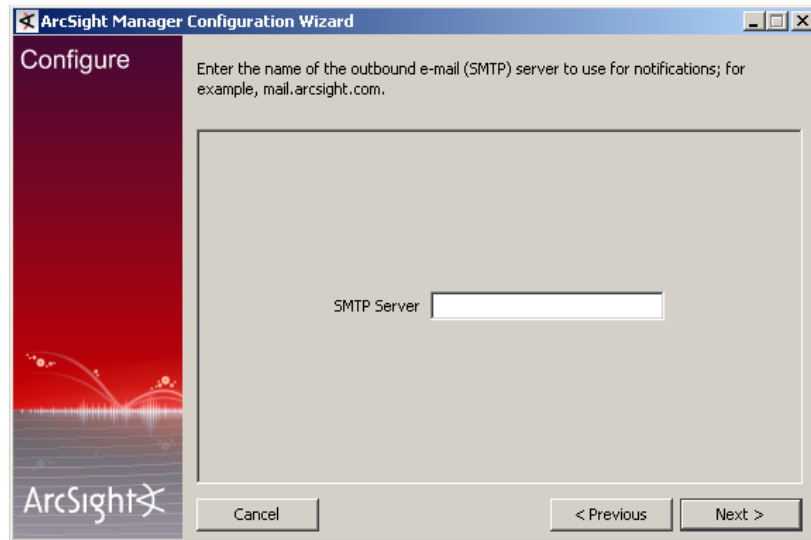


You must set up notification and specify notification recipients in order to receive system warnings. The importance of this step is sometimes overlooked, leading to preventable system failures.

You will be prompted to select a SMTP server:

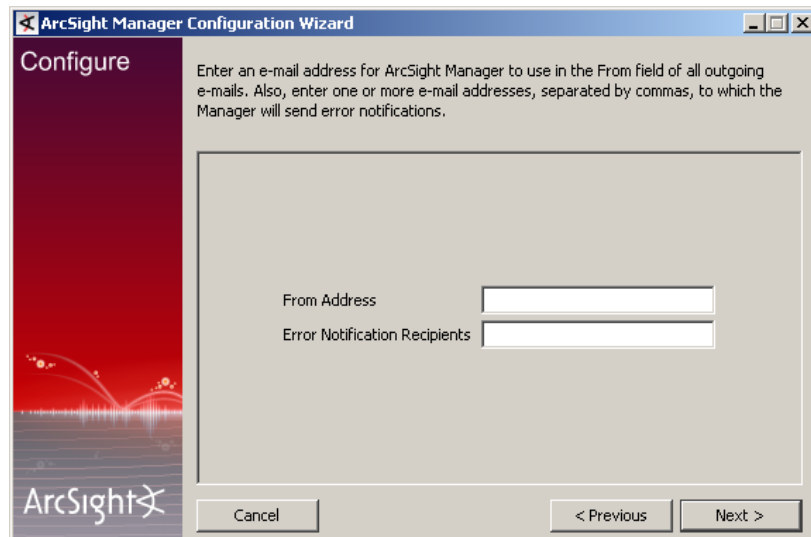


If you select **External SMTP Server**, fallback to internal SMTP server or **External SMTP server**, you will be prompted to enter the external server name:

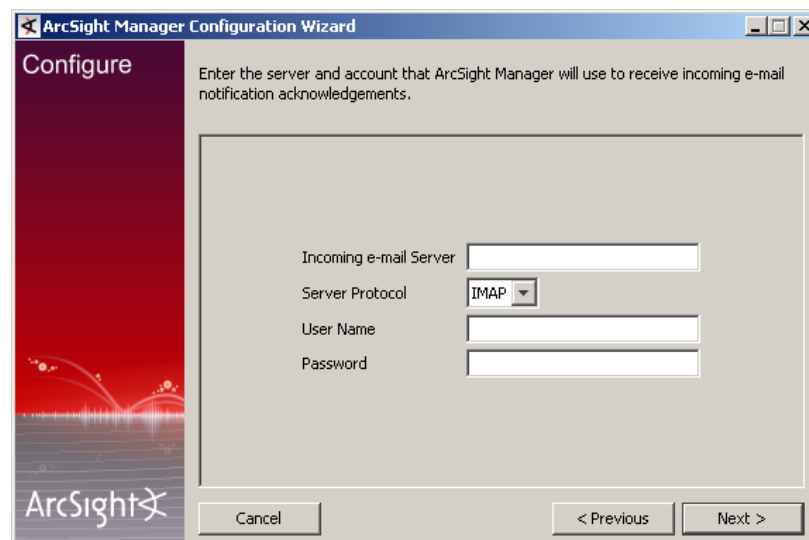
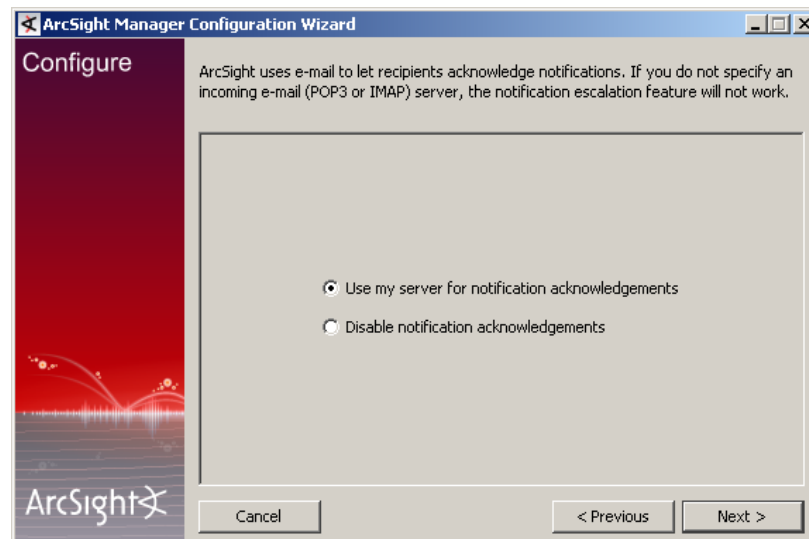


The screenshot shows the 'Configure' step of the ArcSight Manager Configuration Wizard. The window title is 'ArcSight Manager Configuration Wizard'. The left sidebar has a red background with the ArcSight logo. The main area has a light gray background. At the top, it says 'Configure' and 'Enter the name of the outbound e-mail (SMTP) server to use for notifications; for example, mail.arcsight.com.' Below this is a large text input field labeled 'SMTP Server'. At the bottom, there are three buttons: 'Cancel', '< Previous', and 'Next >'.

You will also be prompted to enter information to configure the Internal SMTP server.



The screenshot shows the 'Configure' step of the ArcSight Manager Configuration Wizard. The window title is 'ArcSight Manager Configuration Wizard'. The left sidebar has a red background with the ArcSight logo. The main area has a light gray background. At the top, it says 'Configure' and 'Enter an e-mail address for ArcSight Manager to use in the From field of all outgoing e-mails. Also, enter one or more e-mail addresses, separated by commas, to which the Manager will send error notifications.' Below this are two text input fields: 'From Address' and 'Error Notification Recipients'. At the bottom, there are three buttons: 'Cancel', '< Previous', and 'Next >'.



The following table describes parameters you can enter to set up mail server notification.

Parameter	Description
SMTP Server	The local outgoing Simple Mail Transfer Protocol (SMTP) server host name that is used by the ArcSight Manager to send notification messages
From Address	The e-mail address from where notification messages originate and are sent, appears in the From field of notification messages

Parameter	Description
Error Notification Recipients	A comma-delimited list of e-mail addresses to notify in case of ArcSight Manager errors that should be directed to an administrator's attention.
Incoming e-mail Server	The Internet Message Access Protocol (IMAP) or Post Office Protocol V3 (POP3) server host name that the ArcSight Manager will use to receive notification confirmations
Server Protocol	Either the IMAP or POP3 protocol used by the ArcSight Manager to communicate with the Incoming Mail Server
User Name	The username that the ArcSight Manager will use to login to the Incoming Mail Server
Password	The password that the ArcSight Manager will use to login to the Incoming Mail Server

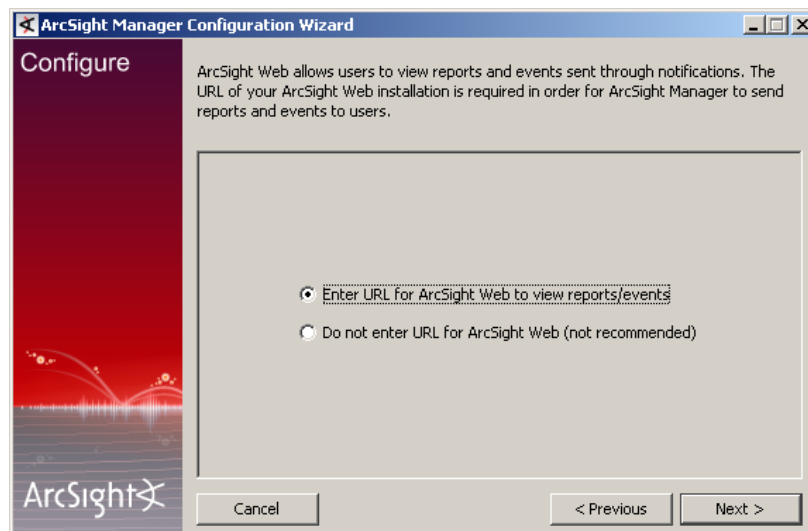
The Outgoing Mail Server must be configured to accept and relay e-mail sent from the From Address e-mail address.

## ArcSight Web

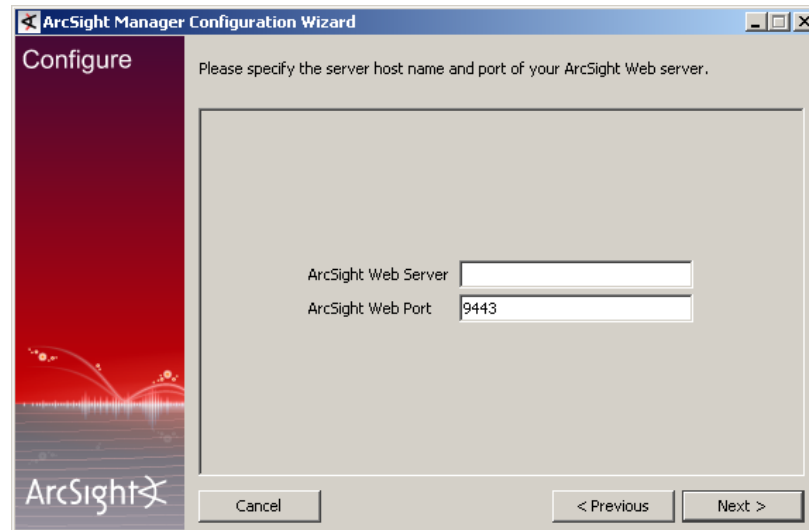


If you choose not to enter a URL for the ArcSight Web at this point, you can do so any time later by issuing the following command from `<ARCSIGHT_HOME>/bin` directory:

```
arcsight managersetup
```



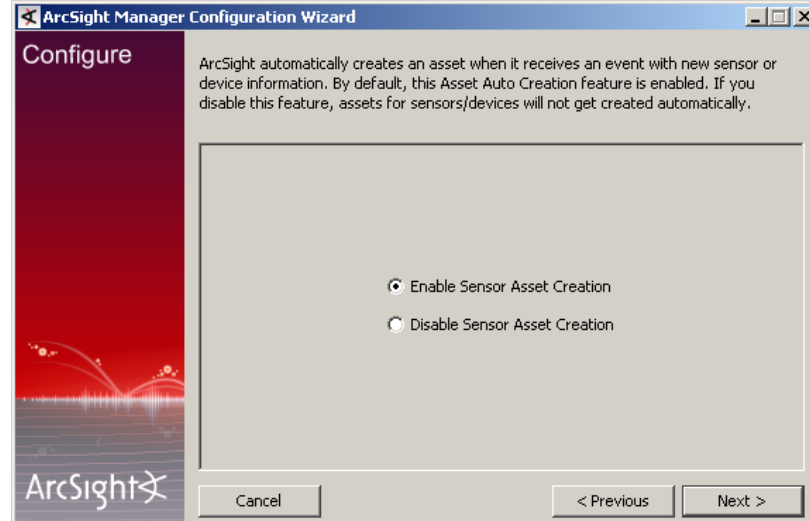
If you chose the **Enter URL for ArcSight Web to view reports/events** option, you will be required to enter the information for the ArcSight Web server:



The screenshot shows the 'Configure' step of the ArcSight Manager Configuration Wizard. The window title is 'ArcSight Manager Configuration Wizard'. The left sidebar has a red background with the ArcSight logo. The main area has a light gray background. At the top, it says 'Please specify the server host name and port of your ArcSight Web server.' Below this, there are two input fields: 'ArcSight Web Server' and 'ArcSight Web Port'. The 'ArcSight Web Port' field contains the value '9443'. At the bottom, there are three buttons: 'Cancel', '< Previous', and 'Next >'.

## Asset Auto Creation

ArcSight Manager can automatically create an asset when it receives an event with a new sensor or device information. By default, assets are automatically created. If you want to disable this feature, select **Disable Sensor Asset Creation**.



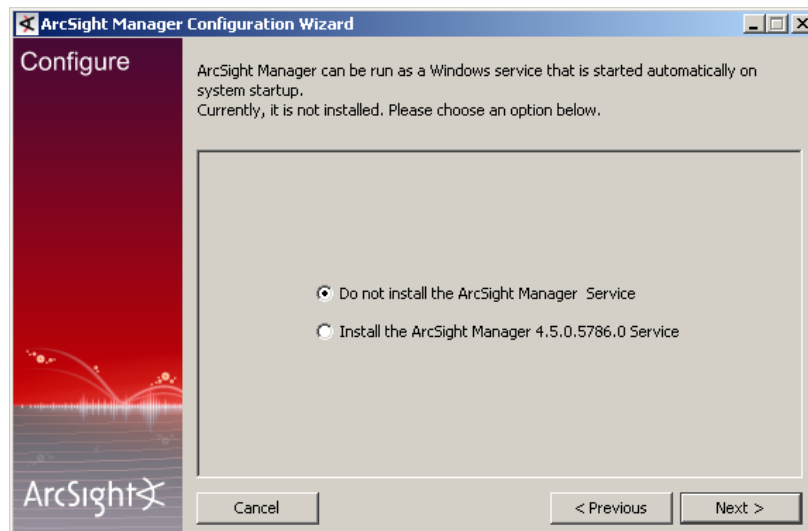
The screenshot shows the 'Configure' step of the ArcSight Manager Configuration Wizard. The window title is 'ArcSight Manager Configuration Wizard'. The left sidebar has a red background with the ArcSight logo. The main area has a light gray background. At the top, it says 'ArcSight automatically creates an asset when it receives an event with new sensor or device information. By default, this Asset Auto Creation feature is enabled. If you disable this feature, assets for sensors/devices will not get created automatically.' Below this, there are two radio button options: 'Enable Sensor Asset Creation' (which is selected) and 'Disable Sensor Asset Creation'. At the bottom, there are three buttons: 'Cancel', '< Previous', and 'Next >'.

## Setting up as a Service or Daemon

The Configuration Wizard next offers to set up ArcSight Manager as a service (or daemon). Each supported platform provides wizard steps that request platform-specific information—the example shown here illustrates a Windows environment.

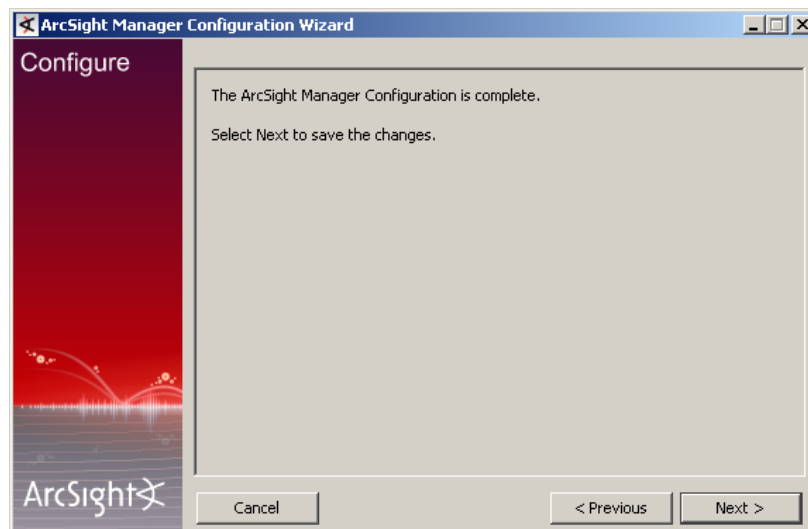


Choose whether you want to install the ArcSight Manager as a service, then click **Next**.

