SYBASE®

An **SAP** Company

Installation Guide for Runtime

Sybase Unwired Platform 2.1
ESD #1

Windows

Contents

Contents

CHAPTER 1   **System Deployment**

Sybase Unwired Platform Options

Two product installation options determine the components installed and system functionality.

- **Unwired Platform Runtime –** Includes all Sybase® Unwired Platform server components; supports any type of mobile application developed with the Sybase Mobile SDK

- **Online Data Proxy –** Includes only the Unwired Platform server components needed to support mobile applications that consume Open Data Protocol

Deployment Scenarios

Two high-level scenarios define the purpose and scope of an Unwired Platform system deployment.

Personal System

Deploying Unwired Platform as a personal system is simple and straightforward. It involves few options.

You can deploy a personal system with either product installation option, Unwired Platform Runtime or Online Data Proxy.

Note: For a personal system, server license terms require all Unwired Platform server components to be installed on the same, single-user host as the Sybase Mobile SDK.

See also
- *Installation Checklist: Personal System* on page 30
- *Chapter 2, Installing a Personal System* on page 43

Enterprise System

Deploying Unwired Platform as an enterprise system can be a complex task. It involves several system design and deployment options, and it may require significant infrastructure provisioning.

As an enterprise system, you can deploy Unwired Platform to support either development and testing teams, or production deployment of mobile applications for users throughout the enterprise.

Note: Unwired Platform servers are licensed separately for development and testing systems, and for production systems.

System Deployment Overview

This section provides a conceptual overview of Sybase® Unwired Platform system deployment.

This information covers deployment of Unwired Platform server components (the Unwired Server and the data tier), and Relay Server.

Deployment Planning

In planning for system deployment, you must consider Unwired Platform installation options, deployment scenarios, system requirements, and system design options—all in the context of your business requirements and intended use of the Unwired Platform system.

System Design

Sybase Unwired Platform supports a variety of system design options to suit deployments ranging from a personal system on a single workstation to full-scale, clustered production systems.

Major factors that affect system design choices are:

- Deployment scenario (personal system or enterprise system)
- Balancing system cost and complexity, with scalability and performance
- Desired Unwired Platform functionality and capabilities, some of which are limited to either clustered or non-clustered system designs

Note: Sybase Unwired Platform supports Online Data Proxy functionality only in a non-clustered system.

High-level design options fall into two categories:

- Non-clustered systems
- Clustered systems

Non-clustered Systems

In a non-clustered system, all Unwired Platform server components (the Unwired Server and data tier servers) are installed by a single installation procedure, on a single host.

A non-clustered Unwired Platform Runtime system is simpler, less expensive to deploy, and generally easier to maintain. However, a non-clustered system has significant limitations:

- It cannot be scaled by adding or subtracting servers, to adapt to changes in system load or performance requirements.
- It cannot take advantage of conventional load-balancing and failover mechanisms to provide higher system availability.
- The only sure way to increase overall system performance is to upgrade the host system resources (CPU, RAM, etc.).

Note: You cannot upgrade a non-clustered Unwired Platform system to a clustered system. To replace a non-clustered system with a clustered system, you must redeploy the Unwired Platform system, using cluster installation options on suitable hosts.

When you choose between clustered and non-clustered designs, you must plan carefully. If you can reasonably foresee any future requirement for a clustered system, such as a service level agreement (SLA) that would require scalability, or higher system availability), you should consider deploying a clustered Unwired Platform system.

Clustered Systems

In a clustered system, the Unwired Server components and data tier components are installed by separate installation procedures (possibly on the same host, but typically on separate hosts).

There are two main advantages of a clustered Unwired Platform system:

- It can be scaled by adding or subtracting servers (nodes in a cluster), to adapt to changes in system load or performance requirements.
- Redundant cluster nodes allow conventional load-balancing and failover mechanisms to provide higher system availability.

In a typical clustered system, Unwired Server instances do not share host system resources with data tier servers.

You should choose a clustered system design to meet requirements for scalability, higher availability, and overall higher system performance.

Note: Sybase Unwired Platform does not support Online Data Proxy functionality in a clustered system.

Cluster Types

In a clustered Unwired Platform system, there are two types of clusters — the Unwired Server cluster and the data tier cluster.

A clustered Unwired Platform system includes one cluster of each type.

Figure 1: Unwired Platform servers in clusters
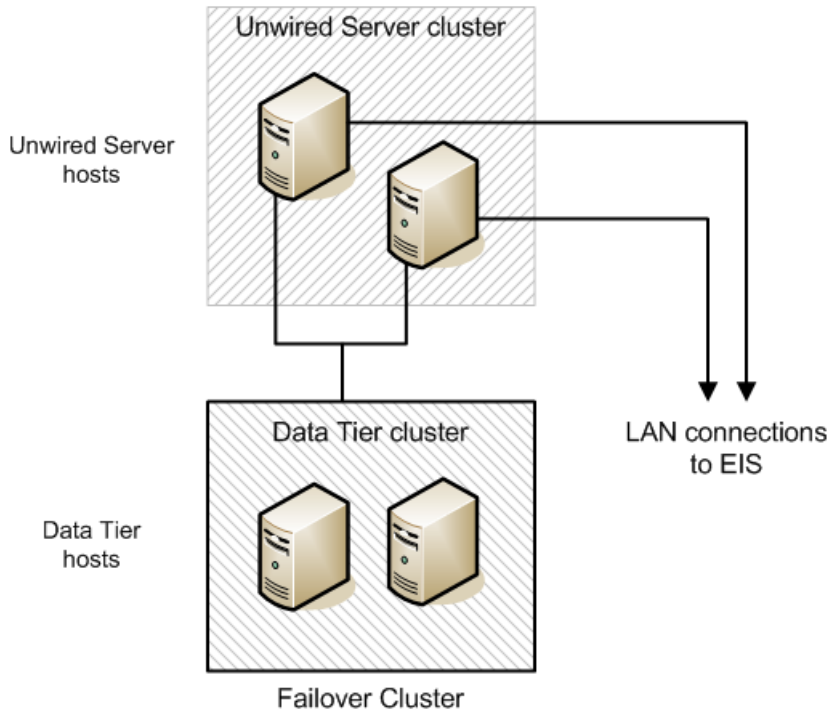
Unwired Server Clusters

The Unwired Server cluster enables load balancing to improve system availability and performance.

An Unwired Server cluster consists of one or more Unwired Servers that:

• Service the same set of client devices, users, and mobile applications
• Rely on the same set of EIS to provide back-end data services
• Rely on the same data tier resources to provide runtime data services

Because they share common data tier resources, all Unwired Servers in the cluster have access to the same cached data from the EIS, messaging data for clients, cluster and server configuration data, and system log data.

The common data tier enables the Unwired Server cluster to be scaled easily, adding or removing nodes at any time.

With a load balancer, such as Relay Server, or a third-party load balancer appliance:

- Unwired Servers in the cluster can share workloads, improving their performance and efficiency
- Clients have a common point of access, independent of any particular Unwired Server in the cluster

See also
- *Relay Server Deployment* on page 32
- *Load Balancing* on page 10

Data Tier Clusters
The data tier cluster enables failover support to improve system availability and fault tolerance.

Note: The data tier cluster relies on cluster services provided by a Windows Server operating system (such as Microsoft Cluster Service, or Failover Clustering).

A data tier cluster consists of:

- Two data tier hosts, each managed by a Windows-based failover cluster service
- At least one fault-tolerant storage device, the shared cluster storage for database files and transaction logs

Each data tier host is a redundant node in the failover cluster—one active, and one standby (or passive). Host system performance is more critical for the data tier servers, because each host must assume the entire load imposed by the Unwired Server cluster.

To deploy the data tier in a failover cluster:

- All data tier server software must be installed on a local drive, on each data tier host. The data tier software must not be installed on shared cluster storage, or any storage resource that can be managed independent of the data tier host.
- All data tier database files and transaction logs must be located on a shared cluster storage device, such as a SAN device with appropriate RAID level.
- One directory on a shared cluster storage must be designated as the shared data folder. It must be shared for network access, either as a file share resource group, or as a Client Access Point.
  - Each node in the Unwired Server cluster must be able to access the shared data folder, from outside the failover cluster.

- Unwired Server processes on each Unwired Server host must have read/write permission in the shared data folder.
  - The shared data folder can be a parent directory, common to all database files and transaction logs, but it does not have to be.
- Each data tier host must be physically connected, by a host bus adapter, to the shared cluster storage device. Each volume that houses a database file system must be accessed as a local disk, on each data tier host.
- All data tier services must be configured as cluster resources, managed in the context of a common cluster instance.

To an Unwired Server, data tier hosts in a failover cluster appear to be a single, logical data tier entity.

Note: Follow current Microsoft guidelines for networks, hosts, and storage devices used in a failover cluster.

Single-node Designs

A non-clustered Unwired Platform system is a single-node system design.

The distinctive characteristic of a single-node design is that all Unwired Platform server components (the Unwired Server and data tier servers) are installed on a single host, in a single installation procedure.

A single-node design is most suitable for:

- The personal system scenario, in which all Unwired Platform servers are colocated with Sybase Mobile SDK, on one single-user host

Figure 2: Single-node personal system
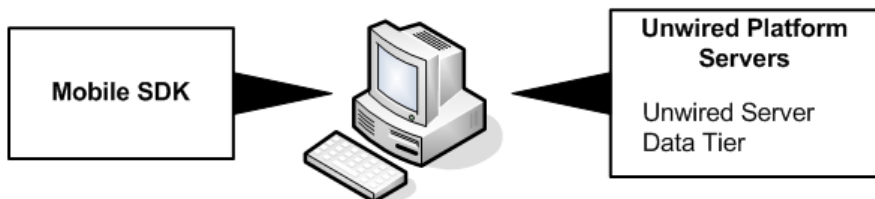
- An enterprise system scenario, supporting a developer team environment, in which multiple developer workstations share common Unwired Platform server resources

Figure 3: Single-node enterprise system (developer team)
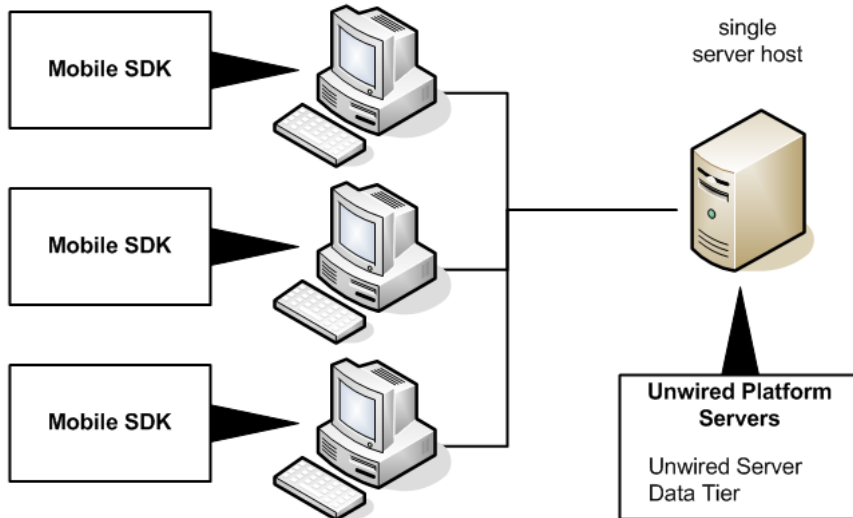
- An enterprise system scenario, supporting an Online Data Proxy production system

Figure 4: Single-node enterprise system (Online Data Proxy)
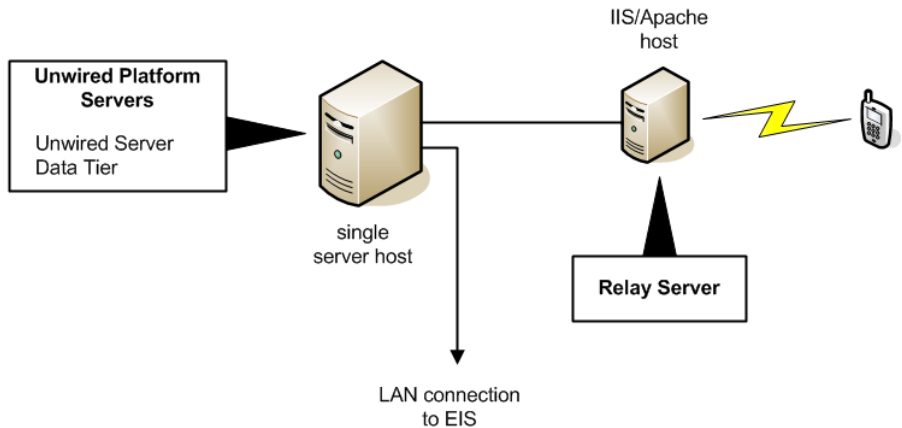
A single-node design may also be suitable for:

- An Unwired Platform test or prototyping system

- A minimal, low-volume production system (based on the Unwired Platform Runtime installation option), with no support for load balancing or failover

With all Unwired Platform server components installed on a single host, there is no dependency on network connections between the platform server components.

Host system resources must be adequate to support all of the applications and services included in all Unwired Platform server components.

Disk resources must be adequate to support all databases managed by the data tier servers.

Multi-node Designs
A clustered Unwired Platform system is a multi-node system design.

The distinctive characteristic of a multi-node design is that all Unwired Platform server components (the Unwired Server and data tier servers) are installed separately, so all clustered system capabilities are supported.

- The Unwired Server cluster enables load balancing across multiple Unwired Server instances
- The data tier cluster enables failover of common data tier resources shared by multiple Unwired Servers

A multi-node design is most suitable for production systems that may require some combination of scalability, high availability, and high performance.

Scalability is a key benefit of designs with multiple Unwired Server nodes. You can start with a minimal multi-node system — just one Unwired Server node and a data tier cluster (two nodes). You can expand the Unwired Server cluster independently, adding nodes as needed.

Figure 5: Multi-node enterprise system (production)
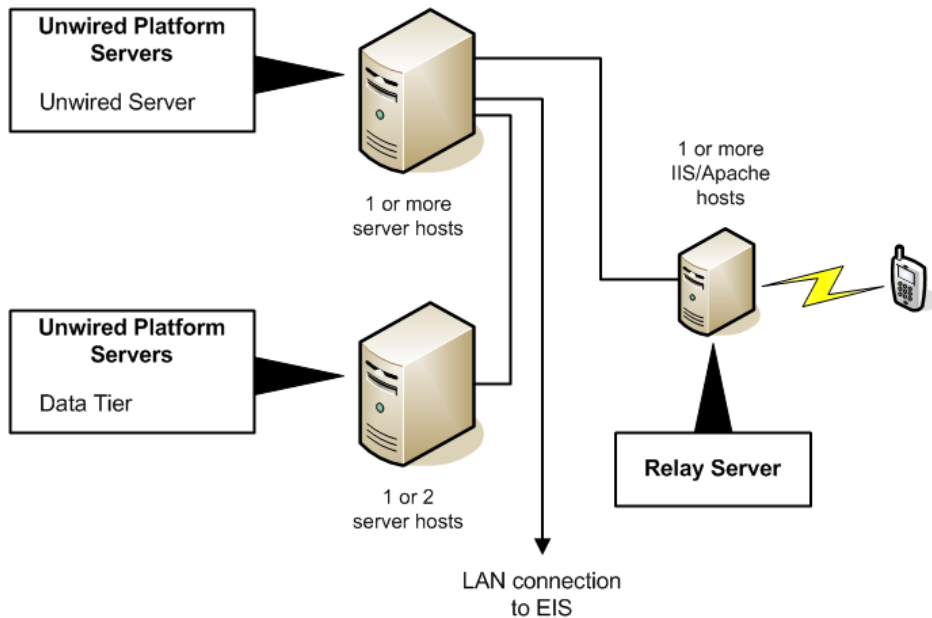
In a typical multi-node system, the Unwired Server instances do not share host system resources with data tier servers.

When Unwired Server and data tier servers reside on separate hosts, they depend on network connections for some inter-process communications.

Host system resources must be adequate to support all of the applications and services included in the Unwired Platform component.

In the data tier cluster, shared cluster storage resources must be adequate to support all databases managed by the data tier servers.

Multi-node with Shared Hosts
This multi-node design supports Unwired Servers colocated with data tier servers, on hosts configured with a failover cluster service.

This multi-node design option is suitable for a production system that supports both load balancing for Unwired Servers, and failover of common data tier resources, with absolute minimum hardware requirements — just two host systems.

Figure 6: Multi-node enterprise system (shared hosts)
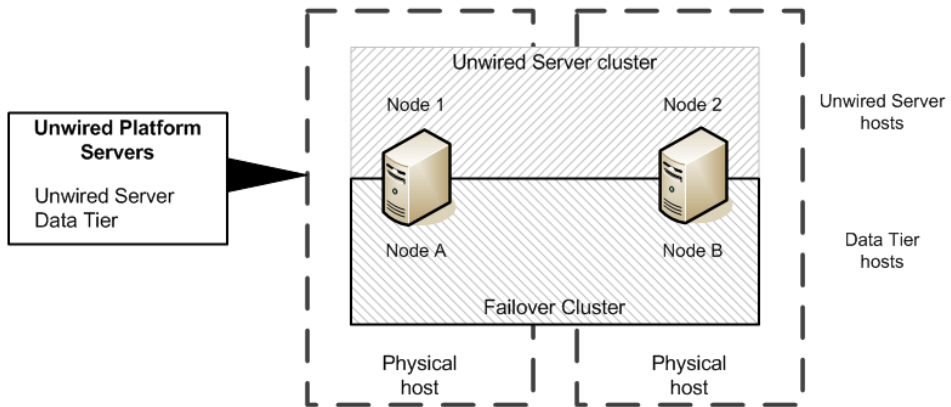
Both hosts are configured in a Windows-based failover cluster, with access to a shared cluster storage resource. Data tier and Unwired Server components are installed separately, on each host.

- Data tier servers are configured during installation to use shared cluster storage for database files, then a managed cluster resource is defined for each data tier service in the failover cluster.
- After cluster resources are defined for data tier services, Unwired Server components are installed on each host, as nodes in the Unwired Server cluster.

Data tier servers are managed by the failover cluster service, while colocated Unwired Servers are managed by the Unwired Server cluster. (The Unwired Server cluster is independent of the failover cluster).

In this design, all Unwired Servers and data tier servers must rely on network connections, because the failover cluster instance (managed data tier server) must be addressed as a distinct host, independent of any host machine in the failover cluster.

Host system resources must be adequate to support all of the applications and services included in all Unwired Platform server components.

Shared cluster storage resources must be adequate to support all databases managed by the data tier servers.

Load Balancing
Load balancing can be applied to both client connections and EIS connections, to improve performance and enable efficient utilization of resources in the Unwired Server cluster.

There are two load-balancing mechanisms you can use with the Unwired Server cluster:

- Relay Server — a Sybase software product, acts as a reverse proxy server for client devices communicating with Unwired Server
- Load balancer appliance — a third-party product, such as a layer 4 network switch, can be used for both client and EIS connections

Note: Relay Server cannot be used on EIS connections.

Client Load Balancing

Client load balancing improves capacity and performance of the Unwired Server cluster, when servicing mobile client requests.

With load balancing on client connections:

- Unwired Servers in the cluster can share the client workload, improving the efficiency of services to client devices.
- Clients have a common point of access, independent of any particular Unwired Server instance.

There are two types of client load balancing to consider:

- **Simple load balancing –** For simple load-balancing needs, you can deploy either one Relay Server, or a load balancer appliance, to implement client load balancing on a single network node.

Figure 7: Load balancing with one Relay Server or load balancer
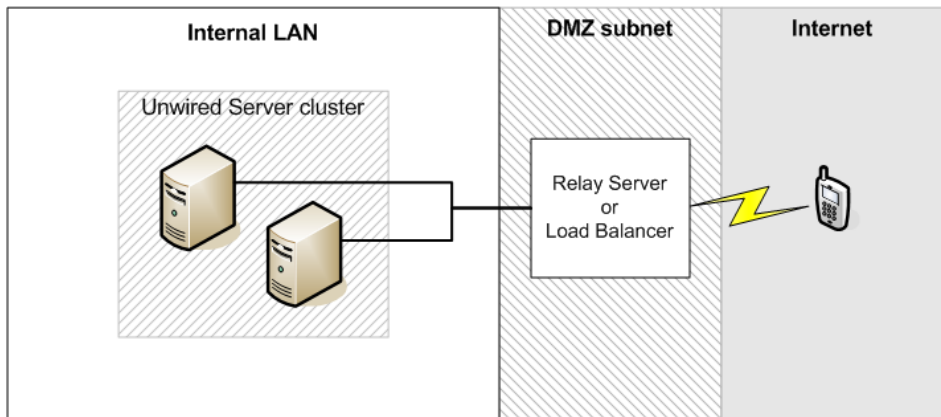
- **Clustered load balancing –** For higher capacity or higher availability, you can deploy a Relay Server cluster, with or without a front-end load balancer appliance.

Figure 8: Load balancing with Relay Server cluster
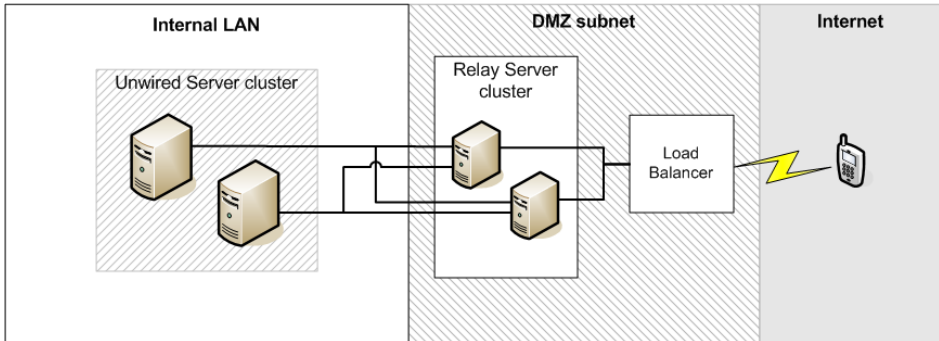
See also
* *Client Load Balancing Guidelines* on page 19

Client Load Balancing with BES

You can apply load balancing to connections between BlackBerry Enterprise Server (BES) and Unwired Servers in a cluster.

When you deploy an Unwired Platform system to support BlackBerry device users, BES treats the Unwired Server as a back-end enterprise application. Connections from BES are treated as client connections by Unwired Server.

To implement client load balancing on connections between BES and Unwired Servers in a cluster, you can deploy either a Relay Server, or a load balancer appliance.

Figure 9: Load balancing with BES (BlackBerry clients)
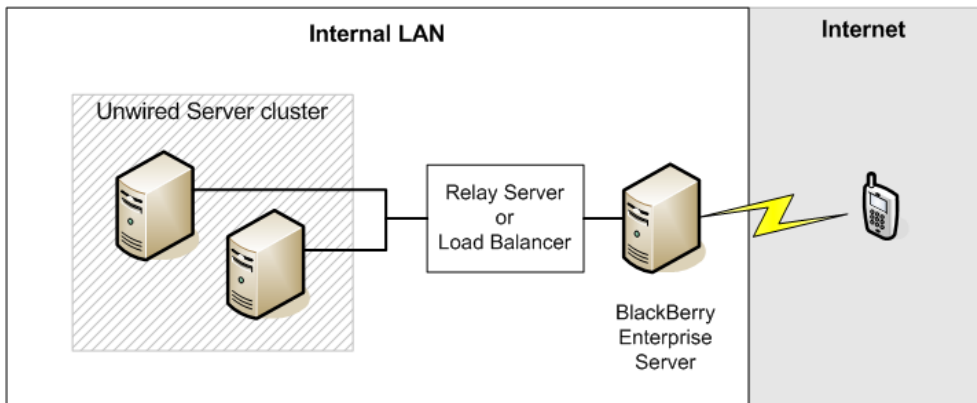
Note that the load-balancing mechanism between BES and Unwired Server is deployed on the internal LAN.

When you deploy an Unwired Platform system to support both BlackBerry device users, and users of other device types, you can apply load balancing to both BES connections and other client connections.

Figure 10: Load balancing with both BlackBerry and other clients
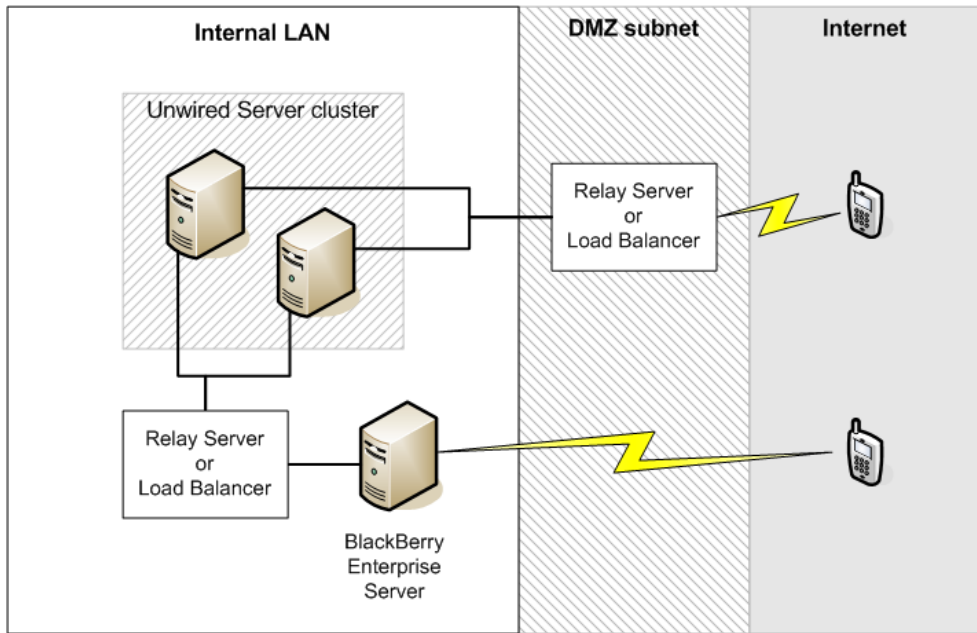
See also

- *Client Load Balancing Guidelines* on page 19

EIS Load Balancing

EIS load balancing improves the capacity and performance of the Unwired Server cluster, when it services data change notification (DCN) or DOE Connector requests from the back-end Enterprise Information System (EIS).