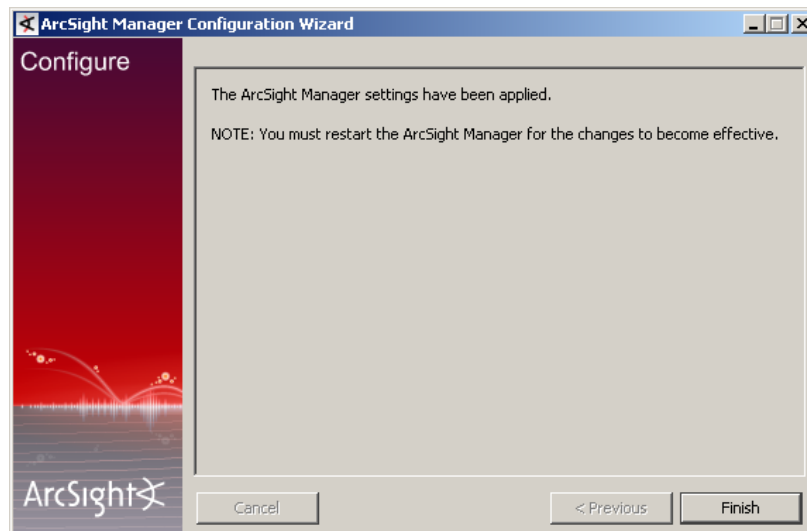


If you choose the option to install ArcSight Manager as a service, the installer prompts you to specify parameters used to set up the service. If you choose not to install ArcSight Manager as a service, you can change the startup configuration later. For more information, see [“Running the Manager as a Service” on page 107](#).

The Configuration Wizard returns a message indicating the ArcSight Manager configuration is complete. Click **Next**.



When ArcSight Manager settings have been applied, click **Finish**.



After installation is complete, you can start ArcSight Manager.



After installing the ArcSight Manager, configure your system's default file permissions so that files created by ArcSight (events, log files, and so on) will be reasonably secure.

On Unix systems, file permissions are typically set by adding the `umask` command to your shell profile. A `umask` setting of `077`, for example, would deny read or write file access to any but the current user. A `umask` setting of `000` creates an unnecessary security hole.

Additionally, if you installed the Manager on a SuSE Linux 10 system, you can remove the file called "strings" that you created in the `/sbin` directory.



Chip multi-threading (CMT) machines running Solaris can appear to have more processors than they do and cause the Manager to miscalculate. CMT machine Chip multi-threading (CMT) machines running Solaris can appear to have more processors than they do and cause the Manager to miscalculate. CMT machines require manual configuration to achieve optimal performances require manual configuration to achieve optimal performance.

On Sun Niagara (T1000 or T2000) or other CMT machines, edit the `server.properties` file to change the `queue.start-of-flow.threads` property as follows:

Number of cores	<code>queue.start-of-flow.threads</code>
4	2
6	3
8	4

Note that setting this property will not affect functionality, but could affect system performance.

## Starting and Stopping the Manager

### Starting the Manager

To start ArcSight Manager from the command line, if it is not configured to run either as a daemon or a service:

- 1 Open a command window or terminal box.
- 2 Change directories to the ArcSight Manager's `<ARCSIGHT_HOME>\bin` directory:
- 3 Type in the following line and press Enter:

```
arcsight manager
```

When you start up, the Manager will display a stream of messages in the command window or terminal box to reflect its status. The command window or terminal box will say Ready when the Manager has started successfully. If you are starting the Manager as a service you can monitor whether or not it has successfully loaded by viewing the `server.std.log` file located in `<ARCSIGHT_HOME>/logs/default`. For example, you could use the command:

```
cd ARCSIGHT_HOME;tail -f logs/default/server.std.log
```

### Stopping the Manually Started Manager

To initiate a controlled and graceful shutdown of the ArcSight Manager, open a separate command prompt window and issue the following command:

```
arcsight managerstop
```

### Running the Manager as a Service

Use the `managersetup` wizard to run the Manager as a service. When you have finished setup, ArcSight Manager can be controlled via `/etc/init.d/arcsight_manager start|stop`, following the standard method of starting daemon services in Unix. There is also a configuration file `/etc/arcsight/arcsight_manager.conf` that you may change to reflect the location of the ArcSight Manager installation directory and other settings. In addition, the `/etc/init.d/arcsight` scripts will be hooked into the Unix startup procedure, making the ArcSight Manager start and shut down in lock step with the host OS.

Once everything is configured properly, test your configuration setup the next time you start the ArcSight Manager using `/etc/init.d/arcsight_manager start`.

Be sure to start ArcSight Manager this way at least once before relying upon it to start correctly during system boot or startup.

Script output will go to `<ARCSIGHT_HOME>/logs/default/server.script.log`. The stdout output of the ArcSight Manager will go to `<ARCSIGHT_HOME>/logs/default/server.std.log`. Run tail on these two files to identify any problems causing failures on startup.

## Verifying the Manager Installation

The ArcSight Manager displays "Ready" (in the command window and in the log) when it has fully initialized and is ready to respond to communications.

Manager logs are written to `<ARCSIGHT_HOME>/logs/default`.

## Reconfiguring ArcSight Manager

To reconfigure ArcSight Manager settings made during installation, shutdown the Manager and then run the ArcSight Manager Configuration Wizard by typing the following command in a terminal box or command prompt window from the Manager's

<ARCSIGHT\_HOME>/bin directory:

```
arcsight managersetup
```

The `managersetup` command opens the ArcSight Manager Configuration Wizard.

To change advanced configuration settings (i.e., port numbers, database settings, log location, and so forth) after the initial installation, make changes to the <ARCSIGHT\_HOME>/config/server.properties file. ArcSight's default settings are listed in the server.defaults.properties file. You can override these default settings by adding the applicable lines from server.defaults.properties to the server.properties file. These files are located in <ARCSIGHT\_HOME>/config.



Never change the `server.defaults.properties` file. Instead, override individual settings by changing the `server.properties` file. That way, the original defaults will always be available.

---

## Securing the ArcSight Manager Properties File

The ArcSight Manager's `server.properties` file contains sensitive information such as database passwords, keystore passwords, and so forth. Someone accessing the information in this file can do a number of things including tampering with the database and acting as a pseudo ArcSight Manager. As a result, the `server.properties` file must be protected so that only the user account under which the ArcSight Manager is running is able to read it. This can be accomplished by issuing a `chmod` command in Unix and Linux, for example:

```
chmod 600 server.properties
```

This operation is handled during the ArcSight Manager installation. As a result, only the owner of the file (which must be the user that runs the ArcSight Manager) may read or write to the file. For all other users, access to the file is denied.

## Sending Events as SNMP Traps

ArcSight provides a filter to send a sub-stream of all incoming events (including rule-generated meta-events) to a specified target using the Simple Network Management Protocol (SNMP). ArcSight's correlation capabilities can be used to synthesize network management events that can then be routed to your enterprise network management console.



By default, `snmp.mib.version` is set to 2.5. If you cannot find certain fields in the default MIB, change the `snmp.mib.version` setting to 3.0 in the `server.properties` file.

---

To Configure the SNMP Trap Sender

- 1 Copy the SNMP template lines from the default properties file at:

```
<ARCSIGHT_HOME>/config/server.default.properties
```

Uncomment the SNMP lines and save them to your properties file at:

```
<ARCSIGHT_HOME>/config/server.properties
```

Create the `server.properties` file if necessary. Always treat `server.default.properties` as read-only.

- 2 Edit the specific parameters for your situation. The major parameters are described below.
- 3 Restart the Manager for the new settings to take effect.

A description of specific SNMP configuration parameters follows:

```
snmp.trapsender.enabled=true
```

Set this property to `true` in order to enable the SNMP trap sender.

```
snmp.trapsender.uri=/All Filters/ArcSight System/SNMP
Forwarding/SNMP Trap Sender
```

The URI of the zone that is used to decide whether or not an event is forwarded. You can override the zone specified here by changing the zone in the ArcSight Console. Changes to the zone will affect the SNMP trap sender immediately. By default, the SNMP Trap Sender zone logic is: `inZone(Correlated Events)`—that is, only rule-generated meta-events will be forwarded.

```
snmp.destination.host=
```

```
snmp.destination.port=
```

The host name and port number of the SNMP listener must be specified.

```
snmp.read.community=public
```

```
snmp.write.community=public
```

The SNMP community strings must match the community of the receiving host. (The read community is reserved for future use.) The community you must specify will depend on the deployment environment and on the receiving device. Consult the receiving device's documentation to determine the correct community string.

```
snmp.version=1
```

The SNMP version. SNMP versions 1, 2, and 3 supported. For SNMP version 1, set the value for the above property to `0`; for SNMP version 2, set the value for the above property to `1`; and for SNMP version 3, set the value to `3`.

```
snmp.fields=\
```

```
event.eventId,\
```

```
event.name,\
```

```
event.deviceEventCategory,\
```

```
event.type,\
```

```
event.baseEventCount,\
```

```
event.categoryTechnique,\
```

```
event.agentSeverity,\
event.transportProtocol,\
event.attackerAddress,\
event.targetAddress
```

The `snmp.fields` property lists the event attributes to be included in the trap. The syntax follows the ArcSight SmartConnector SDK format. All ArcSight fields can be sent. Note that the identifiers are case-sensitive, do not contain spaces, and must be capitalized except for the first character. For example:

ArcSight Field	SDK/SNMP Trap Sender Identifier
Event Name	eventName
Device Severity	deviceSeverity
Service	Service

The following table illustrates the mapping between ArcSight field types and SNMP field types:

ArcSight Field Type	SNMP Field Type
STRING	OCTET STRING
INTEGER	INTEGER32
Address	IP ADDRESS
LONG	OCTET STRING
BYTE	INTEGER

Additional data values are accessible by name. For example:

```
snmp.fields=event.eventName,additionaldata.myvalue
```

This will send the Event Name field and the value of 'myvalue' in the additional data list part of the SNMP trap. Only the STRING data type is supported for additional data—all additional data values will be sent as OCTET STRING.

## Uninstalling ArcSight Manager

Stop ArcSight Manager before uninstalling it.

To uninstall on Windows, open the **Start** menu. Run the Uninstall ArcSight Manager 4.5 program found under All Programs | ArcSight Manager. If a shortcut to the Manager was not installed on the Start menu, locate the `<ARCSIGHT_HOME>\UninstallerData` folder and double-click:

```
Uninstall_ArcSight_Manager.exe
```

To uninstall on Unix hosts, open a command window on the `<ARCSIGHT_HOME>/UninstallerData` directory and run the command:

`./Uninstall_ArcSight_Manager`



The UninstallerData directory contains a file `.com.zerog.registry.xml` with Read, Write, and Execute permissions for everyone. You can change the permissions to Read and Write for everyone (that is, 666).

---



The Uninstaller does not remove all the files and directories under the ArcSight Manager home folder. Please delete these folders manually after the uninstallation is complete.

---





## Chapter 4

# Installing ArcSight Console

---

The ArcSight Console provides a user interface for you to perform administrative tasks on ArcSight Express, such as fine tuning the pre-installed ArcSight Express content and creating/editing/deleting users. ArcSight Console provides a host-based interface (as opposed to the browser-based interface of ArcSight Web) to ArcSight Express. ArcSight Console should only be used for administrative purposes. This chapter explains how to install and configure the ArcSight Console. Install only one Console per deployment.



Make sure that you have successfully configured ArcSight Express before proceeding.

This chapter covers the following topics:

- [“Console Platforms” on page 113](#)
- [“Installing the Console” on page 114](#)
- [“Starting the ArcSight Console” on page 122](#)
- [“Reconnecting to the ArcSight Manager” on page 123](#)
- [“Reconfiguring the ArcSight Console” on page 124](#)
- [“Uninstalling the ArcSight Console” on page 124](#)

## Console Platforms

The following operating system platforms are supported.

Platform	Supported Operating System	Typical System Requirements
Windows	Windows Vista SP1 (32-bit & 64-bit) Windows XP Professional SP3, 32-bit	x86-compatible single or multi-CPU system with 1-2 GB RAM, 2 GB disk space.

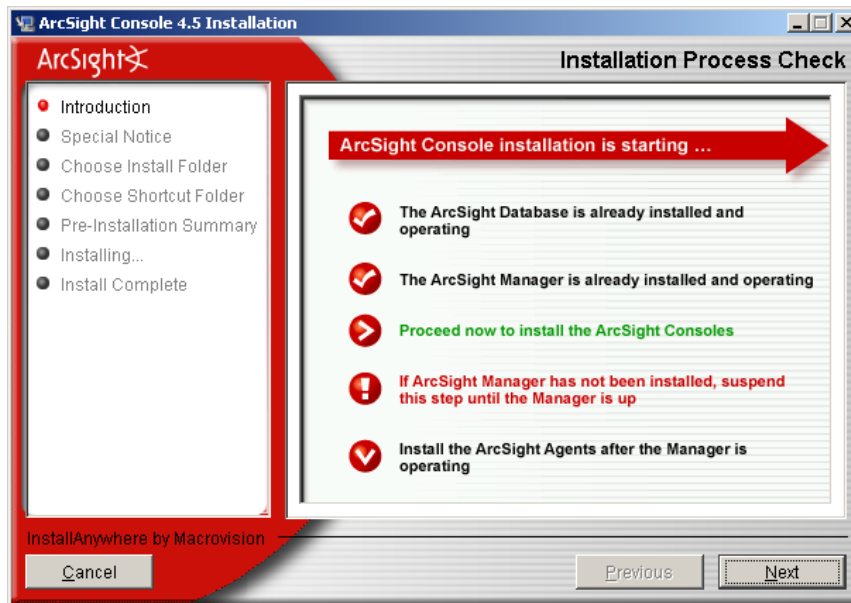
## Installing the Console



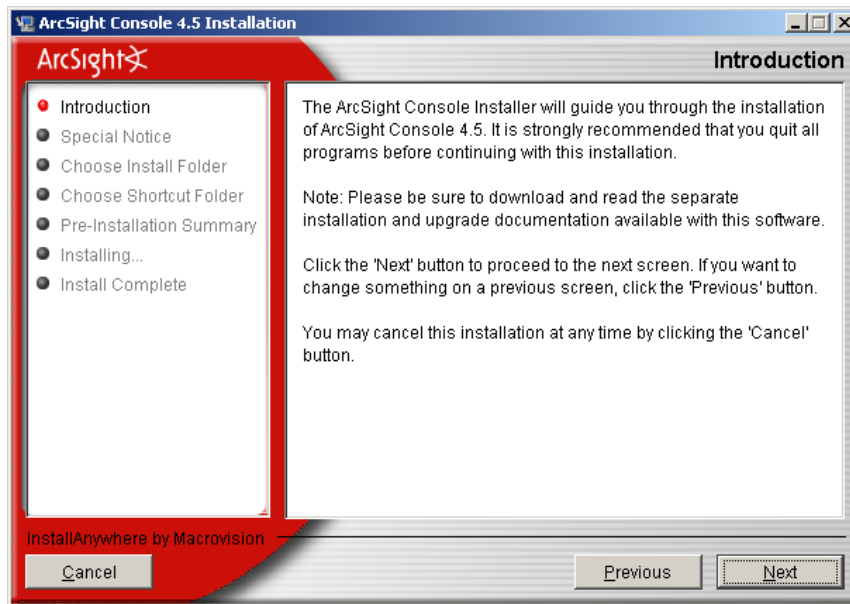
Do not install the ArcSight Console on the ArcSight Express Appliance. See the section on [“Console Platforms”](#) on page 113 for supported platforms for ArcSight Console.

Download the ArcSight Console installer file for your platform from the ArcSight Customer Support download site and install the Console on your system **after** configuring ArcSight Express.

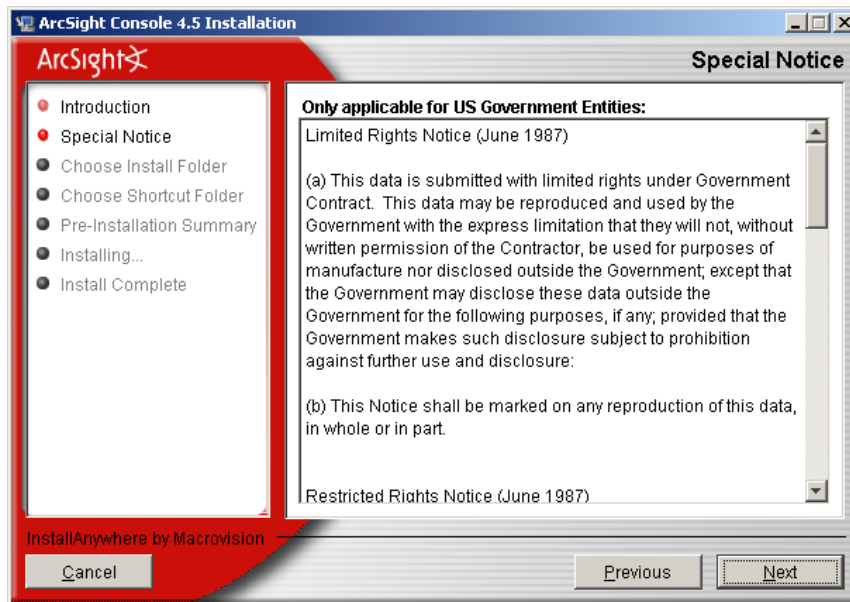
To install ArcSight Console, run the self-extracting archive file and click **Next** in the following screens.