With load balancing on EIS connections:

- Unwired Servers in the cluster can share DCN or DOE-C workloads, improving the efficiency of service for mobile applications that rely on replication synchronization (or data "pushed" from the server).
- The EIS need not rely on a connection to any particular Unwired Server in the cluster, eliminating the Unwired Server as a single point of failure in DCN or DOE-C processing.

To implement load balancing on connections between the EIS and Unwired Server, you must use a third-party load balancer.

You cannot use Relay Server on connections between the EIS and Unwired Server.

Figure 11: Load balancing on EIS connection
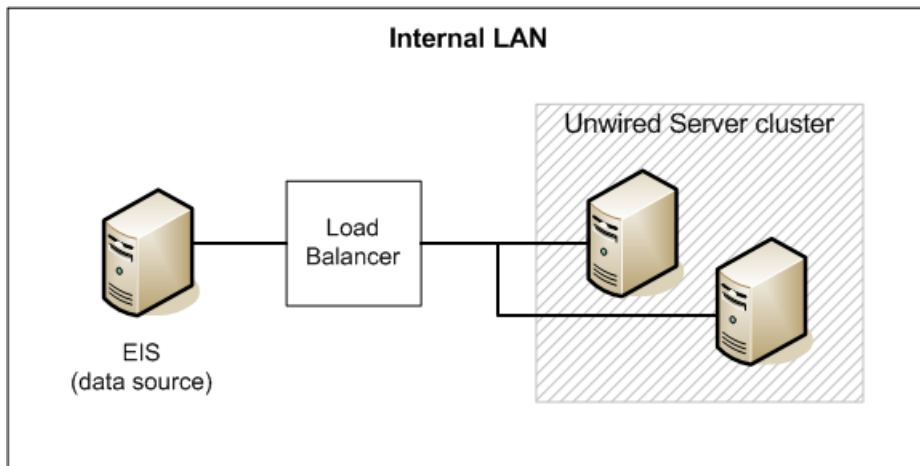
See also
* *EIS Load Balancing Guidelines* on page 19

Host System Requirements
Specific requirements for host system resources and supported operating systems are listed in a separate document.

All Unwired Platform server hosts must meet the requirements specified in *Supported Hardware and Software* for:

* Minimum host resources (CPU, RAM, and local storage space)
* Operating system (including edition, version, and Service Pack)

Note: In addition to the resource and OS requirements, the target server must not have an instance of Sybase Control Center that has been installed for another Sybase product.

Unwired Platform Licensing
Sybase Mobile SDK and Unwired Platform server components are licensed separately.

Sybase Mobile SDK is licensed only by developer workstation.

Unwired Platform server components can be licensed by CPU cores, mobile clients, and developer workstations.

The specific software license or licenses you must obtain are determined by a combination of:

* Your intended use of the Unwired Platform system (internal development and testing, or general production)

- System design characteristics (host CPUs, number of servers, clusters, etc.)
- Scale of the deployment (number of mobile devices, device users, or mobile applications)

Two attributes of each Unwired Platform server license accommodate your system deployment requirements:

- Product edition addresses the Unwired Platform system design options and your intended use.
- License type addresses other license terms, such as per-seat (workstation) or per-core (server) allowances, and number of mobile devices, users, or applications supported.

Server Product Editions
Unwired Platform server components are covered by one of three product edition licenses.

All Unwired Platform server product editions include the Unwired Server and data tier components.

Unwired Platform servers licensed under development-specific product editions (Personal Development Server and Enterprise Development Server) must not be used in a production system.

Product Edition	Summary
Personal Development Server PE Code = PD	• Allows use in development systems and testing systems only; not for use in production systems. • Requires all Unwired Platform server components to be installed on the same, single-user host with Sybase Mobile SDK. • Allows a maximum of five mobile client devices.
Enterprise Development Server PE Code = ED	• Allows use in development systems and testing systems only; not for use in production systems. • Allows each installable component to be located on a separate host. • Allows clustered systems. • Allows a maximum of 20 mobile client devices.
Enterprise Server PE Code = EE	• License type determines allowed use (production only, or development and testing only). • Allows each installable component to be located on a separate host. • Allows clustered systems. • Requires separate license for mobile client devices (production). • Unlimited mobile client devices (development and testing).

Note: Sybase Unwired Platform Enterprise Server edition can be installed only on 64-bit operating systems. The Personal Development Server and Enterprise Development Server editions can be installed on either 32-bit or 64-bit operating systems.

License Types

Each license type is associated with one or more Unwired Platform product editions.

License Type	Summary
Standalone seat license LT Code = SS	• Unwired Platform server components must be installed on same host as Sybase Mobile SDK • Available only with Personal Development Server edition
Development and test license LT Code = DT	• Servers licensed for development and testing use only; no production use allowed • No limit on CPU/cores or host configuration (single or multiple hosts, clusters, etc.) • Available with Enterprise Development Server and Enterprise Server editions
CPU/core license LT Code = CP	• Servers licensed by CPU/cores, for production use only; no development and testing use allowed • No limit on host configuration (single or multiple hosts, clusters, etc.) • Available only with Enterprise Server edition
OEM license LT Code = AS	• Unwired Platform servers to be bundled with packaged applications and redistributed • Servers licensed for production use only; no development and testing use allowed • Unserved license only, same license on all server hosts (no host ID required), no limit on CPU/cores or host configuration (single or multiple hosts, clusters, etc.) • Clients only are counted for licensing/royalties (various terms) • Available only with Enterprise Server edition

License Deployment Models

Software licenses for Unwired Platform components use the Sybase Software Asset Management (SySAM) system. SySAM provides two license deployment models from which to choose.

- **Unserved license** – Each license is granted for one, specific host. The license file must be stored locally, on the Unwired Platform host. The license cannot be transferred to another host.
- **Served license** – A license is granted for a number of hosts. The license file is stored on a SySAM license server, and the license can be automatically acquired (checked out) by any Unwired Platform host.

If you choose the served license model, you must deploy a SySAM license server to support the Unwired Platform system, and you must enable network communications between the SySAM license server and all Unwired Platform server hosts.

Refer to the *SySAM Users Guide* for details.

License Validation

Attributes in a license file define the number of Unwired Server instances allowed to run concurrently, the number of mobile clients that can connect to the Unwired Platform system, and the license expiration date.

Each Unwired Server instance must have its own server license. In an Unwired Server cluster, all nodes can share a common pool of mobile client licenses.

Note: With a clustered Unwired Platform system, you should choose the served license deployment model to enable license coordination in the Unwired Server cluster.

The Unwired Server checks both server and mobile client licenses.

- At startup: If the Unwired Server cannot retrieve the number of licensed servers from the license file, or if the server is not licensed, the Unwired Server stops (or enters the license grace period, if any).
- At mobile client connection: When a mobile client connects, the Unwired Server checks to see if that client exceeds the client license limit. If so, the Unwired Server throws a license check exception to the client. Otherwise, the connection continues and operations proceed normally.

The Unwired Server writes all license errors to the log.

Infrastructure Provisioning

This section covers IT infrastructure that may be needed to support an Unwired Platform system deployment.

The overall scope of infrastructure provisioning depends on:

- Your plans for Unwired Platform system deployment
  - Deployment scenario (personal system or enterprise system)
  - System design (clustered or non-clustered systems)
  - Unwired Platform licensing
- The capacity and condition of existing infrastructure
  - Physical plant resources (power, rack space, cable drops, etc.)
  - Network design and configuration
  - Access control and authentication (information security) mechanisms
  - Availability of suitable host systems
  - Availability of EIS resources

Network Provisioning

Network provisioning may be necessary to support an Unwired Platform system deployment.

Unwired Server components depend on network connections for access to:

- Enterprise information systems (EIS)
- Mobile device clients
- Server administration clients

In a multi-node system, all Unwired Platform server components depend on network connections for some inter-process communications.

Failover clusters that support the Unwired Platform data tier also have certain requirements for network configuration and resources.

Note: Follow current Microsoft guidelines for networks, hosts, and storage devices used in a failover cluster.

Unwired Platform Internal Communications

Network and host provisioning must accommodate Unwired Platform internal communications.

When Unwired Platform server components are installed on more than one host, they depend on network connections for some inter-process communication. The local network must be configured to allow all communications between Unwired Platform server components.

When all Unwired Platform server components are installed on a single host, they depend on regular IP communication on the primary network interface of the host.

To accommodate Unwired Platform internal communications, you may need to reconfigure intrusion detection/prevention systems (either hardware- or software-based).

- Configure "personal firewall" applications, or host-based intrusion prevention software (HIPS) to allow all communications between Unwired Platform server components.
- Configure intrusion detection/prevention appliances (IPS or IDPS) to allow all network communications between Unwired Platform server components.

Note: When you install any new intrusion detection/prevention system on an Unwired Platform server host, or on a local network that services an Unwired Platform server host, you must configure that new system to accommodate all Unwired Platform internal communications.

See also
- *Port Number Reference* on page 35

Load Balancing Guidelines

Follow these guidelines when you deploy a third-party load balancer connected directly to Unwired Server ports.

Note: Sybase does not recommend or endorse any specific third-party load balancer appliance, device, or software.

Client Load Balancing Guidelines

Follow these guidelines when you deploy a third-party load balancer connected directly to Unwired Server client ports.

The load balancer must:

- Balance connections at the TCP/IP level.
- Perform all load balancing on client connections to the Unwired Server cluster, independent of any other network device.
- Connect directly to the client ports of each Unwired Server in the cluster.
- Support client request routing (i.e., back-end server affinity) for non-persistent HTTP connections, based on inspecting the `ml-session-id` HTTP header.

Note: To allow header inspection, the load balancer must be a TLS endpoint on HTTPS connections from mobile clients.

See also
- *Client Load Balancing* on page 11
- *Client Load Balancing with BES* on page 12

EIS Load Balancing Guidelines

Follow these guidelines when you deploy a third-party load balancer connected directly to Unwired Server DCN ports.

The load balancer must:

- Balance connections at the TCP/IP level.
- Perform all load balancing on EIS connections to the Unwired Server cluster, independent of any other network device.
- Connect directly to the DCN port of each Unwired Server in the cluster.

See also
- *EIS Load Balancing* on page 13

Host Platform Provisioning

Host systems must be provisioned to meet Unwired Platform server host requirements.

All Unwired Platform server hosts must meet the requirements specified in *Supported Hardware and Software* for:

- Minimum host resources (CPU, RAM, and local storage space)
- Operating system (including edition, version, and Service Pack)

Note: In a single-node design, resources of the host system must be adequate to support all of the applications and services included in all Unwired Platform server components. Local disk resources must be adequate to support all databases managed by the data tier servers.

For adequate performance in an enterprise system scenario, a single-node system may require more substantial host resources than would any individual host in a multi-node system.

Unwired Platform Server Hosts

Follow these guidelines when provisioning hosts for the Unwired Platform server components (Unwired Server and data tier servers) in a multi-node design.

Note: These guidelines apply to all Unwired Platform server hosts (both Unwired Server hosts and data tier server hosts) in an Unwired Platform system.

- Unwired Platform server licenses must be the same Product Edition and License Type.
- Host processor architecture must use the same word size (32-bit or 64-bit).

  Note: Sybase Unwired Platform Enterprise Server edition can be installed only on 64-bit operating systems. The Personal Development Server and Enterprise Development Server editions can be installed on either 32-bit or 64-bit operating systems.

The following must be identical on all Unwired Platform server hosts in an Unwired Platform system:

- Operating system (edition, version, and Service Pack, as well as any intermediate patches or updates)
- Unwired Platform software version (including any ESD updates and patches)

See also
- *Data Tier Cluster Hosts* on page 20
- *Unwired Server Cluster Hosts* on page 21

Data Tier Cluster Hosts

Follow these guidelines when provisioning the hosts for a data tier failover cluster.

- All data tier hosts in the cluster must have identical host resources (CPU, RAM, local storage, network and host bus adapters, etc.).

- Host processor architecture must use the same word size (32-bit or 64-bit) as the Unwired Server hosts.
- All data tier hosts must have the Windows-based Failover Cluster feature installed.

Note: Follow current Microsoft guidelines for networks, hosts, and storage devices used in a failover cluster.

See also
- *Unwired Platform Server Hosts* on page 20
- *Unwired Server Cluster Hosts* on page 21

Unwired Server Cluster Hosts
Follow these guidelines when provisioning the hosts for Unwired Server instances in a multi-node design.

- Hosts in the Unwired Server cluster need not have identical system resources, but they should have similar processing capabilities.
- Host processor architecture must use the same word size (32-bit or 64-bit) as the data tier hosts.