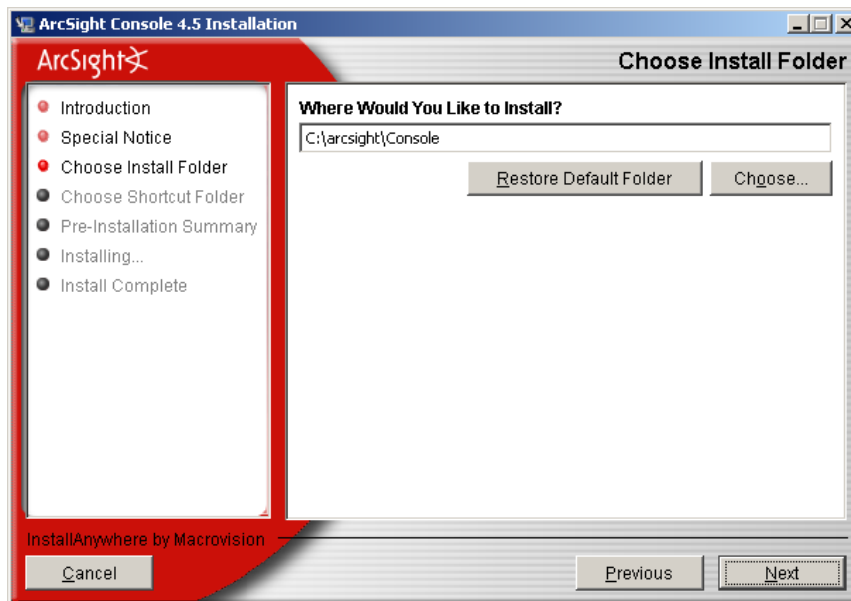
Read the introductory text in this panel and click **Next**.



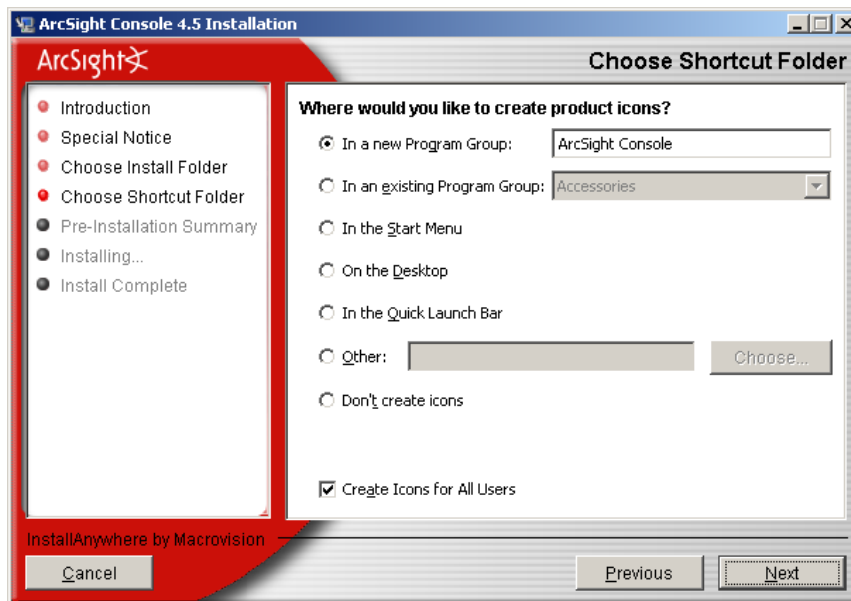
Read the text in the following panel and click **Next** when you are done.



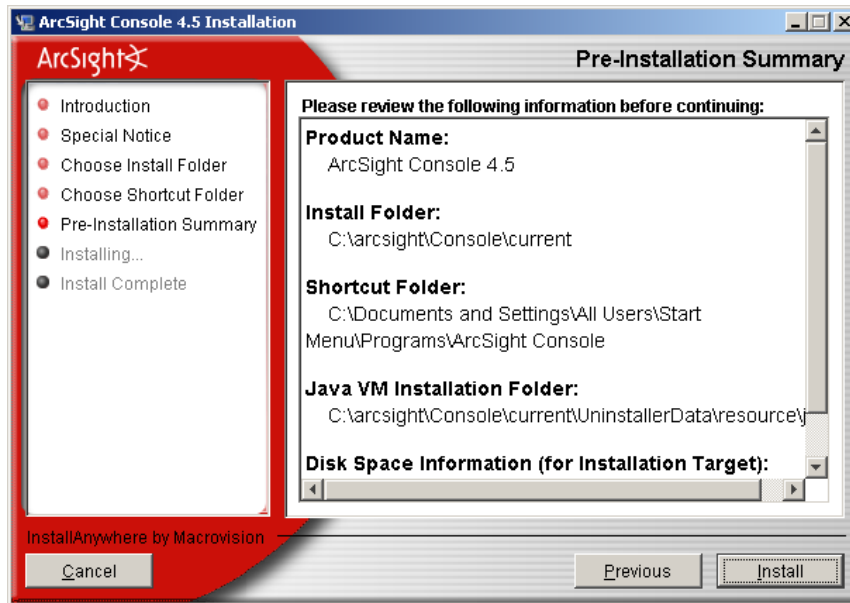
Navigate to an existing folder where you want to install the Console or accept the default and click **Next**. If you specify a folder that does not exist, the folder gets created for you.



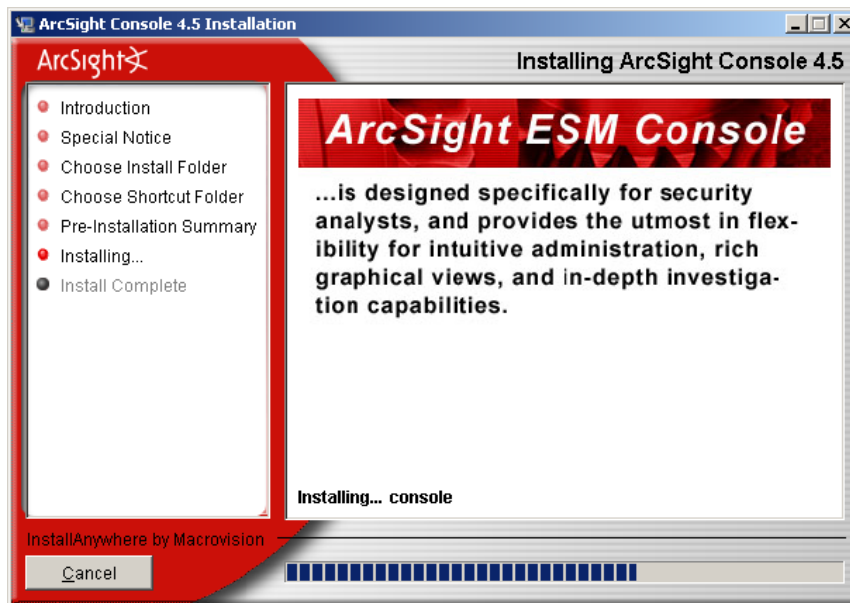
Select where you would like to create a shortcut for the Console and click **Next**.



View the summary in the Pre-Installation Summary screen and click Install if you are satisfied with the paths listed. If you want to make any changes, use the Previous button to do so.

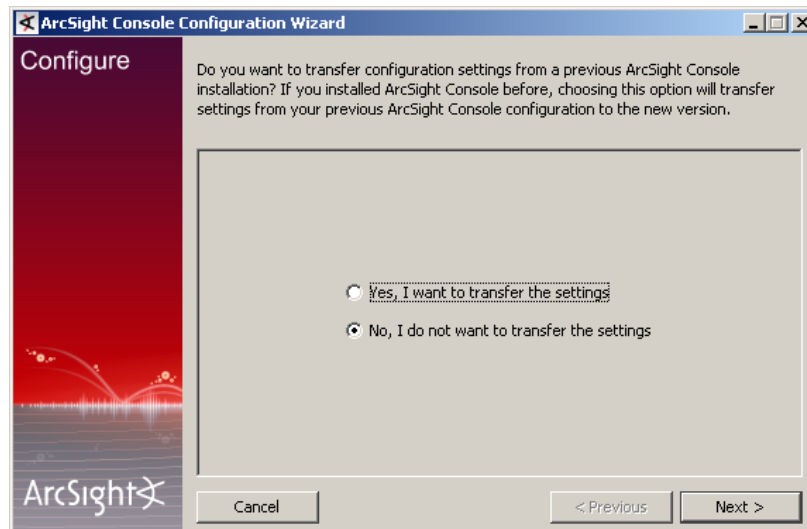


You can view the installation progress in the progress bar.



## Transferring Configuration from an Existing Installation

The wizard asks if you would like to transfer configuration options from an existing installation of ArcSight Console.



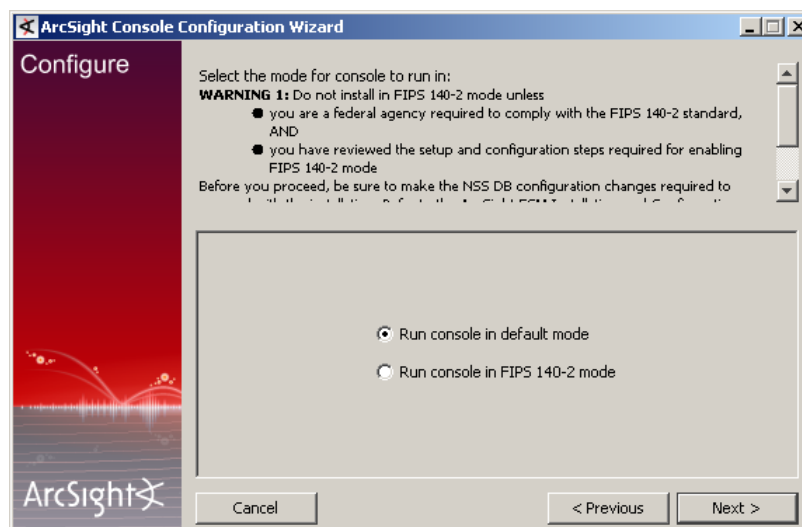
Select **No, I do not want to transfer the settings** and click **Next**.

## Selecting the Mode in which to Configure ArcSight Console



The FIPS 140-2 mode is not supported for ArcSight Express.

Next, you will see the following screen:



Select the **Run console in default mode** radio button and click **Next**.

## Manager Connection

Set the host name on which the Console will communicate with the ArcSight Manager. The hostname is the ArcSight Express Appliance host name or its IP address.



Do not change the Manager's port number.

Click **Next**.

ArcSight Console Configuration Wizard

Configure

Please complete the following ArcSight Manager information.

Manager Host Name

Manager Port

Cancel < Previous Next >

Select **Use direct connection** option. You can set up a proxy server and connect to the Manager using that server if you cannot connect to the Manager directly.

ArcSight Console Configuration Wizard

Configure

ArcSight Console can connect to ArcSight Manager using a HTTP proxy server. Please choose whether you would like to configure ArcSight Console for a proxy connection.

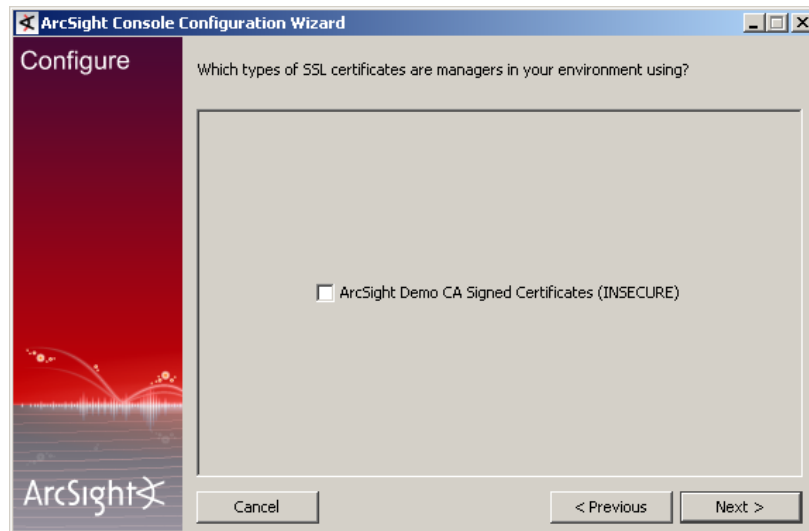
☒ Use direct connection.

☐ Use proxy server.

Cancel < Previous Next >

## SSL Certificate used by Manager

You will see the following screen:



ArcSight Express is pre-configured with a self-signed certificate, so leave this checkbox unchecked. Click **Next**.

## Authentication

The ArcSight Console configuration wizard prompts you to choose the type of client authentication you want to use, as shown in the following screen:



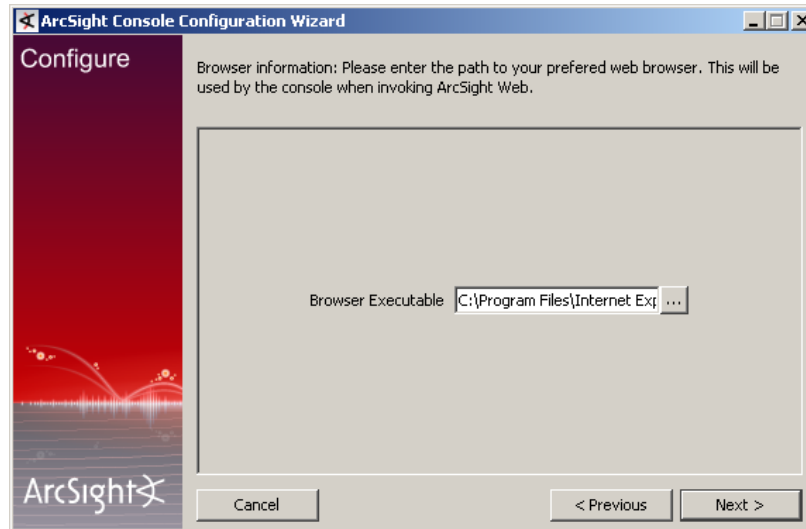
This release of ArcSight Express supports **Password Based Authentication** only.



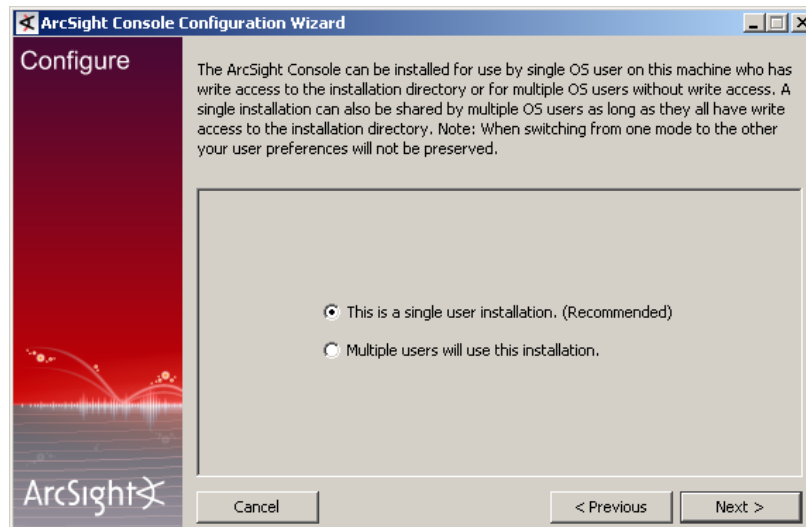
Select **Password Based Authentication** and click **Next**.

## Web Browser

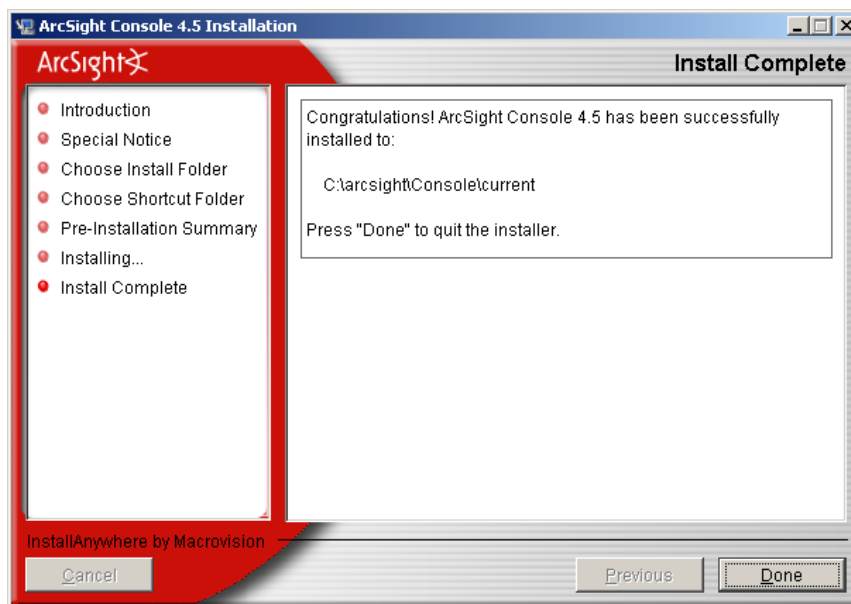
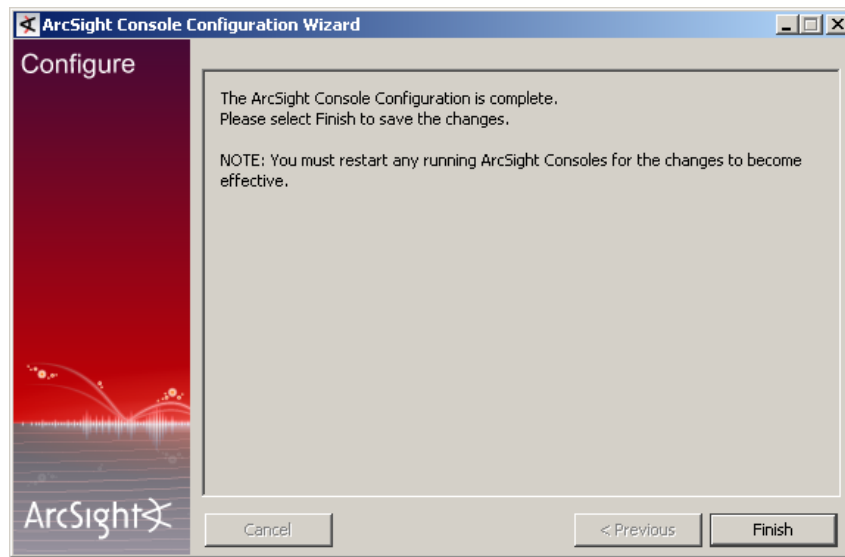
Click **Next**.



## User Logs and Preferences



Select **This is a single user installation (Recommended)** and click **Next**.



## Starting the ArcSight Console



The Manager on ArcSight Express Appliance should be up and running before you start the Console.

After installation and setup is complete, you can start ArcSight Console.

To start the ArcSight Console, use the shortcuts installed or open a command window on the Console's `bin` directory and run:

```
arcsight console
```

If your Manager uses a self-signed certificate, you will get a dialog asking you whether you want to trust the Manager's certificate. Click **OK** to trust the Manager's certificate. The certificate will be permanently stored in the Console's truststore and you will not see the following prompt the next time you log in.



## Creating ArcSight Express Users

The next step is to create users. ArcSight Express comes configured with a custom user group called ArcSight Express. Add users to this group with ArcSight Web privileges.

- 1 In the Navigator panel, go to **Users > Shared > Custom User Groups**
- 2 Right click on ArcSight Express and select **New User**
- 3 For each user you add, provide a User ID and Password, and set the User Type to **Web User** and click **OK**.

## Reconnecting to the ArcSight Manager

If the ArcSight Console loses the connection to the ArcSight Manager (for example, because the Manager was restarted), a dialog box appears in the ArcSight Console stating that your connection to the ArcSight Manager has been lost. Click **Retry** to re-establish a connection to the ArcSight Manager or click **Start Over**.

Connections to the ArcSight Manager cannot be re-established while the ArcSight Manager is restarting or if the Manager refuses the connection. In addition, you may see connection exceptions during the Retry process while the connection is lost or ArcSight Manager is restarting.

## Reconfiguring the ArcSight Console

You can reconfigure ArcSight Console at any time by running the following command within a command window from the Console's `bin` directory:

```
arcsight consolesetup
```

and follow the prompts.

## Uninstalling the ArcSight Console

Before uninstalling the ArcSight Console, exit the current session.

To uninstall, open the **Start** menu. Run the Uninstall ArcSight Console 4.5 program found under **All Programs->ArcSight Console**. If a shortcut to the Console was not installed on the Start menu, locate the Console's `\UninstallerData` folder and run:

```
Uninstall_ArcSight_Console.exe
```

## Chapter 5

# Installing ArcSight Web

---

This chapter describes the installation and configuration of the ArcSight Web.



Install ArcSight Web only after you have installed the ArcSight Manager and have it up and running.

---

This chapter covers the following topics:

- [“ArcSight Web Supported Platforms” on page 126](#)
- [“Installing ArcSight Web” on page 127](#)
- [“Starting ArcSight Web Manually” on page 139](#)
- [“Connecting to ArcSight Web” on page 139](#)
- [“Styling ArcSight Web” on page 139](#)
- [“Uninstalling ArcSight Web” on page 139](#)

## ArcSight Web Supported Platforms



Refer to the ArcSight ESM Product Lifecycle document available on the ArcSight Customer Support website for the most current information on supported platforms.

The following operating system platforms are supported. The sections which follow describe more detailed requirements by platform.



On 64-bit machines a minimum of 4 GB RAM is required.

Platform	Supported Operating System	Typical System Requirements
Linux	RHEL v4 AS update 7 (32 bit and 64-bit) RHEL v5 AS update 2 (32 bit and 64-bit) SUSE Linux 10 SP1 Enterprise Server (64-bit)	x86-compatible multi-CPU system with 2-4 GB RAM, 2 GB disk space.
Microsoft Windows	Microsoft Windows Server 2003 R2 SP2 (32-bit and 64-bit) Microsoft Windows Server 2008 (32-bit and 64-bit)	x86-compatible multi-CPU system with 2-4 GB RAM, 2 GB disk space.
Solaris	Sun Solaris 9 (64-bit) Sun Solaris 10 (64-bit)	Sparc-compatible multi-CPU system with 2-4 GB RAM, 2 GB disk space.
IBM AIX	AIX 5L 5.3 (5.3.0.70) 64-bit	Power PC multi-CPU system with 2-16 GB RAM, 2 GB disk space

## Web Browsers

ArcSight Web requires a suitable web browser and the Macromedia Flash plug-in, version 8.0 or later. No specific Java version is required for browsers to work with ArcSight Web.

The following table lists supported web browsers:

Platform	Supported Browsers
Solaris	Firefox 1.5
Windows	Internet Explorer 6.0, 7.0, Firefox 2.0, 3.0
Linux	Firefox 2.0, 3.0
Macintosh	Safari 2.0, 3.1, Firefox 2.0, 3.0



Make sure that you set your browser to use the TLS v1 communication protocol.

## Installing ArcSight Web

ArcSight Web is a web server that acts as an intermediary between the ArcSight Manager and user sessions in web browsers such as Internet Explorer. ArcSight Web can operate outside a firewall that protects the Manager.

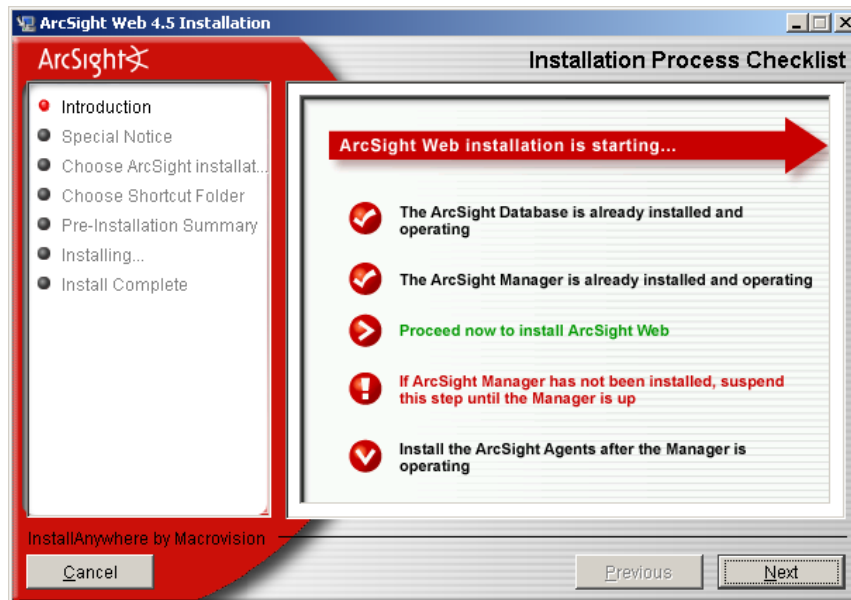
To install ArcSight Web, run the appropriate executable file for your target platform. On Linux and Solaris be sure that you are **not** logged on as root:

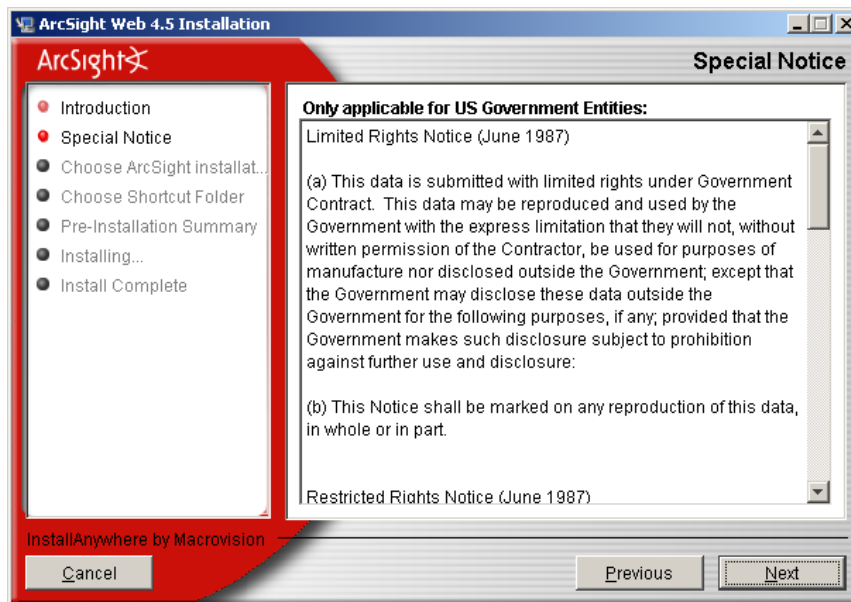
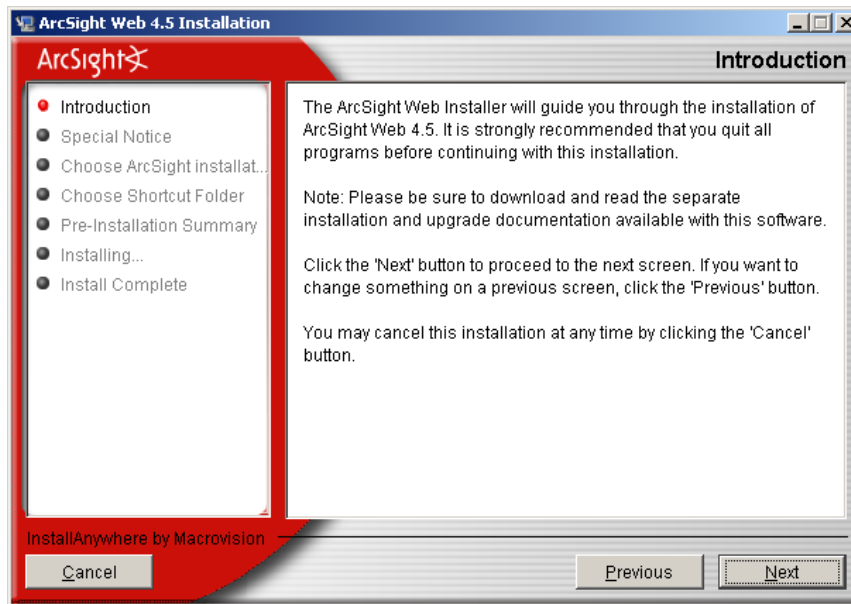
Platform	Installation File
Windows	ArcSight-4.0.x.nnnn.y-Web-Win.exe
AIX	ArcSight-4.0.x.nnnn.y-Web-AIX.bin
Linux	ArcSight-4.0.x.nnnn.y-Web-Linux.bin
Solaris	ArcSight-4.0.x.nnnn.y-Web-Solaris.bin



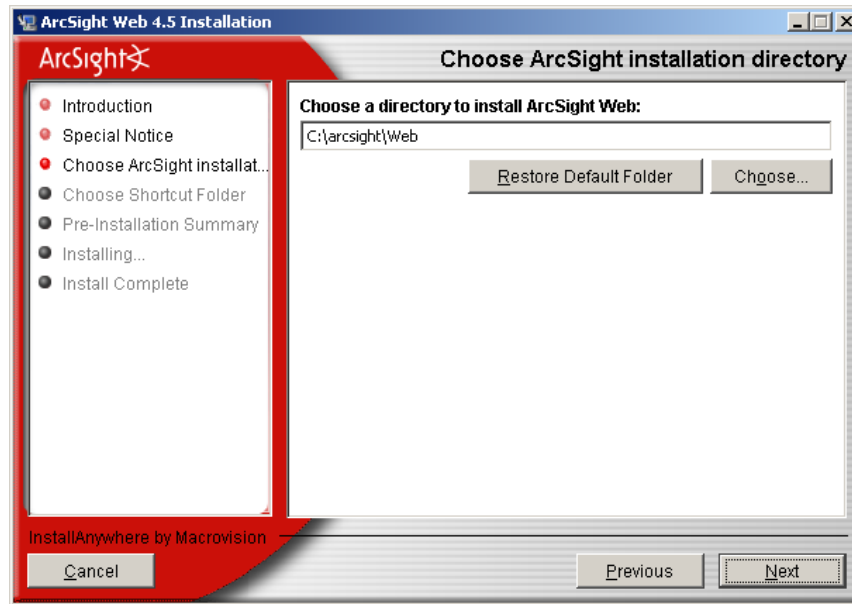
A Windows system was used for the sample installation. If you are installing your ArcSight Web on a Unix based system, you will notice a few Unix-specific screens.

Screens that summarize your selections or the ones that report progress on the installation are not shown in this sample installation.