See also
- *Unwired Platform Server Hosts* on page 20
- *Data Tier Cluster Hosts* on page 20

Unwired Platform Port Accommodation
Infrastructure provisioning must accommodate all ports required by Unwired Platform server components.

To accommodate Unwired Platform ports, you may need to:

- Configure Unwired Platform servers to change port number assignments.

  Note: You cannot change assignments of Unwired Platform reserved ports.

  - You can change default port assignments when you install Unwired Platform server components. After installation, you can change port assignments using the Sybase Control Center (SCC) console.
  - To change the port assigned to an SCC service, you must edit the XML configuration file for that service.

  Note: If there is a conflict for port 2480 or 2481, Unwired Server will not start. In that event, you will not be able to use the SCC console to change those Unwired Server ports. To correct the problem, you must temporarily stop the service that uses the conflicting port, then start Unwired Server so you can change the port assignment from the SCC console.

- Reserve ephemeral ports on Unwired Platform hosts, to prevent another process from using them.

Note: Even if the installer does not detect a conflict at install time, the Windows operating system may use additional ports in the 1024-65535 range at a later time. In that event, you may encounter intermittent problems starting Unwired Platform services.

Refer to Microsoft operating system documentation to learn how to reserve ephemeral ports.

See also
- *Port Number Reference* on page 35

SCC Port Assignments

Port assignments for Sybase Control Center (SCC) services are defined in XML configuration files.

SCC service configuration files are named `service-config.xml`, and located in subdirectories under the `<UnwiredPlatform_InstallDir>\SCC-XX\services\` directory.

SCC service	Configuration file location
Messaging service	`...\services\Messaging\`
RMI service	`...\services\RMI\`
SCC repository database server	`...\services\SccSADataserver\`
Web container	`...\services\EmbeddedWebContainer\`

To change the port assigned to an SCC service, you must edit the `service-config.xml` file for that service.

See also
- *Port Number Reference* on page 35

EIS Resource Provisioning

You may need to provision some Enterprise Information System (EIS) resources, to enable an Unwired Platform system to consume services provided by the EIS.

EIS resources include:

- EIS connections and access control (information security) mechanisms
- Drivers or connector applications, as required by a particular EIS service

EIS Drivers

Unwired Server includes drivers for Sybase databases, such as Adaptive Server® and SQL Anywhere®, and Web services. For non-Sybase data sources, such as SAP®, you must install the appropriate drivers.

Depending on the type of Enterprise Information System (EIS) connection, you may need to copy some driver and library files to the Unwired Server installation directories.

In an Unwired Server cluster, each host must have the appropriate drivers installed.

See *Supported Hardware and Software* for the most current supported versions of EIS and EIS drivers.

SAP External Libraries Overview

Understand the purpose of the external files you can optionally download from SAP and install into Unwired Platform to enable communication with an SAP EIS.

*   **SAP Cryptographic Libraries** – required by Unwired Platform to enable Secure Network Communications (SNC) between Unwired Server or Unwired WorkSpace and the SAP EIS.
*   **SAPCAR utility** – required to extract files from the SAP cryptographic library.

SySAM License Provisioning

License provisioning tasks depend on the license deployment model you choose.

Unserved license model:

*   Obtain one server license file for each Unwired Server host.

    For a development and testing system, mobile client licenses are included in each server license.

    For a production system, mobile clients must be licensed separately, and the total number of clients must be allocated among the server licenses.
*   On each Unwired Server host, copy the host-specific license file to a local disk location.

Note: In the unserved license model, mobile clients licensed for a production system must be divided among all the licensed servers, with a static allocation defined in each server license file.

Served license model:

*   Install a SySAM license server, and ensure that each Unwired Server host can connect to it.
*   Obtain one license file for all Unwired Server hosts.
*   Install the server license file on the SySAM server.

In the served license model, mobile clients licensed for a production system can be allocated dynamically to all licensed servers, up to the licensed client limit.

Unwired Platform Installation

You must run the Sybase Unwired Platform Runtime installer on each Unwired Platform server host. Options you select in the installer determine which server components are installed, and how they are configured.

Unwired Platform server components can be installed, only after network resources and host systems are provisioned to meet Unwired Platform requirements.

If you are deploying an Unwired Platform system under terms of an Evaluation license, you need not complete any license provisioning tasks before installing Unwired Platform servers. Otherwise, license provisioning is a prerequisite to installing Unwired Platform servers.

Separate installation of the Unwired Server depends on data tier services. In a multi-node system, all data tier components must be installed first, and all data tier services must be available, before installing any Unwired Server components.

The installer enforces certain prerequisites and limits certain options, based on the options you select:

- Unwired Platform product option
  - Unwired Platform Runtime
  - Online Data Proxy
- Software license options
  - Evaluation license
  - License deployment model
  - License product edition and type
- System design options
  - Single server host (single-node design)
  - Clustered systems (multi-node design)

Specific tasks required to complete an installation depend on the deployment scenario and system design.

See also
- *System Design* on page 2
- *Unwired Platform Licensing* on page 14
- *Host Platform Provisioning* on page 20

Installation Worksheets
To streamline installation tasks, use the Installation Worksheet specific to your deployment scenario.

Personal System Installation Worksheet
Use this worksheet to record the information you need to complete a personal system installation.

Software License
Identify the software license model for your personal system installation.

Note: Select only one option, in one row.

License model		
Evaluation license	Yes	No
License deployment model	Unserved	Served

Product edition and license type	
License product edition	Personal Development
License type	Standalone Seat

Unserved license info	
Local license file location	

Served license info	
Host name of SySAM license server	
SySAM license server port	
SYBASE vendor daemon port	

Installation Location

Unwired Platform server component installation directory	
Local directory path	

Product Installation Option

Unwired Platform product option (select one)	
Unwired Platform Runtime	

Unwired Platform product option (select one)	
Online Data Proxy	

Installation Type

Installation Type	
Single server	

Configuration Options

Unwired Server configuration options	
Unwired Server communication ports	
Auto-start services	
Set Unwired Server and/or cluster name	

Unwired Server and Cluster Names

Unwired Server name options	
Unwired Server name	Must be unique on network segment.
Unwired Server cluster name	Must be unique on network segment.

Port Configuration Options

Unwired Server port configuration	
Server administration port	
Data change notification port	
Messaging port	
Replication port	

Unwired Platform Administrator
This password is required to access Sybase Control Center.

Administration access	
System administrator password	

Enterprise System Installation Worksheet
Copy this worksheet and record installation options for each Unwired Platform server host.
Refer to this worksheet to streamline installation tasks.

Software License
Identify the software license model for your enterprise system installation.

Note: Select only one option, in one row.

License model		
Evaluation license	Yes	No
License deployment model	Unserved	Served

Product edition, license type, and client licenses	
License product edition	
License type	
Number of client licenses	

Unserved license info	
Local license file location	

Served license info	
Host name of SySAM license server	
SySAM license server port	
SYBASE vendor daemon port	

Installation Location

Unwired Platform server component installation directory	
Local directory path	

Product Installation Option

Unwired Platform product option (select one)	
Unwired Platform Runtime	

Unwired Platform product option (select one)	
Online Data Proxy	

Installation Type

Installation Type (select one)	
Single server	
Cluster	
Custom	

Failover Cluster Administrator

Administration access	
Windows cluster administrator password	

Data Tier Port Configuration

Data tier server port configuration		
Component	Port	Password
Cache database server		
Cluster database server		
LogData database server		
Messaging database server		n/a

Data Tier Configuration Options

Data tier configuration options	
Separate database and transaction log locations	
Data tier in failover cluster	

Data Tier Failover Cluster Configuration

Data tier failover cluster configuration	
Shared cluster storage path (database files)	
Shared cluster storage path (transaction logs)	

Data tier failover cluster configuration	
Database server name	

Data Tier Database File Locations

Data tier database file locations	
Cache database data path	
Cluster database data path	
LogData database monitor data path	
LogData database domainlog data path	

Data Tier Transaction Log File Locations

Data tier transaction log file locations	
Cache database log path	
Cluster database log path	
LogData database monitor log path	
LogData database domainlog log path	

Unwired Server Configuration Options

Unwired Server configuration options	
Unwired Server communication ports	
Auto-start services	
Set Unwired Server and/or cluster name	

Unwired Server and Cluster Names

Unwired Server name options	
Unwired Server name	Must be unique on network segment.
Unwired Server cluster name	Must be unique on network segment.

Port Configuration Options

Unwired Server port configuration	
Server administration port	
Data change notification port	
Messaging port	
Replication port	

Unwired Platform Administrator
This password is required to access Sybase Control Center.

Administration access	
System administrator password	

Installation Checklist: Personal System

Use this checklist to plan the installation tasks for a personal Unwired Platform system.

In a personal system scenario, all Unwired Platform server components are deployed to a single-user host (laptop or workstation), with a colocated Sybase Mobile SDK, to support one user. The Sybase Mobile SDK requires a separate installer.

1. Ensure you have the following items ready for convenient reference during installation tasks:
   - Personal System Installation Worksheet
   - SySAM license file and license information (if not an evaluation license)
2. Identify the Unwired Platform installation option you want.

   - Unwired Platform Runtime
   - Online Data Proxy
3. Complete all tasks in *Installing a Personal System*.

See also
- *Chapter 2, Installing a Personal System* on page 43
- *Personal System Installation Worksheet* on page 25

Installation Checklist: Non-Clustered Enterprise System

Use this checklist to plan the installation tasks for a non-clustered Unwired Platform system, in an enterprise system deployment scenario.

In a non-clustered system, all Unwired Platform server components (the Unwired Server and data tier servers) are installed on a single server host, to support multiple users.

1. Confirm that network resources and the server host are provisioned to meet Unwired Platform requirements.
2. Ensure you have the following items ready for convenient reference during installation tasks:
   - Enterprise System Installation Worksheet
   - SySAM license files and license information (if not an evaluation license)
3. Identify the Unwired Platform installation option you want.

   - Unwired Platform Runtime
   - Online Data Proxy
4. Complete all tasks in *Installing All Servers on a Single Host*.

See also
- *Installing All Servers on a Single Host* on page 62
- *Enterprise System Installation Worksheet* on page 27

Installation Checklist: Clustered Enterprise System

Use this checklist to plan the installation tasks for a clustered Unwired Platform system, in an enterprise system deployment scenario.

In a clustered system, Unwired Server components and data tier components are installed on separate server hosts, to support multiple users.

Note: Sybase Unwired Platform supports Online Data Proxy functionality in a clustered system beginning in SUP 2.1 ESD #1.

1. Confirm that network resources, cluster resources, and the server hosts are provisioned to meet Unwired Platform requirements.
2. Ensure you have the following items ready for convenient reference during installation tasks:
   - Enterprise System Installation Worksheet
   - SySAM license files and license information (if not an evaluation license)
3. Install data tier components on the data tier host server – on each server host in the data tier cluster, if you are planning multiple data tiers.

   Use the task titled *Installing the Data Tier* to complete the installation of each data tier cluster node.

   Note: Unwired Server installation depends on data tier services. In a multi-node system, all data tier components must be installed first, and all data tier services must be available, before installing any Unwired Server components.
4. Install Unwired Server components on each server host in the Unwired Server cluster.

Use the task titled *Installing the Unwired Server* to complete the installation of each Unwired Server cluster node.

See also
- *Installing the Data Tier* on page 66
- *Installing the Unwired Server* on page 72
- *Enterprise System Installation Worksheet* on page 27

Relay Server Deployment

There are two Relay Server deployment options: the Sybase Hosted Relay Service, and local Relay Server installation.

Sybase Hosted Relay Service

Sybase Hosted Relay Service provides Internet-hosted Relay Servers, for temporary use with research, development, and test systems.

Sybase Hosted Relay Service requires no local network or host system resources, but it provides limited functionality, on a temporary basis:

- Supports an Unwired Server cluster, with a maximum of two nodes
- Limited to use for 180 days
- No production use allowed

You can subscribe to the Sybase Hosted Relay Service online, and then configure an Unwired Platform system with the information you provided during subscription.

Note: This topic is for planning purposes only. For implementation instructions, see *Subscribing and Connecting to Sybase Hosted Relay Service* on page 105.

See also
- *Subscribing and Connecting to Sybase Hosted Relay Service* on page 105

Relay Server Installation

A Relay Server installation meets longer-term needs, and it is required for Relay Server functionality in an Unwired Platform production system.

Note: The information about Relay Servers in this section intended for planning purposes only. To install Relay Servers, see *Installing Relay Servers* on page 77 and *Configuring Relay Servers and Outbound Enablers* on page 82.

In a local installation, each Relay Server is deployed on a Web server host, on the DMZ subnet.

You must provision network resources and an appropriate Web server host for each Relay Server. All Relay Server hosts must meet the requirements specified in *Supported Hardware and Software* for:

- Minimum host resources (CPU, RAM, and local storage space)
- Operating system (including edition, version, and Service Pack)
- Web server application and version

Relay Servers

Relay Server acts as a reverse proxy for client devices communicating with the Unwired Server.

Relay Server enables communications from the Unwired Server to client devices, via the Internet, without requiring any inbound port to be opened on the internal firewall.