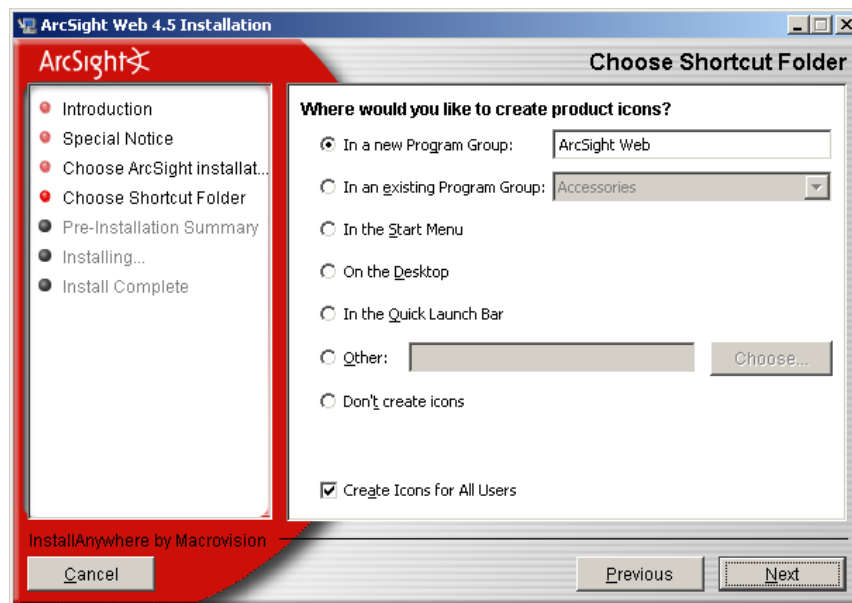


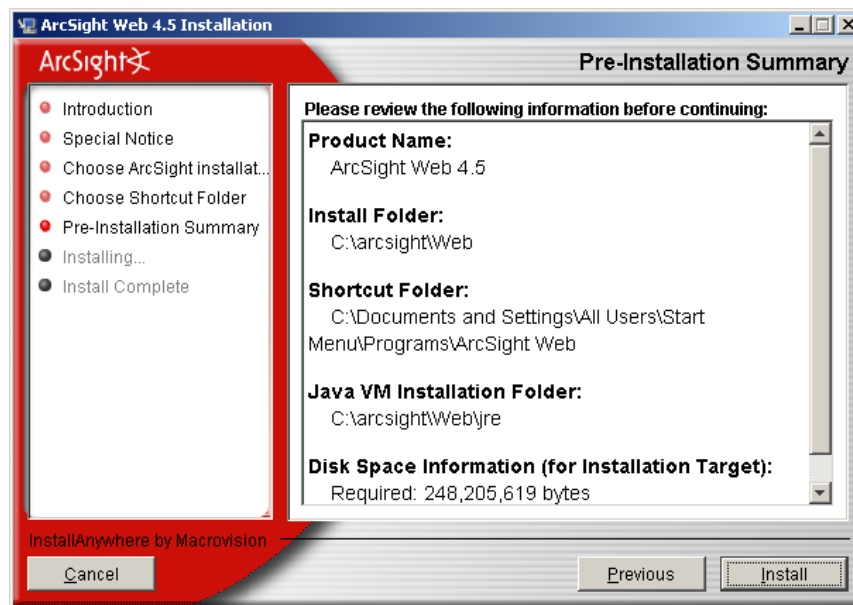


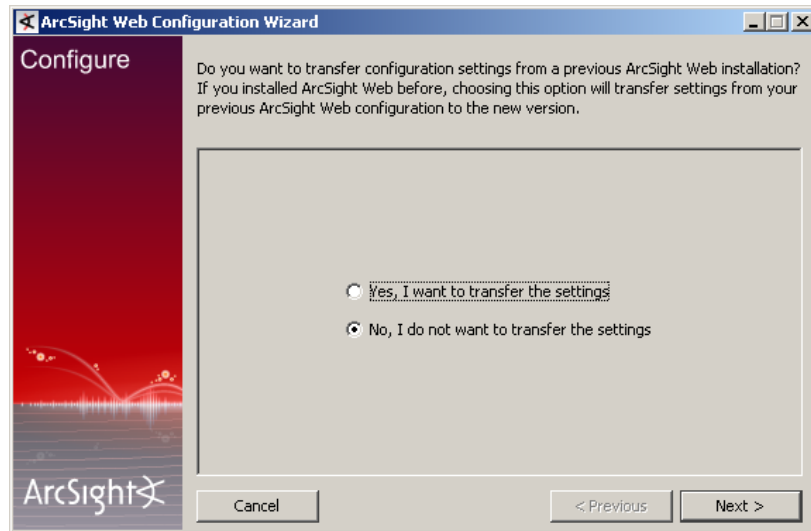




You can install ArcSight Web on the same host as the ArcSight Manager or on a separate machine that has network access to the Manager. You may run multiple instances of ArcSight Web against the same ArcSight Manager, and each instance can be configured with different styling, as described below, if desired.







The configuration wizard starts up automatically at the end of the installation.



If you are installing in console mode you will have to manually run the setup program by typing `arc sight websetup` in the installed `<ARCSIGHT_HOME>/bin` directory.

The wizard prompts you to pick if you would like to transfer configuration options from a previous installation of ArcSight Web.

Select **No, I do not want to transfer the settings** and click **Next**.

## Setting up SSL Client Authentication

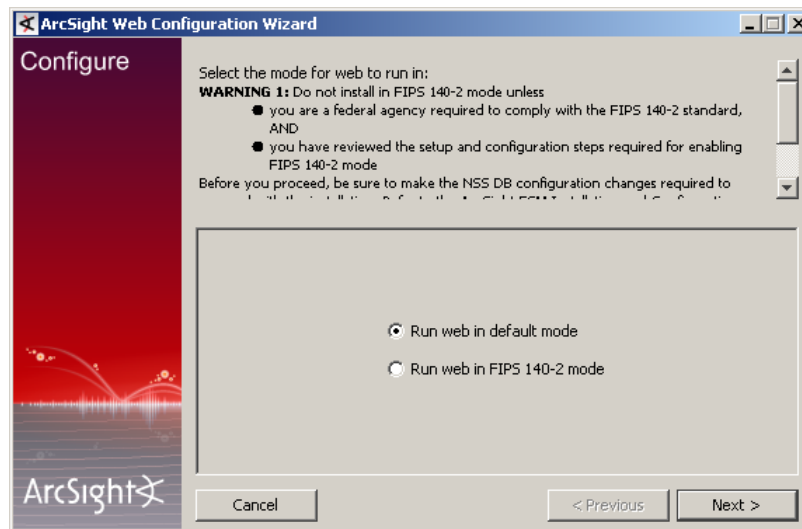
If you would like to set up SSL client authentication, you will need to replace the `cacerts` file in your ArcSight Web's `<ARCSIGHT_HOME>/jre/lib/security` with the `cacerts` file from your Manager's `<ARCSIGHT_HOME>/jre/lib/security` folder **before** you configure ArcSight Web. Follow the steps in "Setting up SSL Client Authentication for ArcSight Web" section in Chapter 4 in the ArcSight ESM *version 4.5 Administrator's Guide*.

## Selecting the Mode in which to Configure ArcSight Web



The FIPS 140-2 mode is not supported for ArcSight Express.

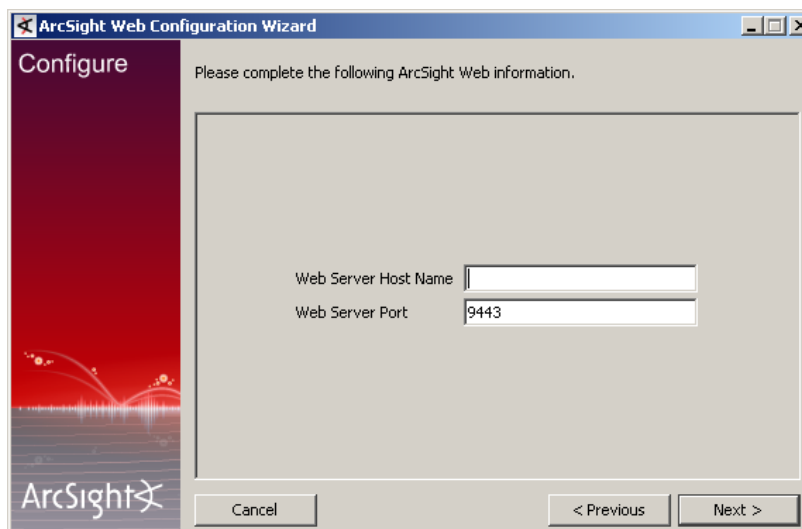
You will be prompted to select the mode in which to configure ArcSight Web:



To configure Web in default mode, select the **Run web in default mode** radio button and click **Next**.

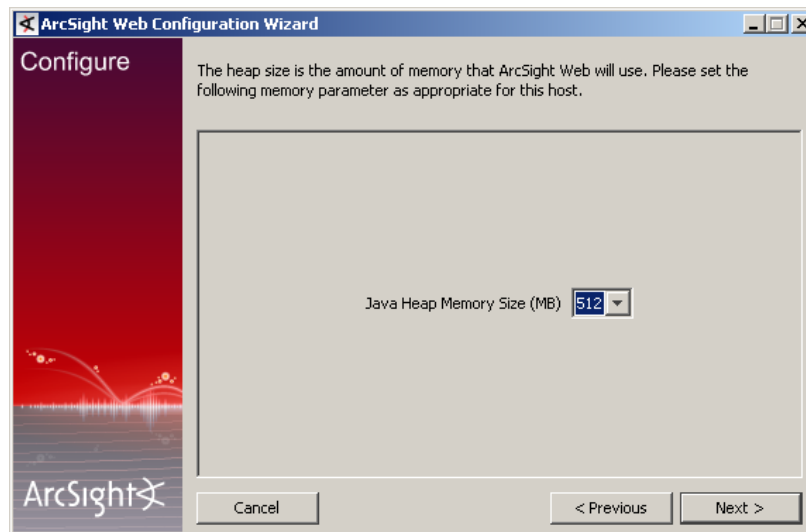
## Web server Host Name and Port

Enter the web server's host name and port. The default is localhost and port 9443. To avoid restricting the server to local testing only, enter a name for the server, such as the machine's host name.



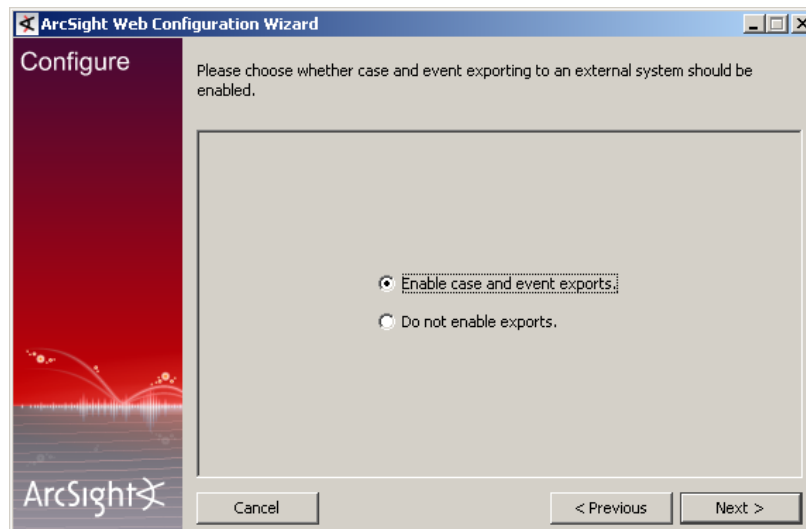
## Java Heap Memory Size

Select the heap memory size. The default is 256 MB.



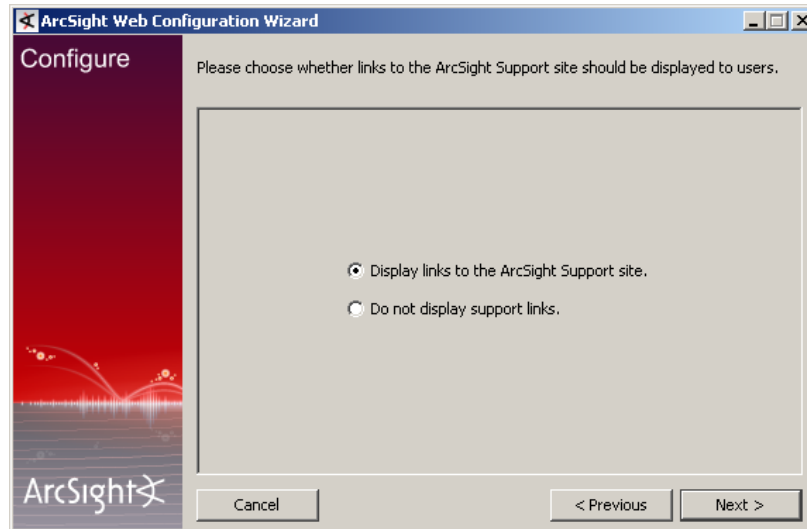
## Enable Case and Events Exports

If you want to export cases and events, select **Enable case and event exports**.



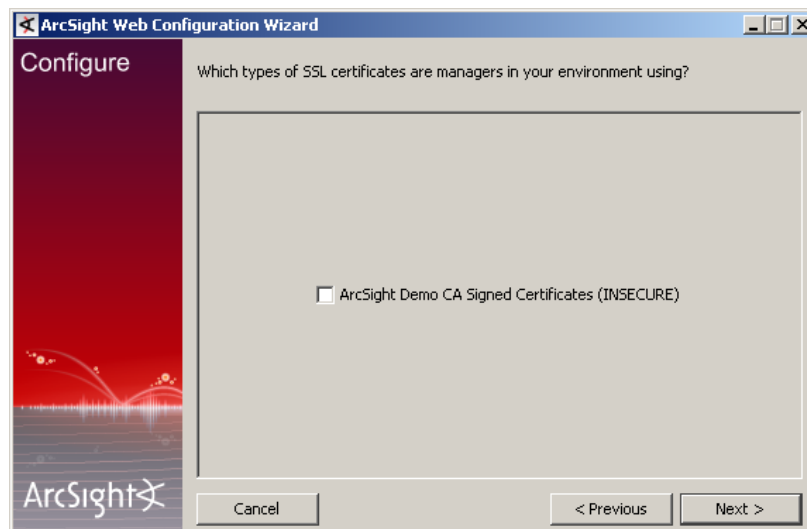
## Display Links to Support Web site

Choose whether to display a link to ArcSight Customer Support on the home page.



## Is the Manager Configured to use Demo Certificate?

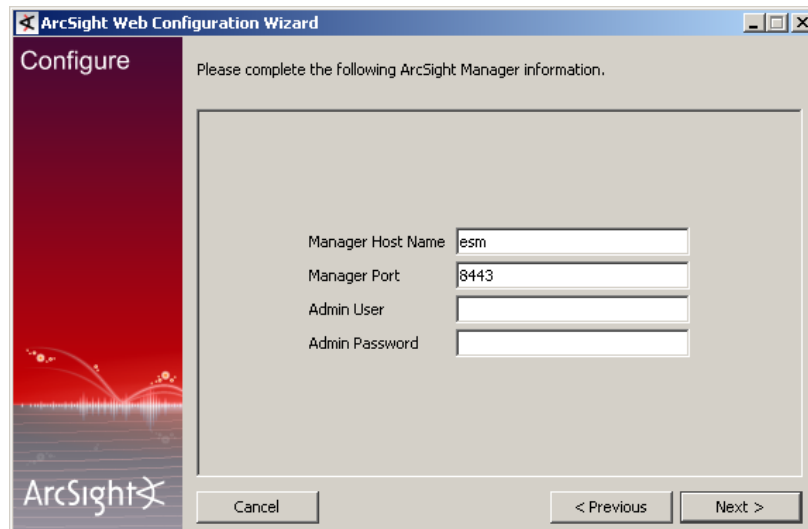
You will be prompted to select if the ArcSight Manager has been configured to use a Demo certificate.



If your Manager is configured to use a self-signed or CA Signed certificate, leave this panel unchecked, finish this Web setup wizard, then use the keytoolgui to import your Manager certificate manually. See the section, "Understanding SSL Authentication" in the *ArcSight ESM Administrator's Guide, v4.5*.

## ArcSight Manager Host Name and Port

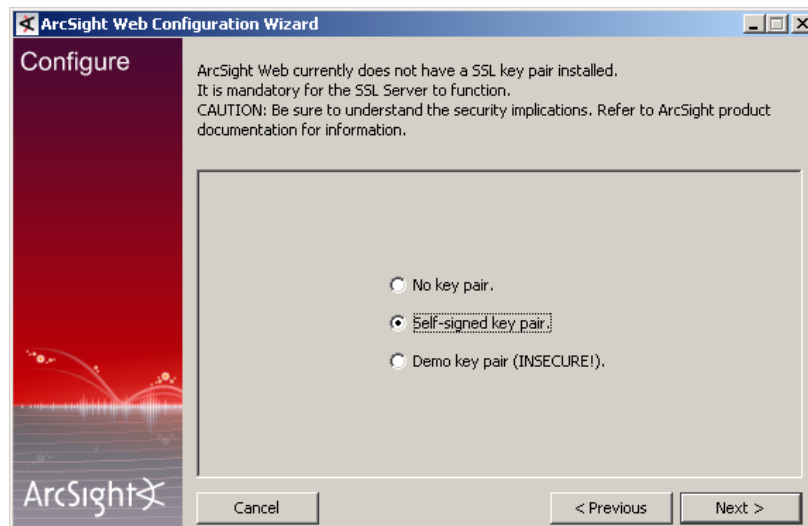
Make sure that the Manager is up and running. Then, enter the ArcSight Manager's host name, port, admin user and admin password.



The screenshot shows the 'Configure' step of the ArcSight Web Configuration Wizard. The window title is 'ArcSight Web Configuration Wizard'. On the left is a red sidebar with the ArcSight logo. The main area has a light gray background with the text 'Please complete the following ArcSight Manager information.' Below this are four input fields: 'Manager Host Name' (containing 'esm'), 'Manager Port' (containing '8443'), 'Admin User' (empty), and 'Admin Password' (empty). At the bottom are three buttons: 'Cancel', '< Previous', and 'Next >'.

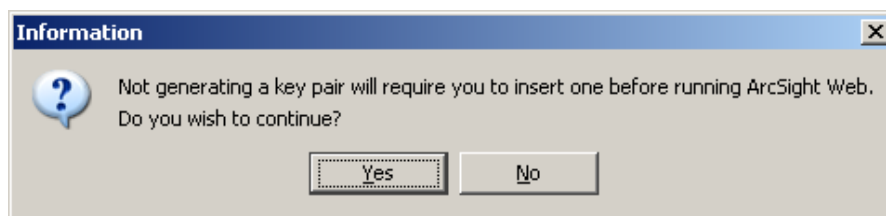
## Select Type of Keypair

You will be prompted to select the type of keypair you want to use:



The screenshot shows the 'Select Type of Keypair' step of the ArcSight Web Configuration Wizard. The window title is 'ArcSight Web Configuration Wizard'. On the left is a red sidebar with the ArcSight logo. The main area has a light gray background with the text: 'ArcSight Web currently does not have a SSL key pair installed. It is mandatory for the SSL Server to function. CAUTION: Be sure to understand the security implications. Refer to ArcSight product documentation for information.' Below this are three radio button options: 'No key pair.', 'Self-signed key pair.' (which is selected), and 'Demo key pair (INSECURE!)'. At the bottom are three buttons: 'Cancel', '< Previous', and 'Next >'.

If you select **No key pair**, you will see the following warning:



The screenshot shows an 'Information' dialog box. The title bar says 'Information'. Inside, there is a question mark icon and the text: 'Not generating a key pair will require you to insert one before running ArcSight Web. Do you wish to continue?'. At the bottom are two buttons: 'Yes' and 'No'.

If you select **Self-signed key pair**, you will be prompted to enter the details of the SSL certificate to be issued:



If you selected the **Demo key pair** option, you will also see the screen above that prompts you for a password for the SSL Key store used by ArcSight Web.

## Trust Manager Certificate

If the Manager uses a self-signed certificate, you will see the following dialog asking you whether you trust the Manager's certificate. Check the checkbox and click **Next**



## Authentication

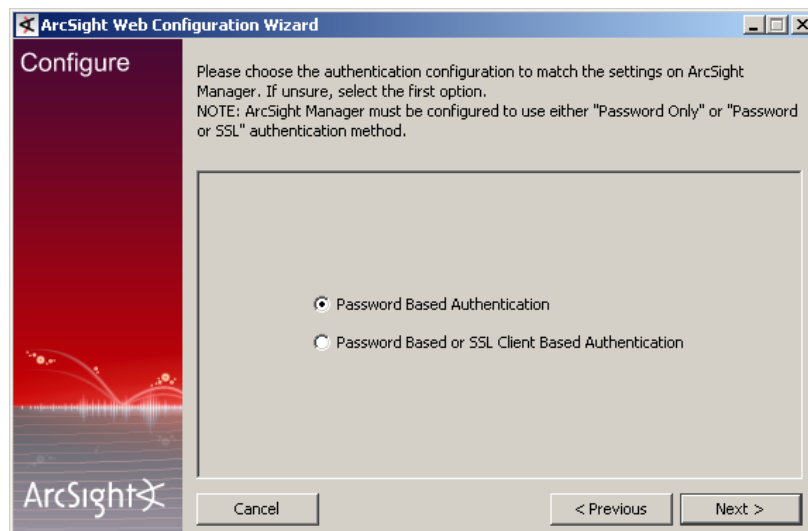
Choose the type of client authentication you want to use.



If your Manager is configured to use **Password Based and SSL Client Based Authentication** or **SSL Client Only Authentication**, ArcSight Web will not work with the Manager because it does not support these modes.

---

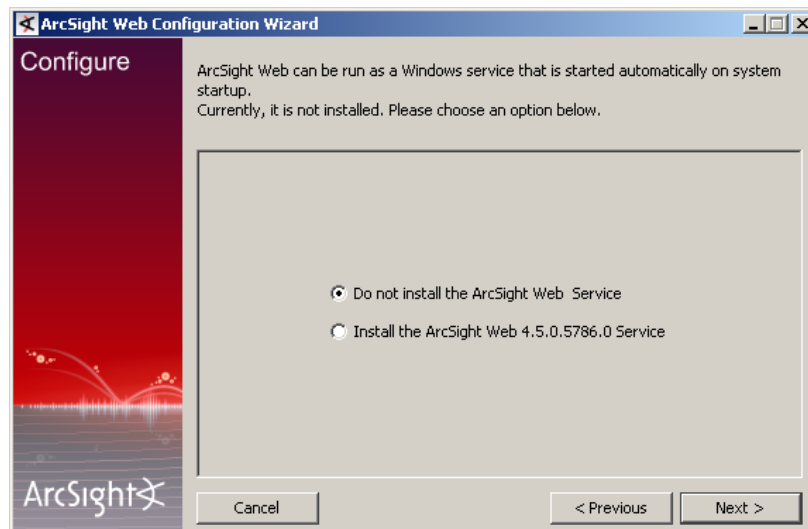




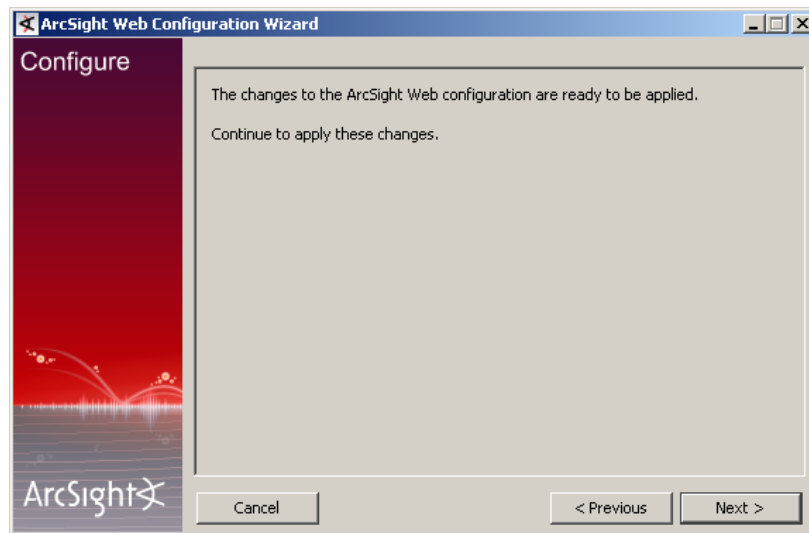
Click **Next**.

## Setting ArcSight Web as a Service or Daemon

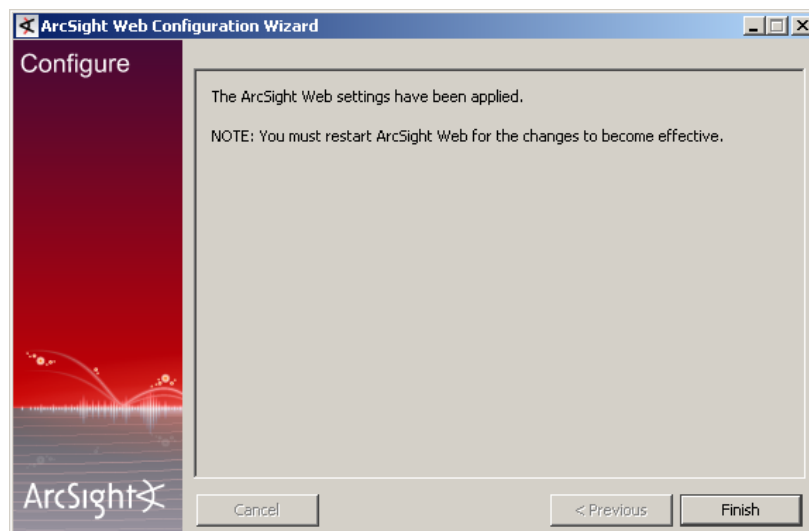
Choose whether ArcSight Web should be installed as service or not.



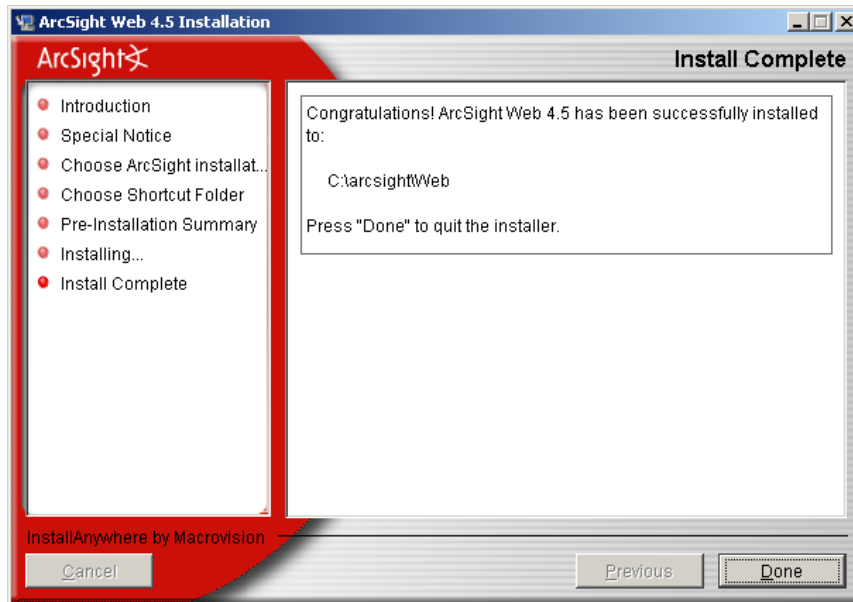
You will see the following screen:



Click **Next** and you will see the following screen:



Click **Finish** to save changes. You will see the following screen which gives you the location where ArcSight Web has been installed.



Click **Done**.

## Starting ArcSight Web Manually

To start ArcSight Web manually, go to the `web/bin` directory and execute the command:

```
arcsight webserver
```

## Connecting to ArcSight Web

Go to the URL <https://<hostname>:9443/arcsight/app> in a browser, where hostname is the name configured in websetup. ArcSight Web presents an interface that is similar to that of the ArcSight Console, allowing authenticated users to view dashboards, data monitors and other resources.

## Styling ArcSight Web

To change logo images and colors, create the file `config/web/styles.properties` by copying either `example.styles.properties` or `full.styles.properties`. Inside either file you will find information about those properties that can be changed, along with example values. After making changes to the properties file, restart the web server to see the effect of those changes.

Branding and style changes are visible to anyone using that instance of ArcSight Web.

## Uninstalling ArcSight Web

Stop ArcSight Web server before uninstalling it.

To uninstall on Windows, open the **Start** menu. Run the Uninstall ArcSight Web 4.5 program found under All Programs | ArcSight Web. If a shortcut to the Web was not

installed on the Start menu, locate the `<ARCSIGHT_HOME>\UninstallerData` folder and double-click:

`Uninstall_ArcSight_Web.exe`

To uninstall on Unix host, open a command window on the `<ARCSIGHT_HOME>/UninstallerData` directory and run the command:

`./Uninstall_ArcSight_Web`



The UninstallerData directory contains a file `.com.zerog.registry.xml` with Read, Write, and Execute permissions for everyone. You can change the permissions to Read and Write for everyone (that is, 666).

---



The Uninstaller does not remove all the files and directories under the ArcSight Web home folder. Please delete these folders manually after the uninstallation is complete.

---

# Installing ArcSight SmartConnectors

---

The ArcSight system monitors security events throughout the enterprise using a phalanx of distributed SmartConnectors. This chapter covers the following topics:

- [“Deployment Considerations” on page 141](#)
- [“Installing ArcSight SmartConnectors” on page 141](#)

After you have installed the ArcSight Manager, you should install ArcSight SmartConnectors for all of the devices that you want ArcSight to monitor. The term device can refer to a firewall, or a software component such as an intrusion prevention system or a host syslog. A device is a source of security events. Some ArcSight SmartConnectors require you to configure the device before you can receive events.

For more information on how to install a particular ArcSight SmartConnector and configure the device, refer to the ArcSight SmartConnector *User's Guide* for basic SmartConnector installer instructions and also refer to the vendor-specific ArcSight SmartConnector *Configuration Guide* for the device you are using.

## Deployment Considerations

This section explains the things you will have to keep in mind before deploying the ArcSight SmartConnectors.

ArcSight provides dozens of SmartConnectors custom designed to monitor security events from Intrusion Detection Systems (IDSs), firewalls, network management devices, operating system security components and other sources of security events.

In addition to vendor-specific SmartConnectors available from ArcSight, the ArcSight FlexConnector allows you to create SmartConnectors that are tailored to your situation and specific security event data. FlexConnector types include file reader, regular expression file reader, time-based database reader, syslog, and Simple Network Management Protocol (SNMP) readers.

## Installing ArcSight SmartConnectors

Before installing SmartConnectors, confirm that the ArcSight Manager and Database components are up and running. Log in as the 'arcsight' user (or an existing user with sufficient admin privileges). Install ArcSight SmartConnectors using the SmartConnector

Installation Wizard appropriate for the target platform. In the wizard, you specify the particular SmartConnector to be installed.



At a minimum, SmartConnectors should be running version 4021 to communicate with an ESM version 4.5 Manager.

---

For an overview of the SmartConnector installation and configuration process, see the *SmartConnector User's Guide*. For complete installation instructions for a particular SmartConnector, see the configuration guide for that connector. The product-specific configuration guide provides specific device configuration information, installation parameters, and device event mappings to ArcSight ESM fields.

# Establishing Initial ArcSight Resources

---

This chapter describes the initialization of resources in a new ArcSight installation. Resources include users, rules, assets (the components of your network), and other installation-specific items. This chapter covers the following topics:

- [“Defining Zones and Assets” on page 143](#)
- [“Defining Asset Categories” on page 146](#)
- [“Creating Customers and Users” on page 147](#)
- [“Tuning Data Monitors and Rules” on page 148](#)

To complete your ArcSight deployment, describe your assets and network characteristics to customize the installation for your enterprise. The following instructions will explain how to create and configure:

- Zones, Locations, and Networks
- Assets and Asset Ranges
- Asset Categories
- Customers

For more information about initializing the ArcSight System, refer to ArcSight ESM v4.5 *Administrator's Guide*.

## Defining Zones and Assets

Use the following procedure to document your IP address ranges:

- 1 Begin by creating Zones. Zones group Connectors logically into functional areas (Sales, Operations, etc.), geographical regions (Denver, Pittsburgh, etc.), or some other meaningful organization. Zones can overlap; that is, a SmartConnector can be assigned to more than one zone. Zones are particularly useful when IP addresses are reused within a network (for example, with DHCP).

Login to the ArcSight Console. In the Navigator window, choose **Assets** from the menu and click the **Zones** tab. Right-click in an appropriate group and select **New Zone**. Enter a name for the new Zone. Repeat until all Zones have been defined.

The screenshot shows the 'Inspect/Edit' dialog box with the 'Zone Editor' tab selected. The 'Zone' section contains the following fields:

Name	
Start Address	0.0.0.0
End Address	0.0.0.0
Dynamic Addressing	<input type="checkbox"/>
Location	Select a Location
Network	Select a Network

The 'Common' section contains the following fields:

External ID	
Alias	
Description	
Version ID	
Deprecated	<input type="checkbox"/>

The 'Assign' section contains the following fields:

Owner	
Notification Groups	

At the bottom, there is a 'Name' field with the prompt 'Enter a name for this resource' and buttons for OK, Cancel, Apply, and Help.

- 2 Create Locations the same way. In the Navigator pane, choose **Assets** from the menu. Click the **Locations** tab. Right-click in an appropriate group and select **New Location**.
- 3 Next, define your Assets. In the Navigator pane, choose **Assets** from the menu. Click the **Assets** tab.
- 4 For each range of IP addresses to be protected, right-click the appropriate Asset Group and select **New Asset Range**.



- 5 In the Asset Range Editor, enter a **Name**, **Start Address**, **End Address**, **Location**, and **Zone** for the new Asset Range.

Asset Range	
Name	
Start Address	0.0.0.0
End Address	0.0.0.0
Location	Select a Location
Zone	Select a Zone

Common	
External ID	
Alias	
Description	
Version ID	
Deprecated	<input type="checkbox"/>

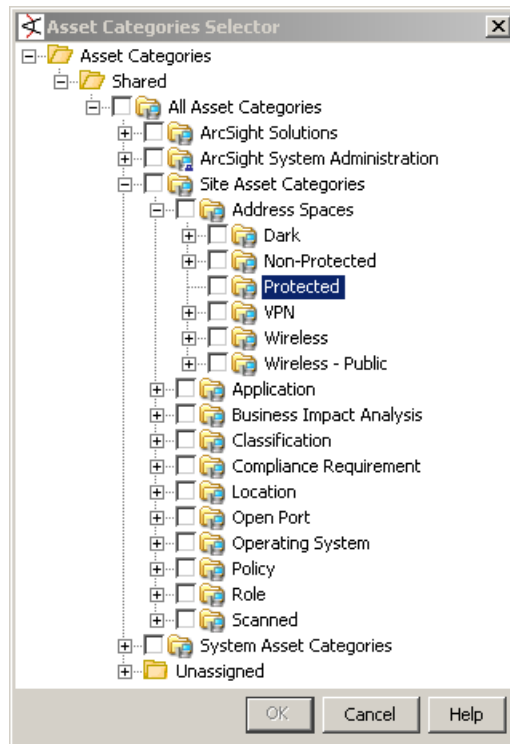
Assign	
Owner	
Notification Groups	

(Name)  
(Description)

OK Cancel Apply Help

- 6 Click the **Categories** tab and click the **Add** button to assign the new Asset Range to an Asset Category. Select the **Asset Categories/Shared/All Asset Categories/Site Asset Categories/Address Spaces/Protected** category and click **OK** to dismiss the Asset Categories Selector dialog.