In a clustered Unwired Platform system, Relay Server provides rudimentary load balancing for the Unwired Server cluster, distributing client requests in a round-robin manner.

Relay Server consists of:

- Web server extensions — one each to handle communication with clients (from the Internet) and communication with Unwired Servers (on the internal LAN)
- State Manager — a process that maintains state information across client requests and sessions

The State Manager process runs on the Web sever host, independent of the Web server application.

Relay Server characteristics and behavior are defined by a configuration file (`rs.config`), which is formatted as a properties file. See *System Administration*, "System Reference" for details.

See also
- *Load Balancing* on page 10

Outbound Enablers

Each Unwired Server instance relies on one or more Outbound Enablers (RSOEs) to manage its communications with Relay Server. Relay Server relies on the RSOE to initiate communications from an Unwired Server.

The RSOE opens outbound HTTPS connections to Relay Server, to handle both inbound and outbound communication channels, on behalf of the Unwired Server.

Each RSOE is an Unwired Server process, which manages communication on a particular Unwired Server client port — either the Messaging port, or the Replication port.

Note: Sybase recommends three RSOE processes for each Messaging port and each Replication port.

RSOE characteristics and behavior are defined by an XML configuration file. See *System Administration*, "System Reference" for details.

Relay Server Clusters

A Relay Server cluster enables load balancing and redundant Relay Servers, to improve system availability.

Load balancing across multiple Relay Servers requires a front-end load balancing mechanism, such as a layer 4 network switch.

A Relay Server cluster (or farm) consists of one or more Relay Server instances that service the same set of RSOEs (each associated with an Unwired Server instance).

Participation in a cluster is enabled by a flag in each Relay Server's configuration file.

In a Relay Server cluster, the only cluster-specific behavior occurs when the RSOE initiates connection to a Relay Server and queries it for connection information.

* When in a cluster, each Relay Server returns connection information for itself, and all other Relay Servers in the cluster.
* When not in a cluster, the Relay Server returns connection information for itself only.

When the RSOE receives connection information for more than one Relay Server, it opens connections to all Relay Servers in the cluster.

Figure 12: Unwired Server connection to Relay Servers in cluster
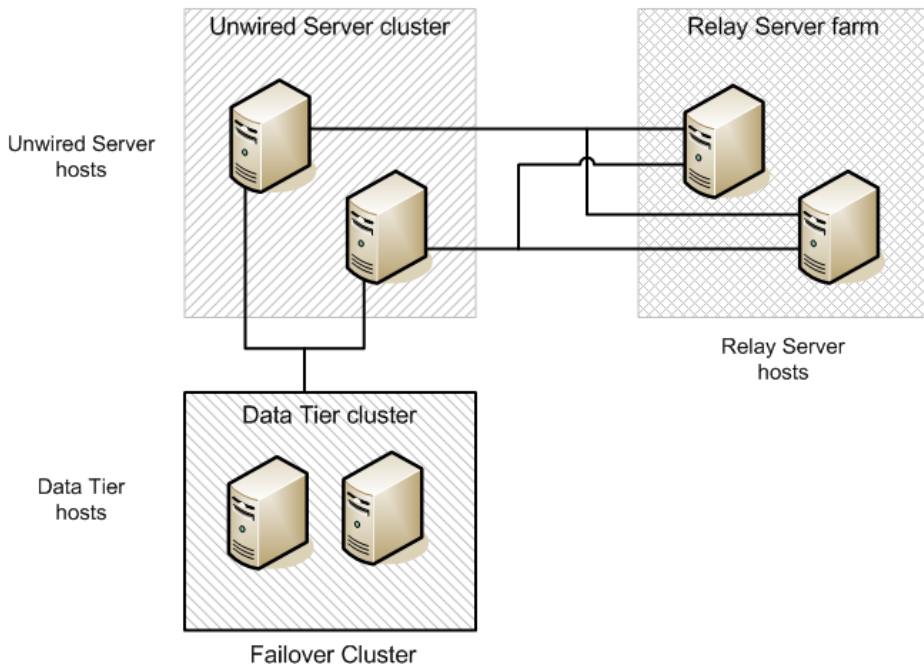
See also

System Configuration and Validation

System configuration consists of the tasks that must be performed to configure components and subsystems in an Unwired Platform system, after all installation tasks are complete. System validation tasks confirm that the system components are installed correctly, and the system is operating as expected, after configuration tasks are complete.

System Deployment Reference

This section provides reference information that supports Unwired Platform system deployment tasks.

Port Number Reference

Components of Sybase Unwired Platform rely on communication ports for inter-process coordination, data transfer, and administrative access.

Unwired Server Ports

The following list identifies Unwired Server ports, default assignments, and protocols.

Type	Default	Protocol
Administration, Unwired Server	2000 2001 (secure)	IIOP IIOPS
Data change notification (DCN) listener	8000 8001 (secure)	HTTP HTTPS
Messaging	5001	Messaging (proprietary protocol based on HTTP)
Messaging service administration	5100	HTTP
Replication	2480 2481 (secure)	Replication (proprietary protocol based on HTTP)

Data Tier Ports

The following list identifies data tier server ports, default assignments, and protocols.

Type	Default	Protocol
Cache database (CDB) server, client access	5200	Command Sequence on connection to Unwired Server replication engine Tabular Data Stream™ (TDS) on JDBC connection
Cluster database server, client access	5300	TDS
Cluster database server, discovery	2638	UDP
LogData database server, client access	5400	TDS
Messaging database server, client access	6262	TDS TCP and UDP, when using Windows Filtering Platform (WFP)

Sybase Control Center Ports

The following list identifies ports used by SCC services, default assignments, and protocols.

Type	Default	Protocol
RMI service	9999	TCP/IP
Messaging service	2100	TCP/IP
SCC repository database server	3638	TDS
Web container	8282 8283	HTTP HTTPS

Relay Server Ports

Relay Server uses standard, IANA-assigned ports for HTTP (80) and HTTPS (443) by default.

Reserved Ports

The following list identifies ports reserved for internal use by Unwired Platform components.

Type	Number	Protocol
Reserved	4343	TDS
Reserved	8002	HTTPS

Do not use these reserved ports for any purpose.

Other Ports

The following lists identify significant ports that are not directly associated with an Unwired Platform server component.

SySAM License Server

If you deploy Unwired Platform with the served license model, all Unwired Platform hosts must have network access to the license server port, on the SySAM license server host.

Type	Default	Protocol
SySAM license server	27000	

Sample Database Server

Both Personal Development Server and Enterprise Development Server product editions include a sample database, which is installed on the Unwired Server host, to emulate an EIS for tutorials and simple testing.

Type	Default	Protocol
Sample database	5500	TDS

The Enterprise Server product edition does not include a sample database.

Installation Directories

Review the Sybase Unwired Platform server component installation directories to ensure a successful installation.

- The following tables show the high-level directories created in a single-node installation (all Unwired Platform server components installed on a single host).
- In a multi-node or cluster installation, some of these directories are only present on a particular type of host.

By default, Unwired Platform server components are installed in the `C:\Sybase\UnwiredPlatform` directory.

Table 1. Unwired Platform installation subdirectories

Directory	Description
_jvm	JVM used by the uninstaller.
sup*XX*ebflogs	Log files created each time installebf.bat is run. Appears only in installations upgraded from Unwired Platform 2.0.
InstallLogs	Log files created each time the Unwired Platform Runtime installer is used. Use these logs to troubleshoot installer issues.
JDK*x.x.x_x*	JDK required by Unwired Platform components.
scc_cert	Certificate files for Sybase Control Center.
Servers	Unwired Platform server components.
Servers\Advantage*xxx*	Device management components for SCC.
Servers\MessagingServer	Messaging database server.
Servers\SQLAnywhere*xx*	Database server for cache, cluster, and logging databases. Default database file location is the data\ subdirectory.
Servers\UnwiredServer	Unwired Server components.
Servers\UnwiredServer \doe-c_clu	Sybase SAP DOE Converter (DOE-C) Command Line Utility components. CLU.bat in bin directory starts the DOE-C console.
Servers\UnwiredServer \doecSvlet	Sybase SAP DOE Converter (DOE-C) runtime components.
Servers\UnwiredServer\licenses	SySAM license files. When an unserved license is updated, copy the new files here.
sup*XX*upgrade	Appears only in installations upgraded from a previous version of Unwired Platform.
ThirdParty	License terms of third-party components included in Sybase Unwired Platform.
Uninstallers	Unwired Platform Runtime uninstaller.

Directory	Description
Util	Utilities used by the Unwired Platform Runtime installer.

By default, Sybase Control Center components are installed in the `C:\Sybase\SCC-XX` directory.

Note: If you have other Sybase products installed on the same host as Unwired Server, you may have more than one version of Sybase Control Center.

Table 2. Sybase Control Center installation subdirectories

Directory	Description
auth	Library files used for related services, such as JAAS.
bin	Scripts to start or stop SCC management framework components.
common	Files shared by SCC components.
conf	Configuration files, including security providers for administration logins.
ldap	LDAP-related files.
log	Log files used by SCC and its console plug-ins to capture management framework events only. No Unwired Platform data is captured here, except for administration logins.
plugins	Managed resource plug-ins.
rtlilb	Runtime library files.
server	Class and library files used by the management framework server.
services	Class and library files for SCC services.
shared	Shared class and library files.
utility	Utilities used by SCC.

Service Reference

Services are installed on each Unwired Platform server host to support managing and coordinating component processes.

Unwired Server Services

The following services are installed on an Unwired Server host.

Note: Some services may not be installed on an Unwired Server host, depending on the Unwired Platform product option, the deployment scenario and system design, and the licensed product edition.

Service	Description
Sybase Unwired Server	Top-level Unwired Server process. Coordinates other processes that handle interactions with EIS services, support messaging and synchronization service to mobile clients, and provide Unwired Platform system management facilities.
Sybase Control Center *X.X*	Includes processes to manage, monitor, and control distributed Sybase server resources, and a Web app server for remote SCC console access.
Sybase Unwired SampleDB (optional)	Database server for sample database, supplied only with Evaluation license, and with Personal Development Server and Enterprise Development Server licensed product editions.

Data Tier Services

The following services are installed on a data tier host.

Note: Some services may not be installed on a data tier host, depending on the Unwired Platform product option, the deployment scenario and system design, and the licensed product edition.

Service	Description
Advantage Database Server®	Database server that manages the messaging database.
Sybase Unwired CacheDB	Database server that manages the cache database, used primarily to support mobile clients that depend on occasional synchronization of local data stores.
Sybase Unwired ClusterDB	Database server that manages the cluster database, which supports Unwired Server runtime management and operational processes.
Sybase Unwired LogDataDB	Database server that manages the Unwired Server logging databases (system logging and domain logging).

When the data tier is installed in a single-node system:

- The Sybase Unwired ClusterDB and Sybase Unwired LogDataDB services are not installed.
- The Sybase Unwired CacheDB service manages the cache database, cluster database, and logging databases.

CHAPTER 2   **Installing a Personal System**

This installation scenario locates all Unwired Platform server components (Unwired Server and data tier), for either Unwired Platform Runtime or Online Data Proxy, on a single-user host, to support one user.

Note: Personal Development Server license terms require all Unwired Platform server components to be installed on the same, single-user host as the Sybase Mobile SDK.

1. *Preparing for Installation*

   Ensure that the host on which you are installing Sybase Unwired Platform is ready for you to begin the installation.

2. *Entering License Information*

   Start the Sybase Unwired Platform Runtime installer and enter license information.

3. *Selecting Installation Options*

   Specify the installation directory, installation type, Unwired Platform components, and additional installation options.

4. *Completing the Installation*

   Review the installation summary and launch the installation process.

5. *Verifying the Installation*

   After you complete the installation, verify that the installation was successful before proceeding.

See also
* *Installation Checklist: Personal System* on page 30
* *Personal System Installation Worksheet* on page 25

Preparing for Installation

Ensure that the host on which you are installing Sybase Unwired Platform is ready for you to begin the installation.

1. Confirm that the installation target host meets minimum system requirements for all Unwired Platform components to be installed.
2. Verify that you have Administrator privileges on the installation target host.
3. If the JAVA_TOOL_OPTIONS environment variable is set, remove it before you start Unwired Platform installation.

Check for the JAVA_TOOL_OPTIONS environment variable in both **User variables** and **System variables** panes of the Environment Variables dialog.

a) Right-click **My Computer** and select **Properties**.
b) Select the **Advanced** tab, then click **Environment Variables**.
c) Select JAVA_TOOL_OPTIONS and click **Delete**.
d) Click **OK** to exit all dialogs.

4. Shut down all Sybase software, Sybase processes, and associated third-party processes running on the installation target host.

> **Note:** This includes any database servers, Sybase Control Center, and if Sybase SAP® DOE Connector is present in an upgrade installation, SAP Data Orchestration Engine.

> If Sybase Unwired Platform was installed on the target host, ensure that all services that have names beginning with "Sybase" are stopped, and stop the Advantage Database Server® service and OpenDS service, if either is present.