- 7 Review your Asset Categories using the **Categories** tab of the Assets pane in the Navigator panel, as shown below.

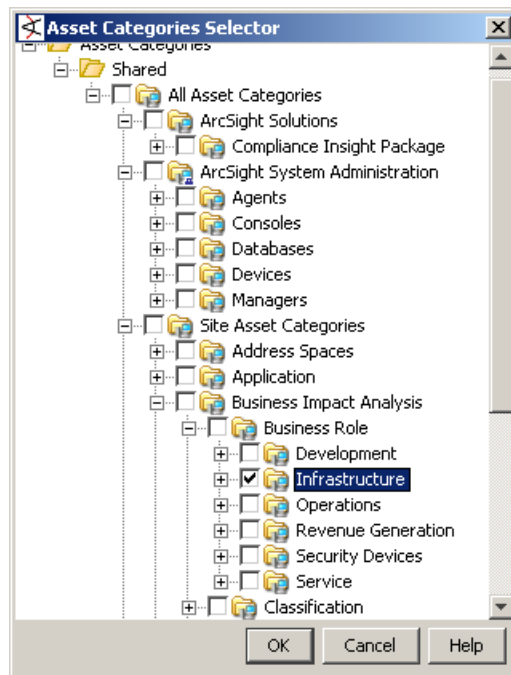


- 8 Update your SmartConnectors to use the Zones you have defined. Examine each SmartConnector in the Navigator pane and select **Configure** from the context menu. On the Networks tab, make sure that the SmartConnector is associated with the appropriate Network resources.

## Defining Asset Categories

Follow the steps below to assign Business Impact Analysis and Criticality Asset Categories to your Assets and Asset Ranges:

- 1 Associate your Assets and Asset Ranges with their business function by opening the **Asset** or **Asset Range** in the editor. On the Categories tab, click the **Add** button and choose from the **Business Impact Analysis** categories. One Asset may have several Business Impacts, such as "Secret" and "Operations."



- 2 Associate your Assets with the appropriate Criticality categories (Very High, High, Medium, Low, or Very Low).

## Creating Customers and Users

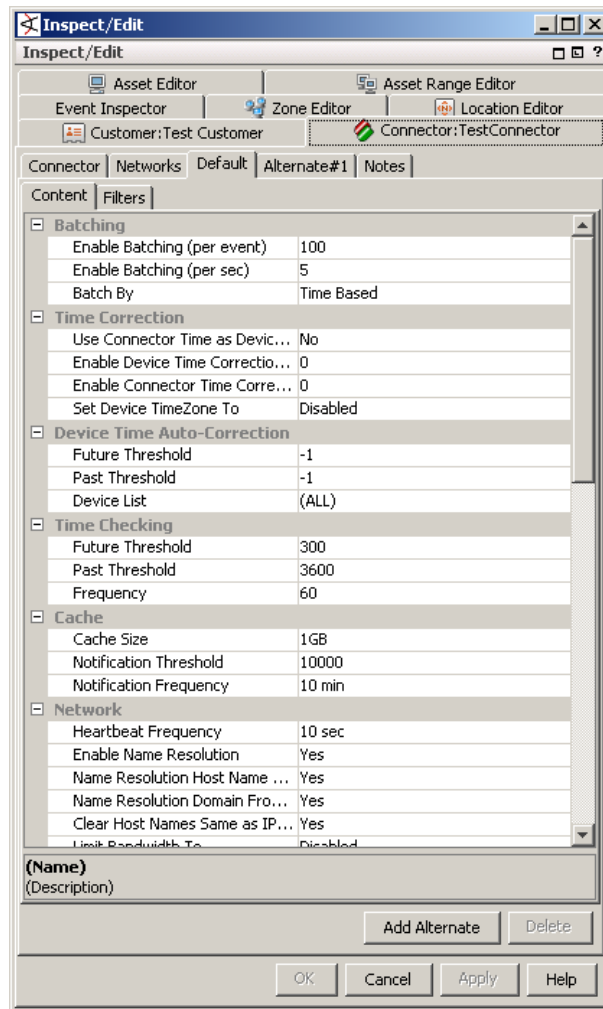
If your ArcSight installation will serve more than one organization, you may want to create Customers and update specific SmartConnectors to refer to particular Customers. Customers are typically used by Managed Security Service Providers (MSSPs).

To associate Customers with specific SmartConnectors:

- 1 Define your Customers. In the Navigator pane.
- 2 Choose **Customers** and select **New Customer** from the context menu.
- 3 Enter Customer information in the Customer Editor and click **OK**.

Associate Customers with Connectors. In the Navigator pane, choose **Connectors**. Right-click a SmartConnector and select **Configure** from the context menu. In the SmartConnector Editor, click the **Default** tab. Specify a Customer URI in the Network section of the Content tab.

The URI field value can be a Velocity template (for example, “/All Customers/\$agentAddress”) or a literal string.



## Tuning Data Monitors and Rules

Before putting ArcSight into production, review the built-in Data Monitors and Rules. You may want to disable any Data Monitors or Rules which are not relevant.

To view Data Monitors, choose **Dashboards** from the Navigator window menu and click the **Data Monitors** tab. If you do not need a particular Data Monitor, right-click on it and select **Disable Data Monitor** from the context menu.

To view Rules, choose **Rules** from the Navigator window menu. Right-click a specific Rule and select **Disable Rule** from the context menu.

## Appendix A

# Configuring an Existing Oracle Installation

---

This appendix provides tips for implementing ArcSight with an existing or custom Oracle installation. The ArcSight Database Installer detects and adjusts to an existing Oracle installation. Using standard ArcSight tools verifies minimum platform requirements and helps ensure consistency across deployments.

This appendix covers the following topics:

- [“Creating an ArcSight Instance with an existing Oracle Installation” on page 149](#)
- [“Initializing the ArcSight Schema with an Existing ArcSight Instance” on page 150](#)
- [“Installing Oracle DBMS Without Using the ArcSight Database Installer” on page 150](#)

ArcSight recommends that you always use the ArcSight Database Installer to install and configure the Oracle DBMS and create the ArcSight instance. The ArcSight Database Installer ensures that the Oracle installation and the ArcSight instance conform to ArcSight's time-tested configuration for optimal performance, reliability, and security. For example, the ArcSight Database Installer includes only necessary Oracle components and includes workarounds for known Oracle security vulnerabilities.

## Creating an ArcSight Instance with an existing Oracle Installation

If Oracle is already installed and you must use the existing installation for some reason, perform the following steps to create the ArcSight instance and initialize the ArcSight Database.

- 1 Log in as root on the database machine.
- 2 Run the ArcSight Database Installer wizard.
- 3 Choose **Install ArcSight Software Only**.



ArcSight recommends that you always install ArcSight Database software in a standard location, such as `/usr/local/arcSight/db` on Unix, or `c:\arcSight\db` on Windows.

- 4 Continue to the end of the Database Installer wizard.
- 5 Open a command window to the directory where the ArcSight Database software is installed (`<ARCSIGHT_HOME>`) and run the following command:

```
bin/arcSight database create
```

**6 Choose Create and configure the ArcSight instance only**

If you require a special template, edit or replace the file `installer/oracle10g/unix/dbca/ArcSight_Large.dbt` and select the **Large** template from the drop-down menu. (If your database machine has a 64-bit operating system, 8 CPUs, and 16 GB of memory, for example, you can overwrite `ArcSight_Large.dbt` with `ArcSight_64bit_8CPU_16GB.dbt`.)



Before proceeding, choose the appropriate template for your needs. Refer to “[Selecting an ArcSight Database Template](#)” on page 28, for more information.

## Initializing the ArcSight Schema with an Existing ArcSight Instance

If the ArcSight instance already exists, perform the following steps to initialize (or reinitialize) the ArcSight schema:

- 1** Log in as root on the database machine.
- 2** Run the ArcSight Database Installer wizard.
- 3** Choose **Install ArcSight Software Only**.
- 4** Continue to the end of the Database Installer wizard.
- 5** Open a command window to the directory where the ArcSight Database software is installed (<`ARCSIGHT_HOME`>) and run the following command:  
  
`bin/arcsight database init`
- 6** Choose the option (create or recreate) which matches your needs.
- 7** Complete the steps of the wizard.

## Installing Oracle DBMS Without Using the ArcSight Database Installer

If you need to install Oracle DBMS without using the ArcSight Database Installer—which is not recommended—ArcSight provides response files that make the process more likely to succeed.

To extract the ArcSight installation files, including the response files, perform the following steps:

- 1** Log in as root on the database machine.
- 2** Run the ArcSight Database Installer wizard.
- 3** Choose **Install ArcSight Software Only**.
- 4** Continue to the end of the Database Installer wizard.
- 5** You will find the response files under the installation directory in:

`installer/oracle10g/unix/response`



If you use an ArcSight response file, only the core Oracle9i DBMS and the Partitioning option will be installed.

---





# Using UNCOMPRESSED Archive Type

When Partition Archiver is set to Archive Type UNCOMPRESSED, it leaves the files in the partition uncompressed, thus enabling you to compress, encrypt, and sign files later with an archiving tool of your choice.



If you have opted for the UNCOMPRESSED archive type, you must reactivate the archived partitions in the same order in which they were created, that is oldest to the newest. For example, if you created partitions 20060101 thru 20060105 in that order and you want to reactivate partitions 20060101 thru 20060103, you must start by reactivating 20060101 first, then 20060102 and lastly 20060103.

The uncompressed files for a partition are placed in a subdirectory, created automatically for that partition, in the Archive Directory. The subdirectories are named using the format `arc_event_PartitionName`, where PartitionName is of the format `yyyymmdd`. For example, for a partition created for April 1, 2006, a subdirectory named `arc_event_20060401` is created in your Archive Directory.

You will find these files in a subdirectory:

- Oracle dump file (`arc_event_data_PartitionName.dmp`)
- Oracle export log file (`arc_event_data_PartitionName.exp.log`)
- Oracle data files (`arc_event_data_PartitionName_nn.dbf`)

There can be multiple data files if the partition has more than 4 GB of data.

ArcSight recommends that you follow these guidelines when using your own tool for archiving:

- Name the resulting archive file using the format `arc_event_PartitionName.ArchiveFileExtension`  
Where PartitionName is of the format `yyyymmdd`; for example, partition name for a partition created on April 1, 2006 is 20060401.  
ArchiveFileExtension depends on the tool you choose.
- Do not change the file names of any files in the subdirectories created in Archive Directory.

## Archiving Uncompressed Files

To archive uncompressed files belonging to a partition, do the following in your archiving tool:

- 1 Select the subdirectory that contains the uncompressed files for archiving

- 2 Set the option that enables the tool to automatically traverse all subfolders (also known as the recursive option) under the specified subdirectory to look for files to add; for example, check the **Subfolders** option in the WinZip wizard.
- 3 Set the option to save the path info for the archived files; for example, Check the **Save** full path info option in the WinZip wizard.

The archive file is placed in the same subdirectory where the uncompressed files are located.

## Examples

**Example 1:** This example lists the steps taken to archive uncompressed files in the partition 20060401. The Archive Directory is `E:\archive`.

- 1 List the data files in the subdirectory for the partition 20060401:

```
E:\archive>dir arc_event_20060401

Directory of E:\archive\arc_event_20060401

05/09/2006  1,728                arc_event_data_20060401.dmp
05/09/2006   560                arc_event_data_20060401.exp.log
05/09/2006 3,823,657,634        arc_event_data_20060401_01.dbf
05/09/2006 3,657,584,358        arc_event_data_20060401_02.dbf
05/09/2006 3,657,584,287        arc_event_data_20060401_03.dbf
```

- 2 Archive the subdirectory for the partition (`arc_event_20060401`) with the command-line version of WinZip with AES256 encryption:

```
E:\archive>"C:\Program Files\WinZip\WZZIP.EXE" -P -s -ycAES256
arc_event_20060401.zip arc_event_20060401

Adding arc_event_20060401\arc_event_data_20060401.dmp
Adding arc_event_20060401\arc_event_data_20060401.exp.log
Adding arc_event_20060401\arc_event_data_20060401_01.dbf
Adding arc_event_20060401\arc_event_data_20060401_02.dbf
Adding arc_event_20060401\arc_event_data_20060401_03.dbf
creating Zip file arc_event_20060401.zip
```

- 3 Generate the SHA1 signature for the archive file `arc_event_20060401.zip` with cygwin's `sha1sum` command:

```
E:\archive>sha1sum arc_event_20060401.zip >
arc_event_20060401.SHA1
```

**Example 2:** In this example the partition (20060401) archived in the previous example is reactivated. The Archive Directory is `E:\archive`.

- 1 Unzip the archive file `arc_event_20060401.zip` with WinZip command line version to restore the files:

```
E:\archive>"C:\Program Files\WinZip\WZUNZIP.EXE" -d -s
arc_event_20060401.zip
```

```
Zip file: arc_event_20060401.zip
unzipping arc_event_20060401\arc_event_data_20060401.dmp
unzipping arc_event_20060401\arc_event_data_20060401.exp.log
unzipping arc_event_20060401\arc_event_data_20060401_01.dbf
unzipping arc_event_20060401\arc_event_data_20060401_02.dbf
unzipping arc_event_20060401\arc_event_data_20060401_03.dbf
```

- 2 List the contents of the `arc_event_20060401` subdirectory to make sure data files have been extracted:

```
E:\archive>dir arc_event_20060401

Directory of E:\archive\arc_event_20060401

05/09/2006  1,728 arc_event_data_20060401.dmp
05/09/2006   560 arc_event_data_20060401.exp.log
05/09/2006 3,823,657,634 arc_event_data_20060401_01.dbf
05/09/2006 3,657,584,358 arc_event_data_20060401_02.dbf
05/09/2006 3,657,584,287 arc_event_data_20060401_03.dbf
```



# Setting up RADIUS User Authentication

---

This appendix describes how to set up ArcSight Manager to authenticate users using external authentication servers such as the RSA ACE/Server, for authentication using SecurID tokens, instead of the built-in ArcSight authentication mechanism that stores password information in the ArcSight Database. The communication with the RSA ACE/Server works via the RADIUS (Remote Authentication Dial-In User Service) protocol.

## Passcodes

When logging in to the ArcSight Console using a SecurID token, type a valid PASSCODE into the Password field. The PASSCODE consists of the PIN and the number displayed on the SecurID token. For example, if the PIN is set to 1234 and the number displayed on the token is 567890, you would type 1234567890 into the Password field.

## Defining Shorter ArcSight Internal Login User Names

Often, external authentication systems have user IDs that consist of multiple components (such as the MS Windows domain name and the actual user name). For convenience, you may want to use a shorter name when actually logging in to the ArcSight Console. The following rules apply:

- Every user known to ArcSight Manager has to have a user ID that is unique within ArcSight Manager. This ID will hereafter be referred to as the internal user ID.
- Optionally, another user ID can be specified for each user. This external user ID will be sent to external authentication mechanisms such as the RSA ACE/Server.
- If no external user ID has been provided, the internal user ID will be sent to the external authentication mechanism.

As an example, in ACE/Server, you may have a user account with the user ID eng-jsmith for the user John Smith who works in the engineering group. The user wished to log in to ArcSight Manager using the user ID jsmith. In this case, the external user ID would be set to eng-jsmith and the internal user ID (and thus the name of the user in ArcSight Manager) would be set to jsmith.

## Two-Factor Challenge Responses

If you configured ArcSight Manager to use a RADIUS server connected to a Two-Factor Authentication system such as RSA SecurID for authentication, you will be asked to answer a so-called challenge while authenticating with ArcSight in some cases. Challenges are requests for additional user input that the Two-Factor Authentication server will send to ArcSight during the authentication process.

This challenge mechanism works in the following components of the ArcSight system:

- The ArcSight Console login dialog
- The ArcSight Web login page
- The ArcSight SmartConnector registration wizard
- The ArcSight Manager configuration wizard

Typically, such challenges can include:

- A prompt to enter a new password or PIN code; this request can occur for a number of reasons, for example:
  - ◆ The user is logging in for the first time and has not picked a password/PIN yet.
  - ◆ The password/PIN expired
  - ◆ The requirements for minimum/maximum length of the password/PIN have changed
  - ◆ The authentication system administrator manually initiated a password/PIN change



Make sure that the password/PIN matches the requirements for length and allowed characters as defined in the authentication systems configuration.