> To verify that services are stopped, open the Services panel from Windows Control Panel.

See also
*   *Deployment Planning* on page 2
*   *Host Platform Provisioning* on page 20

Entering License Information

Start the Sybase Unwired Platform Runtime installer and enter license information.

1. Start the Sybase Unwired Platform Runtime installer using one of these methods:

    *   Insert the Sybase Unwired Platform Runtime installation media.
    *   Install from a Web download. Extract all the archive files to the same temporary directory on a local disk, not a shared drive.
    *   Install from an image on the network. You must access the installation image from a mapped drive, not a UNC path.

    Browse to the location of the `setup.exe` file, and double-click it to start the installer.

2. On the installer welcome page, click **Next**.

3. Select your license model and click **Next**.

Evaluation	Allows you to evaluate Unwired Platform for 30 days. A license file is not required.
Unserved (local) license	Standalone license managed locally by the host.

Served (remote) license	Standalone license managed by a license server.

4. On the end-user license agreement page, select your country, then accept the terms of the license agreement and click **Next**.

5. On the license details page, select:

    • License product edition: Personal Development
    • License type: Development and Test License

6. Enter the location of your license file.

    • If you selected **Unserved (local) license**, enter the absolute path to the license file on the installation target host. The path must include only ASCII characters.
    • If you selected **Served (remote) license**, enter the **Host Name of License Server** and **TCP Port of License Server**.

    If you get an error, such as `Failed to check out license`, click **OK**, then click **Back** to confirm the license model (served or unserved), License Product Edition, and License Type.

Selecting Installation Options

Specify the installation directory, installation type, Unwired Platform components, and additional installation options.

1. Specify the absolute path to the installation location, which must reside in a local drive on the target host.

    The total length of the path must be 43 characters or less.

    Directory names in the path can contain only:
    • ASCII alphanumeric characters
    • Underscore (_) or hyphen (-) characters

2. On the installation option page, select one of the following:

    • **Unwired Platform Runtime**
    • **Online Data Proxy**

    Then click **Next**.

3. If you selected **Unwired Platform Runtime** on the installation option page, select **Single Server** and click **Next**.

4. If a page appears, indicating that the installer detected missing third-party software, click:

    • **Next** to install the required software.
    • **Back** to select components to install that do not require the third-party software.

- **Cancel** to stop the current installation.

5. (Optional) Select additional installation options.

- **Configure Unwired Platform communication ports** to change default ports.
- **Set Sybase Unwired Platform services to start automatically** to start services automatically when Windows starts.

   Set Unwired Platform services to start automatically if you plan to install products that work with Unwired Platform, such as Sybase SAP® DOE Connector and Sybase Mobile Sales for SAP® CRM. If Unwired Platform services do not start automatically, dependent products will encounter problems.
- **Set Sybase Unwired Server name and cluster name** (Unwired Platform Runtime option; names must be unique on network segment)
- **Set Sybase Unwired Server name** (Online Data Proxy option; name must be unique on network segment)

6. (Optional) If you selected **Set Sybase Unwired Server name** (Online Data Proxy option), enter a name for this Unwired Server instance. (Name must be unique on network segment.)

   (Optional) If you selected **Set Sybase Unwired Server name and cluster name** (Unwired Platform Runtime option), enter a name for this Unwired Server instance and a name for the Unwired Server cluster. (Names must be unique on network segment.)

   Each server or cluster name:
   - Must contain only:
     - ASCII alphanumeric characters
     - Underscore (_) and hyphen (-) characters
   - Cluster names must be 22 characters or less

7. (Optional) If you selected **Configure Unwired Platform communication ports**, change the port numbers as needed.

   - General ports:
     - **Server administration**
     - **Data change notification** (Not applicable to Online Data Proxy)
   - Synchronization ports:
     - **Messaging**
     - **Replication** (Not applicable to Online Data Proxy)

8. Enter the password for the supAdmin user and click **Next**.

   The password must:
   - Be at least 8 characters
   - Contain only ASCII alphanumeric characters

See also
- *Port Number Reference* on page 35

Completing the Installation

Review the installation summary and launch the installation process.

1. On the summary information page, verify the installation features and click **Install**.
2. (Optional) Click **View Release Bulletin**.
3. Click **Finish**.

For information about configuring Sybase Unwired Platform, see *Sybase Unwired WorkSpace - Mobile Business Object Development*.

For information about installing the Sybase Mobile SDK, see *Installation Guide for Sybase Mobile SDK*.

See also
*   *Configuring Sybase Control Center* on page 82
*   *Subscribing and Connecting to Sybase Hosted Relay Service* on page 105

Verifying the Installation

After you complete the installation, verify that the installation was successful before proceeding.

1. Verify that the following services were started automatically, or that you can start them manually if you did not set Unwired Platform services to start automatically – open the Services panel from Windows Control Panel verify that services are stopped:
    *   Sybase Unwired Server
    *   Sybase Control Center *X.X*
    *   Sybase Unwired CacheDB
    *   Advantage Database Server®
    *   Sybase Unwired SampleDB (not applicable to Enterprise Server Edition)
2. Log in to Sybase Control Center.
    From Windows, select **Start > (All) Programs > Sybase > Sybase Control Center**.
3. Verify that you can connect to the Unwired Server you just installed.

CHAPTER 3   **Deploying an Enterprise System**

This high-level task encompasses all the activities required to deploy Sybase Unwired Platform servers and related systems (either Unwired Platform Runtime or Online Data Proxy option).

1. *Planning System Deployment*

   Plan your deployment of the Unwired Platform system. Document your deployment plans, as needed.

2. *Provisioning the Infrastructure for Unwired Platform*

   Provision infrastructure and other resources, as needed to support deployment of the Unwired Platform system.

3. *Installing Unwired Platform Servers*

   Install the server software components of Sybase Unwired Platform (either Unwired Platform Runtime or Online Data Proxy option), and set basic server configurations.

4. *Installing Relay Servers*

   This high-level task includes activities required to install Relay Servers as part of an Unwired Platform system.

5. *Configuring and Validating the System*

   Some components of the Unwired Platform system must be configured after installation tasks are complete. Confirm that the system is operating as expected, after configuration tasks are complete.

Planning System Deployment

Plan your deployment of the Unwired Platform system. Document your deployment plans, as needed.

This high-level task includes planning activities required to deploy Sybase Unwired Platform servers and related systems.

1. Choose the Sybase Unwired Platform option you want to deploy.

   - Unwired Platform Runtime
   - Online Data Proxy

2. Identify the deployment scenario.

   - Personal system
   - Enterprise system

3. Identify an appropriate system design.

Evaluate system design options, based on the Unwired Platform option you chose, and the deployment scenario.

Document your system design architecture, as needed.

4. Identify the Unwired Platform license (or licenses) you need to acquire.

Evaluate license options (product edition and license type) and license deployment models (served and unserved), based on:
- Your intended use of the Unwired Platform system (internal development and testing, or general production)
- System design characteristics (host CPUs, number of servers, clusters, etc.)
- Scale of the deployment (number of mobile devices, device users, or mobile applications)

Provisioning the Infrastructure for Unwired Platform

Provision infrastructure and other resources, as needed to support deployment of the Unwired Platform system.

This high-level task includes activities required to provision the IT infrastructure needed to support Sybase Unwired Platform servers and related systems.

1. Provision physical plant resources, including:

- Data center (rack space, cable drops, etc.)
- Utilities (power, air conditioning, etc.)

2. Provision network resources, including:

- Hardware (switches, routers, bridges, etc.)
- Services (DNS, WINS, domain controllers, Internet proxy, load balancers, etc.)
- Subnets, virtual LAN, VPN, etc.
- Storage network/fabric, zones, etc.

3. Provision security resources, including:

- Access controls (LDAP or Active Directory groups, roles, etc.)
- Authentication artifacts (server-side and client-side certificates, etc.)
- Transport security mechanisms (SSL/TLS encryption, etc.)
- Intrusion detection and prevention mechanisms (IDS/IDPS, HIPS, etc.)

4. Provision host platforms/systems for:

- Unwired Platform server hosts (Unwired Server and data tier servers)
- Failover cluster hosts (data tier servers)
- Shared cluster storage (SAN, LUNs, etc.)

- Web server hosts (Relay Server)
- SySAM license server hosts

5. Provision EIS resources, including:

   - EIS connections, access, authentication, etc.
   - EIS drivers, connector applications, gateways, etc.

6. Provision SySAM licenses.

   a) Install and configure SySAM license servers (served license model).
   b) Obtain license files and deploy to appropriate hosts.

Provisioning Host Platform Resources

Provision host systems to meet Unwired Platform server host requirements, and other related host requirements.

1. Provision host platforms for Unwired Platform server hosts.

   - Unwired Server hosts
   - Data tier server hosts

2. (Optional) Provision host and storage resources for clustered systems with failover data tier.

   - Failover cluster hosts (data tier servers)
   - Shared cluster storage (SAN, LUNs, etc.)

3. (Optional) Provision Web server hosts for Relay Server deployment.
4. (Optional) Provision SySAM license server hosts.

Provisioning EIS Resources

Provision Enterprise Information System (EIS) resources, as needed to support Unwired Platform system deployment.

EIS resources include:

- EIS connections, access, authentication, etc.
- EIS drivers, connector applications, gateways, etc.

Obtaining a License

There are two ways to obtain your Unwired Platform license, depending on how you purchased the product.

When you purchase SySAM 2-enabled Sybase products, you must generate, download, and deploy SySAM product licenses.

- If you purchased your product from Sybase or an authorized Sybase reseller, go to the secure Sybase Product Download Center (SPDC) at *https://sybase.subscribenet.com* and

log in to generate license keys. The license generation process may vary slightly, depending on whether you ordered directly from Sybase or from a Sybase reseller.

- If you ordered your product under an SAP® contract and were directed to download from SAP Service Marketplace (SMP), you can use SMP at *http://service.sap.com/licensekeys* to generate license keys for Sybase products that use SySAM 2-based licenses.

Next

For more complete information about SySAM, see:

- *SySAM Asset Management Users Guide* online at *SySAM FAQ*
- *Fast Track to SySAM 2.0* white paper, available at *Fast Track to SySAM 2.0*

Determining Host IDs

When you generate licenses at SPDC or SMP, you must specify the host ID of the machine where the licenses will be deployed.

- For unserved licenses, specify the host ID of the machine where the product will run. If you are running a product with per-CPU or per-CHIP licensing that supports SySAM sub-capacity, and you want to run the product in a virtualized environment, see *SySAM Sub-capacity Licensing* in the *SySAM Users Guide* for information about determining the host ID for unserved licenses.
- For served licenses, specify the host ID of the machine where the license server will run.

SPDC or SMP remembers the host information so that you can select the same license server when generating additional licenses.

To determine the host ID of the machine, run the **lmutil** utility from a terminal window or the Windows command prompt. For example:

```
lmutil lmhostid
```

Note: You can download the **lmutil** utility from the Flexera Software Web site at *http://www.globes.com/support/fnp_utilities_download.htm*.

You can also determine the host ID using native operating system commands. See the Frequently Asked Questions topic "What is my Host ID?":

- SPDC: *https://sybase.subscribenet.com/control/sybs/faqs#30-4*
- SMP: *https://websmp208.sap-ag.de/~sapidb/011000358700001006652011E*

Comparing License Deployment Models

Learn about license deployment models.

Unserved Licenses	Served Licenses
Licenses can be used only on the machine for which the license was generated.	Licenses can be distributed from a network license server to products running on any network machine.

Unserved Licenses	Served Licenses
Generate licenses at SPDC or SMP for each machine that will run the product: 1. Specify the host ID of the machine where the product will run. 2. Generate a license for that machine. 3. Save the license to the specified machine. 4. Repeat steps 1 – 3 for each machine where the product will run.	Generate licenses at SPDC or SMP for products running on multiple machines: 1. Specify the host ID of the license server. 2. Specify the number of required licenses. 3. Save the licenses to the license server host machine.
No license administration is required. However, when new licenses are required for product updates, you must update and deploy each license for each machine where the product update will run.	The license server requires administration. When new licenses are required for product updates, SPDC or SMP lets you update all licenses for a specific license server in a single step.
No license reporting or asset management capabilities are available.	Allows license monitoring and reporting of license use, capacity planning, and asset management using SAMreport.
Installed locally and always available.	Requires a functioning license server and network. If the license server or network fails, you must fix the problem or install an alternate license server before the product grace period expires.
If a machine where the product is running fails, you must regenerate all of its licenses and deploy those licenses to the replacement machines.	If a machine where the product is running fails, you can move the product to a new machine, and it will acquire licenses from the running license server. If the license server host machine fails, use the Manage License Hosts functionality at SPDC or SMP to move its licenses to a new network license server host.
License files are distributed across each machine running a product, and therefore they are difficult to manage and control.	License files are centrally located and managed.
Unserved Standalone Seat (SS) licenses do not allow product use via Remote Desktop Connection or other terminal services clients.	Products can be used via Remote Desktop Connection or other Terminal Services clients, irrespective of the type of license in use.