---

- A prompt to wait for the code on the authentication token to change and enter the pass code; this request mostly occurs after changing the password/PIN. Make sure that you enter the pass code, not the token code. Typically, the pass code consists of PIN and token code or of the code that the token displays after entering the PIN (depending on the type of token used).
- A prompt to wait for the code on the authentication token to change and enter the next token code. This request can occur when:
  - ◆ The user has entered a wrong token code for a number of times
  - ◆ The token code the user entered has been used before
  - ◆ The user submitted a token code after the token changed



Wait for the token to change and then code displayed. Do not append the PIN or type the PIN into the token.

---

## Steps for Setting Up ACE/Server RADIUS Authentication

The following is the suggested sequence to set up ArcSight Manager for authentication with ACE/Server.

- 1 Install the ACE/Server and ACE/Server RADIUS service.
- 2 Configure the ACE/Server to allow RADIUS Requests.
- 3 Enable at least one user account to be used with ArcSight Manager in ACE/Server.

- 4 Configure the ArcSight Manager.



Once SecurID authentication is enabled, it is no longer possible to change a user's password or PIN from within the ArcSight Console (the appropriate options are no longer exposed in the user interface). Instead, you need to go through the ACE/Server Database Administration Console to change the PIN of a user.

## Installing the ACE/Server and ACE/Server RADIUS Service

Refer to the ACE/Server product documentation for details on this step.



Before setting up ACE/Server to be accessed by ArcSight Manager, make sure that both the ACE/Server and the ACE/Server RADIUS option are installed and running.

## Configuring the ACE/Server to allow RADIUS Requests

Since ArcSight Manager uses RADIUS to authenticate users in ACE/Server, you need to allow the RADIUS service on the ACE/Server to act as a client to ACE/Server. To do this:

- 1 Open the ACE/Server Database Administration Console and select the menu item **Agent Host | Add Agent Host**. Specify entries for the fields as follows:
 

**Name:** The host name of the system that is running the ACE/Server.

**Agent Type:** Communication Server.
- 2 Click **OK** to add the RADIUS service as a client to the ACE/Server.
 

Next, you need to add the system that is running ArcSight Manager as a client to ACE/Server.
- 3 Again, select **Agent Host | Add Agent Host** from the ACE/Server Database Administration Console and fill in the following fields:
 

**Name:** Specify the host name of the system that is running the ArcSight Manager.

**Agent Type:** Communication Server.
- 4 Click **Assign/Change Encryption Key**.
- 5 Type in a secret.
 

This secret will be used to encrypt passwords between ArcSight Manager (acting as the RADIUS client) and the RADIUS service portion of ACE/Server (acting as the RADIUS server). You will need to specify it when setting up ArcSight Manager.
- 6 Click **OK** to save the settings.

## Enabling User Accounts in ACE/Server

User accounts in ACE/Server need to be activated for the ArcSight Manager host in order to be able to authenticate. To activate a user account:

- 1 In the ACE/Server Database Administration Console menus, select **User | Edit User**.
- 2 Search for the user that you wish to allow access to ArcSight Manager.

- 3 Click **Agent Host Activations**.
- 4 Select the host that runs ArcSight Manager from the "Available Agent Hosts" list on the left hand side, then click **Activate On Agent Hosts**.
- 5 In the dialog, accept the default values by clicking **OK**. Click **Exit** to close the "Agent Host Activations" window and click **OK** again to close the **Edit User** dialog.

## Configuring ArcSight Manager

To configure ArcSight Manager for authentication with ACE/Server, you need to run the ArcSight Manager setup tool. This can be done either during the initial installation of ArcSight Manager or afterwards. Either way, to run the ArcSight Manager setup tool, follow these steps:

- 1 Go to the `<ARCSIGHT_HOME>/bin` directory and issue the following command:  

```
./arcsight managersetup
```
- 2 Click through the steps as described in [Chapter 3, Installing ArcSight Manager, on page 77](#) until you see a prompt for the authentication method to use.
- 3 Select **RADIUS Authentication** and click the **Next** button.
- 4 Specify entries for following settings:

**Authentication Protocol:** PAP.

**RADIUS Server Host:** Specify the host name of the system running ACE/Server. To specify multiple RADIUS servers, enter a comma-separated list of server names in this field.

**RADIUS Server Port:** Specify the port on which the RADIUS server is running.

**RADIUS Shared Secret:** Specify the shared RADIUS secret.



The default port for the RADIUS service in SecurID is 1645 and the shared secret is the secret you configured when setting up the Agent Host for ArcSight Manager in ACE/Server.

---

- 5 Click **Next**.
- 6 On the next panel, you will be asked to provide a user name and password combination. These credentials will only be used to verify that ArcSight Manager can connect to the ACE/Server. Make sure that the user account used has been activated for the ArcSight Manager SmartConnector Host in ACE/Server. For the user name, enter the ACE/Server user name (i.e. the external user ID) and enter the PASSCODE (based on the PIN and the number on the SecurID token) as the Password.



If this test fails, you will not be able to log into ArcSight Manager.

---

- 7 If this is the initial setup, make sure to put the correct external user ID into the field in the panel that asks you for the credentials of the new administrator user that will be created.



## Migrating from Internal Authentication to ACE/Server

To migrate from internal authentication to ACE/Server authentication, make the changes in the ArcSight Manager setup tool as described in previous setup steps, then log in to the ArcSight Console as an administrator user and change the external IDs for all users (if they differ from internal IDs).



If you are switching from the internal authentication mechanism to ACE/Server after the initial installation and the external user ID of all administrator accounts is different from the internal user ID, contact ArcSight for assistance in setting the external ID for administrator user accounts.

---

## Authentication Troubleshooting

To troubleshoot the communication between ArcSight Manager and ACE/Server and authentication failures, there are three logs that may provide useful information.

- The log written by the ArcSight Manager setup tool, located in `<ARCSIGHT_HOME>/logs/default/serverwizard.log` on the ArcSight Manager system.
- The log written by ACE/Server, available through the ACE/Server Log Monitor tool.
- The debug output from the ACE/Server RADIUS component. It can be enabled using the `rwconfig` tool provided with ACE/Server.



# Integrating with iDefense Database

This section describes how to configure your ArcSight Manager so your ArcSight Consoles and ArcSight Web can query the iDefense database.

For information about accessing iDefense information from the Console and ArcSight Web, see each component's online Help.

## Configuring Manager for iDefense

To configure your ArcSight Manager to integrate with the iDefense database, follow these steps:

- 1 In `<ARCSIGHT_HOME>\bin`, run this command:

```
arcsight idensesetup
```

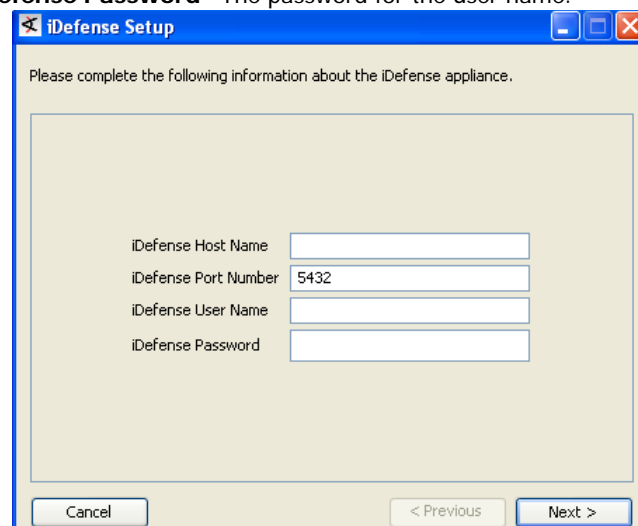
- 2 Enter this information in the wizard that launches:

**iDefense Host Name**—The machine name of the iDefense system.

**iDefense Port Number**—The port number on which the Manager should make a connection to the iDefense system.

**iDefense User Name**—The user name to use to log in to the iDefense system.

**iDefense Password**—The password for the user name.

A screenshot of the 'iDefense Setup' wizard dialog box. The title bar is blue with the text 'iDefense Setup' and standard window controls. The main area has a light beige background and contains the text 'Please complete the following information about the iDefense appliance.' Below this is a large rectangular frame containing four input fields: 'iDefense Host Name' (empty), 'iDefense Port Number' (containing '5432'), 'iDefense User Name' (empty), and 'iDefense Password' (empty). At the bottom of the dialog are three buttons: 'Cancel' on the left, and '< Previous' and 'Next >' on the right.

- 3 Click **Next**.



## Appendix E

# ArcSight Manager Failover

---

The ArcSight Manager can be set up to work in a high availability (HA) configuration using a third-party failover management (FM) solution. This appendix describes, in general terms, how to configure FM solutions for use with ArcSight Manager. For a detailed description of how to configure a particular product, consult the specific vendor's product documentation.

## Architecture

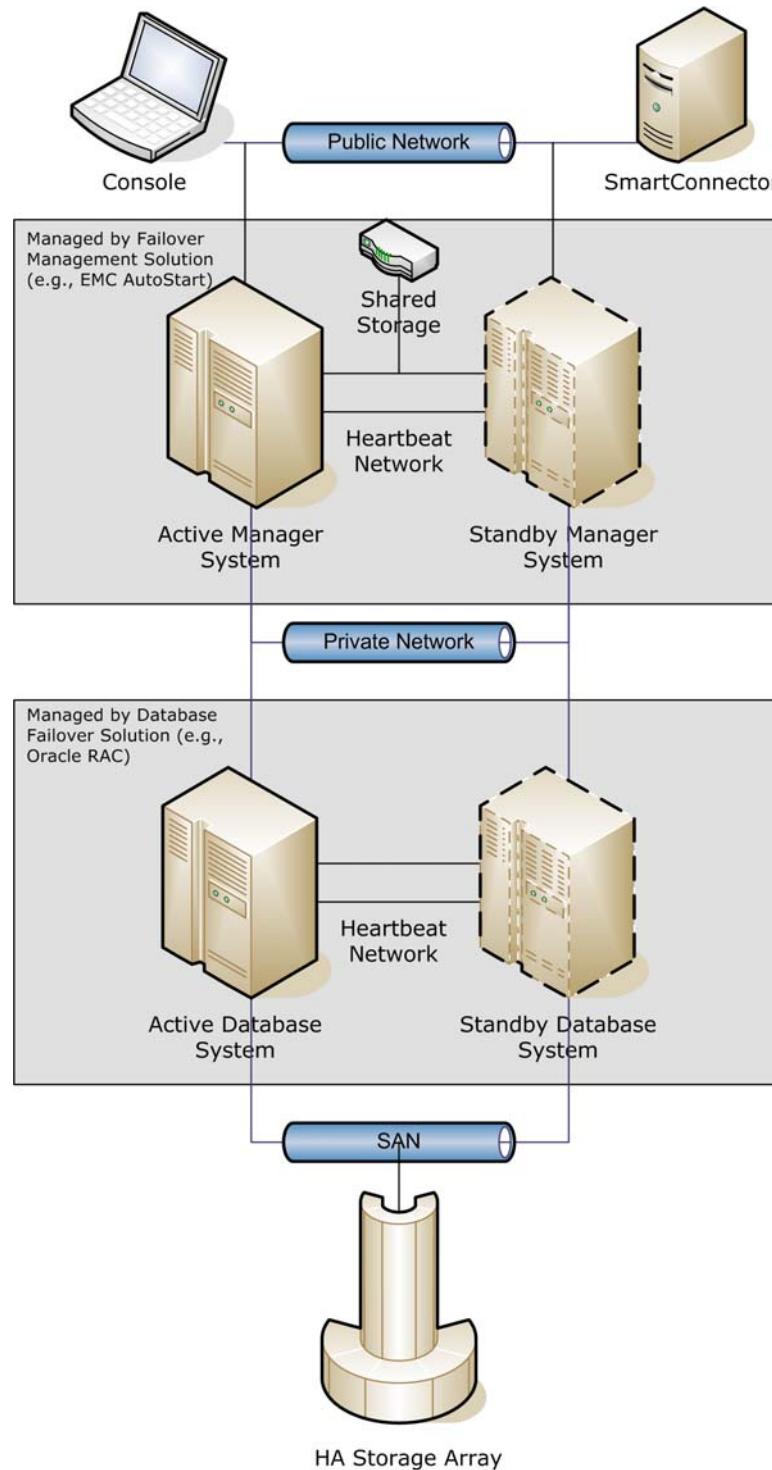
ArcSight Manager can be deployed as depicted in the figure to achieve high availability. Both the Manager as well as the database can be made highly available. In both cases, it is advisable to have two mostly identical systems. For the database, it is typically preferable to use database-specific FM software.

ArcSight Managers don't use write caches--this means that all writes always immediately go through to the database. They do, however, use read caches. They do not poll the database for changes of the data as it would be too expensive. For this reason, you must not connect two ArcSight Manager instances to the same database at the same time. Otherwise, when one instance updates the database, the objects in the cache of the other instance would become out of date. The object stored in the second Manager's cache would be stale--it would not reflect the most recent update. If then the second Manager changes the stale object and writes it back to the database, the first instance's changes would be lost. If configured properly, the FM software ensures that at any given point in time, there is only a single instance of ArcSight Manager running.

Each of the two systems in a failover group runs an instance of the FM software so that there is no single point of failure. One of the systems is always active; the other one always stands by. The ArcSight Manager software is not running on the standby system. If the FM software detects that the service is no longer running on the active system, it first tries to restart it and, if that is not possible, fully shuts it down and brings it up on the standby system. At that point in time, the systems switch roles. The system that was formerly the active system becomes the standby system and vice versa.

In order to preserve the state of the rules engine and other state, ArcSight Manager frequently writes this state out to the `<ARCSIGHT_HOME>` directory. In a failover setup,

the `<ARCSIGHT_HOME>` should be shared between both instances so that the standby Manager can pick it up upon failover.



**Figure E-1** The ArcSight High Availability (HA) hardware architecture.

To make the failover process transparent to clients, the concept of a virtual IP address is used. (ArcSight SmartConnectors and Consoles are clients of the ArcSight Manager, the ArcSight Manager is a client of the Database.) A virtual IP address is an IP address that is

assigned to a system by the FM software. It can be migrated between systems as needed. For example, if the FM software transfers the ArcSight Manager service from one system to another, it moves ArcSight Manager's virtual IP address along with it. Consoles and SmartConnectors simply continue to be able communicate with the Manager through the virtual IP address although it has been moved to another physical system.

In addition to the virtual IP address, each system has at least one other IP address, often referred to as the management IP address. This IP address is used for administrators to communicate with a particular system.

Furthermore, all systems in a group that can host a service should be connected through multiple so-called heartbeat networks. These networks are used by the FM software to communicate the current status of processes. It is crucial that these networks be redundant. If the network fails, it results in a condition often called the "split brain syndrome" - both systems are still up and running, but can no longer communicate. Both systems assume that the other system went down and, as a result, both systems attempt to run the service - leading to undesired and unpredictable results. Many FM software products even provide the ability to set up heartbeat networks using different technologies such as Ethernet and serial cables to get around systemic failures.

Also, all database files as well as the Manager directory need to reside on either shared or real-time replicated storage so they are available to both the active and the stand-by systems at any time. Typically, FM solutions also provide mechanisms to mount and unmount shared storage as needed.

## Starting Processes

FM solutions typically use scripts to start up and shut down software components on systems. ArcSight provides simple example scripts in the directory,

`<ARCSIGHT_HOME>/utilities/failover.`

These scripts simply call the `/etc/init.d/arcsight_manager` script to start and stop the manager. If you modify these scripts, be careful to shut down processes in the reverse of the order in which they were started.

## Monitoring Processes

FM solutions also usually monitor processes using scripts. ArcSight Manager ships with a set of scripts and a small utility that verifies that ArcSight Manager is running and accepting connections. The example scripts can be found under

`<ARCSIGHT_HOME>/utilities/failover/`. They call `managersetup`, the program which verifies that ArcSight Manager is running and accepting calls. You can also call the program directly by running `runmanagersetup`. This program returns exit code 0 if the Manager is running and reachable, or exit code 1 otherwise.



This program uses system resources such as CPU cycles and memory (it is a java application) and, if run too often, may negatively influence the overall system performance. The recommended interval is to run this program once a minute. This interval can be configured in the FM software.

---

## Next Steps

After setting up your failover software, test various failure scenarios such as unplugging network cables, power cables, shutting down systems, and so on. Often, the scripts used for FM need to be modified to function reliably in all cases.





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