Generating Licenses at SPDC

Before you log in to SPDC and generate licenses, use this information as a reminder of the information you should have available and the tasks that you should have completed.

Table 3. Information Needed Before License Generation

Required Informa-tion or Action	License Model		Description
	Served	Un-served	
License deployment model	X	X	Decide whether to use a served or unserved license deployment model. Typically, this is a company-wide decision that is made only once. Therefore, this is one of the most important things to determine before license generation.
Product machine host ID		X	Determine the host ID of the machine, or machine partition where the product will run.
License server – download and install	X		Download and install the SySAM license server before you generate the product's licenses, and before you install the product.
License server host ID	X		Determine the host ID of the machine where the license server will run.
License server host name	X		Determine the host name of the machine where the license server will run.
License server TCP/IP port numbers	X		Determine the port numbers on which the license server will listen for license requests. **Note:** If you do not specify the license server port numbers during license generation, the license server uses the first available ports in the range 27000 to 27009. If a firewall exists between the server and the client machines, fix the license server port numbers to allow access to the ports. See *Access Through a Firewall or VPN* in the *SySAM Users Guide*.

Logging in to SPDC and Beginning License Generation

Once you log in to SPDC and begin license generation, complete your product's license generation using the procedure that applies to the license deployment model you chose, either for generating served licenses or for generating unserved licenses.

If your product has been ordered from a Sybase reseller, perform the "Web Key step" instructions, where noted.

1. Go to the SPDC login page at *https://sybase.subscribenet.com*.

   • Go to the SPDC Web Key Registration page at *https://sybase.subscribenet.com/webkey*.

2. Enter the login ID and password, then click **Login**. If you forget your password, click **Password Finder**.

   Your password is sent to you in an e-mail message.

   • Enter the authorization string from the Web Key Certificate provided by the reseller when your Sybase product was purchased, then click **Submit Web Key**.

   Note: If you do not know your SPDC account login ID and password, or Web Key Certificate authorization string, contact the person who ordered your product.

   • At the Web Key Registration page, enter your account information, then click one of these options:
     • **Submit My Registration Information** – to register your product using your direct account information.
     • **Anonymous Activation** – to activate your product anonymously.

3. Select the product family that includes the product for which you want to generate a license; for example, Adaptive Server Enterprise.

4. Depending on the product family you choose, you may see an additional Product Information page.

   a. Product suites – if your product is included in one or more suites, select the suite that includes your product; for example, ASE Small Business Edition.
   b. Product version and platform – select the product version, name, and operating system that matches your product order.

5. If this is the first time you selected a specific product edition and platform, you must accept the Sybase License Agreement before you are allowed to generate a license for that product.

6. If your product software installation requires a license key (also referred to as the license file), click **License Keys** on the Product Download page.

7. On the License Information page:

   a. Select the option button to the left of the product for which to generate a license; for example, "CPU License (CP), ASE Enterprise Edition 15.7 for Sun Solaris SPARC 64-bit."
   b. Scroll down and click **Select to Generate**.

8. In the Generate Licenses wizard, choose a license deployment model:

   • **Served license** – go to *Generating Served Licenses* in the *Sybase Software Asset Management (SySAM) 2 Users Guide* to complete the license generation and download process.

- **Unserved license** – go to *Generating Unserved Licenses* in the *Sybase Software Asset Management (SySAM) 2 Users Guide* to complete the license generation and download process.

Note: Some Sybase products or license types do not offer a choice of license deployment models and do not display this page. If this is the case, continue through the Generate Licenses wizard to generate your license.

Click **Next**.

Generating Unserved Licenses
Generate and download an unserved license for your product.

1. Enter the number of machines (up to 10) for which to generate unserved licenses, and click **Next**.
2. Enter:
   - **Node Host ID** – enter the host ID of the machine where the product will be run. If you do not know the host ID, select **What Is My Host ID?** or see *Determining Host IDs* in the *Sybase Software Asset Management (SySAM) 2 Users Guide*.
   - **Host Name** – enter the machine host name.

   For some license types, you must enter the number of licenses to generate. If you are unsure of the license quantity, select **How Many Licenses Should I Generate?**.
3. Click **Generate.**
4. When the license has generated, review the information on the View Licenses page, then, if the license information is correct, select one of:
   - If you generated only one license, click **Download License File**.
   - If you generated several licenses, click **Download All Licenses for Host**.

   Note: Before you download and save generated licenses, you can select **Print Friendly** to print a paper copy of the license, or **License Overview** to return to the License Information page and generate additional licenses.

   - To correct license information before downloading the license, click **License Overview**, select the license to be corrected and click **Check In** to reset the license to its original state. Repeat the license generation process.
5. If you chose to download licenses, when the File Download dialog box opens, click **Save**.
6. Save the generated licenses with a `.lic` file name extension. Although *$SYBASE /* `SYSAM-2_0/licenses` is typically the directory where unserved licenses are located, your product may have a different requirement. See your product installation guide and release bulletin for product-specific information.

> **Note:** If you do not save the license files with a `.lic` extension, SySAM does not recognize the licenses.

Next, install your licensed product using the instructions in the product installation guide and release bulletin.

Generating Served Licenses
Generate and download a served license for your product.

1. Enter the number of licenses to generate and click **Next** .

   If you are unsure of the license quantity, select **How Many Licenses Should I Generate?**.

2. Select an existing license server host, or enter the host ID, and an optional host name and port number, of a new license server host.

   When completing this step, use these recommendations:

   • If you do not know the license server host ID, select **What Is My host ID?** or see *Determining Host IDs* in the *Sybase Software Asset Management (SySAM) 2 Users Guide*.
   • Although the host name is optional, Sybase recommends that you provide the host name to ease future license administration.
   • The port number is optional unless your product configuration is going to use three-server redundancy (see the next bullet item). Any unused port number between 0 and 64000 is valid. On UNIX, choose a port number greater than 1024; most port numbers less than 1024 are privileged port numbers. If you do not specify a TCP/IP port number, a default port between 27000 and 27009 is used.
   • To generate a license for a three-server redundant configuration, enter the required information: license server host ID, host name, and port number for all three machines. Enter a port number outside of the 27000 to 27009 range. You must enter the fully qualified domain name (FQDN) as the host name if any client machine requires an FQDN to contact a license server machine.

   > **Note:** You cannot upgrade SySAM 1.0 licenses and use them in a three-server redundant configuration.

3. Click **Generate.**
4. When the license has generated, review the information on the View Licenses page, then, if the license information is correct and you do not need to generate additional licenses, select one of:

   • If you generated only one license, click **Download License File**.
   • If you generated several licenses, click **Download All Licenses for Host**.

   > **Note:** Before you download and save generated licenses, you can select **Print Friendly** to print a paper copy of the license.

     a) To correct license information, click **License Overview**, select the license to be corrected and click **Check In** to reset the license to its original state. Repeat the license generation process, starting with step 1 of this procedure.

     b) To generate additional licenses, click **License Overview** and repeat the generation process for the additional product licenses.

5. When the File Download dialog box opens, click **Save.**

6. Save the license files with a `.lic` file name extension to the `SYSAM-2_0/licenses` directory of the license server installation.

> **Warning!** If you do not save the license files with a `.lic` extension, SySAM does not recognize the licenses.

7. After you save the license files to the license server, enter on the machine where your license server is running:

```
sysam reread
```

Your new licenses are registered with the license server.

Generating Licenses at SMP

Before you log in to SMP and generate licenses, use this information as a reminder of the information you should have available and the tasks that you should have completed.

Table 4. Information Needed Before License Generation

Required Information or Action	License Model		Description
	Served	Un-served	
License deployment model	X	X	Decide whether to use a served or unserved license deployment model. Typically, this is a company-wide decision that is made only once. Therefore, this is one of the most important things to determine before license generation.
Product machine host ID		X	Determine the host ID of the machine, or machine partition where the product will run.
License server – download and install	X		Download and install the SySAM license server before you generate the product's licenses, and before you install the product.
License server host ID	X		Determine the host ID of the machine where the license server will run.
License server host name	X		Determine the host name of the machine where the license server will run.

Required Informa-tion or Action	License Model		Description
	Served	Un-served	
License server TCP/IP port numbers	X		Determine the two port numbers on which the license server will listen for license requests.

Generating License Keys

If you have purchased Sybase products that use SySAM 2-based licenses under SAP contract and are directed to download from SAP Service Marketplace (SMP), you can use SMP to generate license keys.

1. Go to the SAP Marketplace main page at *http://service.sap.com*.
2. Select **SAP Support Portal**.
3. Log in using your SMP credentials.
4. Select **Keys & Requests > License Keys**.
5. Follow the instructions in the "How to generate license keys for SAP Sybase products" presentation available under the "Documentation and Helpful Resources" quick access link.

Locating Information in a License File

After you download a license file, you may need to get some information from it to complete your installation.

1. Use a text editor to open your license file.
2. Locate the uncommented line that begins with the string for your Unwired Platform edition:
   - Enterprise Edition – INCREMENT SUP_ENTSRVR
   - Enterprise Developer Edition – INCREMENT SUP_ENTDEV
   - Personal Developer Edition – INCREMENT SUP_DEVELOPER

   For example:
   - Enterprise Edition would be similar to this.

   ```
   ...
   INCREMENT SUP_ENTSRVR SYBASE 2011.11150 permanent uncounted \
      VENDOR_STRING=PE=EE;LT=CP HOSTID=000c29d300bd
   PLATFORMS="i86_n \
   ...
   ```
   - Enterprise Developer Edition would be similar to this.

   ```
   ...
   INCREMENT SUP_ENTDEV SYBASE 2011.11150 permanent uncounted \
      VENDOR_STRING=PE=EE;LT=CP HOSTID=000c29d300bd
   ```

```
PLATFORMS="i86_n \
...
```

- Personal Developer Edition would be similar to this.

```
...
INCREMENT SUP_DEVELOPER SYBASE 2011.11150 permanent uncounted \
   VENDOR_STRING=PE=EE;LT=CP HOSTID=000c29d300bd
PLATFORMS="i86_n \
...
```

The rest of the examples in this section show the beginning of this line as it would appear for Enterprise Edition. The details illustrated apply equally to all editions.

3. Determine whether the server license is served or unserved.

   If the line you located in step 2 ends with "uncounted" it is an unserved license. For example:

```
...
INCREMENT SUP_ENTSRVR SYBASE 2011.11150 permanent uncounted \
   VENDOR_STRING=PE=EE;LT=CP HOSTID=000c29d300bd PLATFORMS="i86_n
\
...
```

   If that line ends with a number immediately following a date, it is a served license. For example:

```
...
INCREMENT SUP_ENTSRVR SYBASE 2011.11150 permanent 10 \
   VENDOR_STRING=PE=EE;LT=CP HOSTID=000c29d300bd PLATFORMS="i86_n
\
...
```

4. Determine the product edition and license type for the license.

   For both served and unserved licenses, note the value of PE (product edition) and LT (license type) in the line following the line you located in step 2. For example:

```
...
INCREMENT SUP_ENTSRVR SYBASE 2011.11150 permanent uncounted \
   VENDOR_STRING=PE=EE;LT=CP HOSTID=000c29d300bd PLATFORMS="i86_n
\
...
```

   The PE value is the license product edition value; "EE" in the example above.

   The LT value is the license type value; "CP" in the example above.

5. If you are installing Enterprise Edition, determine the number of client licenses.

   If your license type is Development and Test (DT), you can change this number later.

   a) Locate the uncommented line, beginning with INCREMENT SUP_ENTCLIENT.

      For example:
```
INCREMENT SUP_ENTCLIENT SYBASE 2011.11150 permanent uncounted \
         VENDOR_STRING=PE=EE;LT=ST HOSTID=000c29d300bd
PLATFORMS="i86_n \
...
```

b) Determine whether the client licenses are served or unserved.

If the line beginning with INCREMENT SUP_ENTCLIENT ends with "uncounted" the client licenses are unserved. For example:

```
INCREMENT SUP_ENTCLIENT SYBASE 2011.11150 permanent uncounted \
   VENDOR_STRING=PE=EE;LT=ST HOSTID=000c29d300bd
PLATFORMS="i86_n \
   x64_n" ISSUER="CO=Sybase,
Inc.;V=2.0;AS=A;MP=3120;CP=100;EGO=" \
...
```

If that line ends with a number immediately after a date, the client licenses are served. For example:

```
INCREMENT SUP_ENTCLIENT SYBASE 2011.11150 permanent 100 \
    VENDOR_STRING=PE=EE;LT=ST HOSTID=000c29d300bd
PLATFORMS="i86_n \
...
```

c) Determine the number of client licenses.

For unserved client licenses, the number of client licenses is the value of CP two lines below the line beginning with INCREMENT SUP_ENTCLIENT. For example:

```
INCREMENT SUP_ENTCLIENT SYBASE 2011.11150 permanent uncounted \
    VENDOR_STRING=PE=EE;LT=ST HOSTID=000c29d300bd
PLATFORMS="i86_n \
    x64_n" ISSUER="CO=Sybase,
Inc.;V=2.0;AS=A;MP=3120;CP=100;EGO=" \
...
```

For served client licenses, the number of client licenses is the value at the end of the line beginning with INCREMENT SUP_ENTCLIENT. For example:

```
INCREMENT SUP_ENTCLIENT SYBASE 2011.11150 permanent 100 \
    VENDOR_STRING=PE=EE;LT=ST HOSTID=000c29d300bd
PLATFORMS="i86_n \
...
```

Installing Unwired Platform Servers

Install the server software components of Sybase Unwired Platform (either Unwired Platform Runtime or Online Data Proxy option), and set basic server configurations.

Specific tasks required to complete Unwired Platform installation depend on the deployment scenario, and some details of the system design.

- Use the Installation Worksheet for your deployment scenario to record the system design and infrastructure details relevant to installation.
- To determine the specific installation tasks you must complete, refer to the Installation Checklist most appropriate to your deployment scenario and system design.

Installing All Servers on a Single Host

This installation scenario locates all Unwired Platform server components (Unwired Server and data tier), for either Unwired Platform Runtime or Online Data Proxy, on a single host. It is suitable for a developer environment, with shared Unwired Platform server resources. It may also be suitable for an Unwired Platform prototyping environment, or a minimal, low-volume production system, with no support for load balancing or failover.

Note: This installation scenario is the only option for an Online Data Proxy production system.

1. *Preparing for Installation*

   Ensure that the host on which you are installing Sybase Unwired Platform is ready for you to begin the installation.

2. *Entering License Information*

   Start the Sybase Unwired Platform Runtime installer and enter license information.

3. *Selecting Installation Options*

   Specify the installation directory, installation type, Unwired Platform components, and additional installation options.

4. *Completing the Installation*

   Review the installation summary and launch the installation process.

5. *Verifying the Installation*

   After you complete the installation, verify that the installation was successful before proceeding.

See also
* *Installation Checklist: Non-Clustered Enterprise System* on page 30
* *Enterprise System Installation Worksheet* on page 27

Preparing for Installation

Ensure that the host on which you are installing Sybase Unwired Platform is ready for you to begin the installation.

1. Confirm that the installation target host meets minimum system requirements for all Unwired Platform components to be installed.

2. Verify that you have Administrator privileges on the installation target host.

3. If the JAVA_TOOL_OPTIONS environment variable is set, remove it before you start Unwired Platform installation.

   Check for the JAVA_TOOL_OPTIONS environment variable in both **User variables** and **System variables** panes of the Environment Variables dialog.

   a) Right-click **My Computer** and select **Properties**.

---

    b) Select the **Advanced** tab, then click **Environment Variables**.

    c) Select JAVA_TOOL_OPTIONS and click **Delete**.

    d) Click **OK** to exit all dialogs.

4. Shut down all Sybase software, Sybase processes, and associated third-party processes running on the installation target host.

> **Note:** This includes any database servers, Sybase Control Center, and if Sybase SAP® DOE Connector is present in an upgrade installation, SAP Data Orchestration Engine.
>
> If Sybase Unwired Platform was installed on the target host, ensure that all services that have names beginning with "Sybase" are stopped, and stop the Advantage Database Server® service and OpenDS service, if either is present.
>
> To verify that services are stopped, open the Services panel from Windows Control Panel.

See also
- *Deployment Planning* on page 2
- *Host Platform Provisioning* on page 20

Entering License Information

Start the Sybase Unwired Platform Runtime installer and enter license information.

1. Start the Sybase Unwired Platform Runtime installer using one of these methods:

- Insert the Sybase Unwired Platform Runtime installation media.
- Install from a Web download. Extract all the archive files to the same temporary directory on a local disk, not a shared drive.
- Install from an image on the network. You must access the installation image from a mapped drive, not a UNC path.

Browse to the location of the setup.exe file, and double-click it to start the installer.

2. On the installer welcome page, click **Next**.

3. Select your license model and click **Next**.

Evaluation	Allows you to evaluate Unwired Platform for 30 days. A license file is not required.
Unserved (local) license	Standalone license managed locally by the host.
Served (remote) license	Standalone license managed by a license server.

4. On the end-user license agreement page, select your country, then accept the terms of the license agreement and click **Next**.

5. On the license details page, select your License Product Edition and License Type.

(Enterprise Server edition only) Enter the number of client licenses.

6. Enter the location of your license file.

- If you selected **Unserved (local) license**, enter the absolute path to the license file on the installation target host. The path must include only ASCII characters.
- If you selected **Served (remote) license**, enter the **Host Name of License Server** and **TCP Port of License Server**.

If you get an error, such as `Failed to check out license`, click **OK**, then click **Back** to confirm the license model (served or unserved), License Product Edition, and License Type.

Selecting Installation Options

Specify the installation directory, installation type, Unwired Platform components, and additional installation options.

1. Specify the absolute path to the installation location, which must reside in a local drive on the target host.

The total length of the path must be 43 characters or less.

Directory names in the path can contain only:
- ASCII alphanumeric characters
- Underscore (_) or hyphen (-) characters

2. On the installation option page, select one of the following:

- **Unwired Platform Runtime**
- **Online Data Proxy**

Then click **Next**.

3. If you selected **Unwired Platform Runtime** on the installation option page, select **Single Server** and click **Next**.

4. If a page appears, indicating that the installer detected missing third-party software, click:

- **Next** to install the required software.
- **Back** to select components to install that do not require the third-party software.
- **Cancel** to stop the current installation.

5. (Optional) Select additional installation options.

- **Configure Unwired Platform communication ports** to change default ports.
- **Set Sybase Unwired Platform services to start automatically** to start services automatically when Windows starts.

  Set Unwired Platform services to start automatically if you plan to install products that work with Unwired Platform, such as Sybase SAP® DOE Connector and Sybase

Mobile Sales for SAP® CRM. If Unwired Platform services do not start automatically, dependent products will encounter problems.

- **Set Sybase Unwired Server name and cluster name** (Unwired Platform Runtime option; names must be unique on network segment)
- **Set Sybase Unwired Server name** (Online Data Proxy option; name must be unique on network segment)

6. (Optional) If you selected **Set Sybase Unwired Server name** (Online Data Proxy option), enter a name for this Unwired Server instance. (Name must be unique on network segment.)

   (Optional) If you selected **Set Sybase Unwired Server name and cluster name** (Unwired Platform Runtime option), enter a name for this Unwired Server instance and a name for the Unwired Server cluster. (Names must be unique on network segment.)

   Each server or cluster name:
   - Must contain only:
     - ASCII alphanumeric characters
     - Underscore (_) and hyphen (-) characters
   - Cluster names must be 22 characters or less

7. (Optional) If you selected **Configure Unwired Platform communication ports**, change the port numbers as needed.

   - General ports:
     - **Server administration**
     - **Data change notification** (Not applicable to Online Data Proxy)
   - Synchronization ports:
     - **Messaging**
     - **Replication** (Not applicable to Online Data Proxy)

8. Enter the password for the supAdmin user and click **Next**.

   The password must:
   - Be at least 8 characters
   - Contain only ASCII alphanumeric characters

See also
- *Port Number Reference* on page 35

Completing the Installation
Review the installation summary and launch the installation process.

1. On the summary information page, verify the installation features and click **Install**.
2. (Optional) Click **View Release Bulletin**.
3. Click **Finish**.

Verifying the Installation

After you complete the installation, verify that the installation was successful before proceeding.

1. Verify that the following services were started automatically, or that you can start them manually if you did not set Unwired Platform services to start automatically – open the Services panel from Windows Control Panel verify that services are stopped:
   - Sybase Unwired Server
   - Sybase Control Center *X.X*
   - Sybase Unwired CacheDB
   - Advantage Database Server®
   - Sybase Unwired SampleDB (not applicable to Enterprise Server Edition)
2. Log in to Sybase Control Center.

   From Windows, select **Start > (All) Programs > Sybase > Sybase Control Center**.
3. Verify that you can connect to the Unwired Server you just installed.

See also
- *Configuring and Validating the System* on page 81

Installing the Data Tier

This installation scenario locates Unwired Platform data tier components on a separate host from Unwired Server. It is suitable for a typical production system, allowing support for high availability (i.e., failover) of common data tier resources shared by multiple Unwired Server instances.

Prerequisites

Ensure that all servers on which you install Unwired Server and data tier in a cluster are set to the same time and time zone.

1. *Preparing for Installation*

   Ensure that the host on which you are installing Sybase Unwired Platform is ready for you to begin the installation.
2. *Entering License Information*

   Start the Sybase Unwired Platform Runtime installer and enter license information.
3. *Selecting Installation Options*

   Specify the installation directory, installation type, Unwired Platform components, and additional installation options.
4. *Completing the Installation*

   Review the installation summary and launch the installation process.

5. *Verifying the Installation*

When you have completed the installation, verify that the installation was successful before proceeding.

See also

- *Installation Checklist: Clustered Enterprise System* on page 31
- *Enterprise System Installation Worksheet* on page 27

Preparing for Installation

Ensure that the host on which you are installing Sybase Unwired Platform is ready for you to begin the installation.

1. Confirm that the installation target host meets minimum system requirements for all Unwired Platform components to be installed.

2. Verify that you have Administrator privileges on the installation target host.

3. If the JAVA_TOOL_OPTIONS environment variable is set, remove it before you start Unwired Platform installation.

Check for the JAVA_TOOL_OPTIONS environment variable in both **User variables** and **System variables** panes of the Environment Variables dialog.

- a) Right-click **My Computer** and select **Properties**.
- b) Select the **Advanced** tab, then click **Environment Variables**.
- c) Select JAVA_TOOL_OPTIONS and click **Delete**.
- d) Click **OK** to exit all dialogs.

4. Shut down all Sybase software, Sybase processes, and associated third-party processes running on the installation target host.

Note: This includes any database servers, Sybase Control Center, and if Sybase SAP® DOE Connector is present in an upgrade installation, SAP Data Orchestration Engine.

If Sybase Unwired Platform was installed on the target host, ensure that all services that have names beginning with "Sybase" are stopped, and stop the Advantage Database Server® service and OpenDS service, if either is present.

To verify that services are stopped, open the Services panel from Windows Control Panel.

See also

- *Deployment Planning* on page 2
- *Host Platform Provisioning* on page 20

Entering License Information

Start the Sybase Unwired Platform Runtime installer and enter license information.

1. Start the Sybase Unwired Platform Runtime installer using one of these methods:

   - Insert the Sybase Unwired Platform Runtime installation media.
   - Install from a Web download. Extract all the archive files to the same temporary directory on a local disk, not a shared drive.
   - Install from an image on the network. You must access the installation image from a mapped drive, not a UNC path.

   Browse to the location of the `setup.exe` file, and double-click it to start the installer.

2. On the installer welcome page, click **Next**.

3. Select your license model and click **Next**.

Evaluation	Allows you to evaluate Unwired Platform for 30 days. A license file is not required.
Unserved (local) license	Standalone license managed locally by the host.
Served (remote) license	Standalone license managed by a license server.

4. On the end-user license agreement page, select your country, then accept the terms of the license agreement and click **Next**.

5. On the license details page, select your License Product Edition and License Type.

   (Enterprise Server edition only) Enter the number of client licenses.

6. Enter the location of your license file.

   - If you selected **Unserved (local) license**, enter the absolute path to the license file on the installation target host. The path must include only ASCII characters.
   - If you selected **Served (remote) license**, enter the **Host Name of License Server** and **TCP Port of License Server**.

   If you get an error, such as `Failed to check out license`, click **OK**, then click **Back** to confirm the license model (served or unserved), License Product Edition, and License Type.

See also

- *Unwired Platform Licensing* on page 14

Selecting Installation Options

Specify the installation directory, installation type, Unwired Platform components, and additional installation options.

1. Specify the absolute path to the installation location, which must reside in a local drive on the target host.

   The total length of the path must be 43 characters or less.

   Directory names in the path can contain only:
   - ASCII alphanumeric characters
   - Underscore (_) or hyphen (-) characters

2. On the installation option page, select **Unwired Platform Runtime** and click **Next**.

3. On the installation type page, select **Cluster** and click **Next**.

4. On the cluster setup selection page, select **Install the data tier for your Unwired Platform cluster** and click **Next**.

5. (Optional) Select additional installation options.

   - Select **Configure data tier** to:
     - Change default server ports, passwords, or locations of database files, or
     - Install the data tier on a host in a failover cluster.

6. Enter the cluster administrator password for Unwired Platform.

   Note: This password is for Unwired Platform configuration only. It is not associated with a user ID authenticated by Active Directory, or locally on the installation target host. It must be used in any subsequent Unwired Platform installation or upgrade.

7. (Optional) If you selected **Configure data tier**:
   a) Enter port numbers and passwords, or accept the defaults, for:
      - **Cache Database Server**
      - **Cluster Database Server**
      - **LogData Database Server**
      - **Messaging Database Server** (no password)
   b) (Optional) If you want to specify non-default locations for database files and transaction logs, select **Specify separate locations for database and/or transaction log files**.
   c) (Optional) If you are installing data tier components in a failover cluster, select **Install the data tier into high availability environment**.
   d) Click **Next**.

8. (Optional, non-clustered data tier) If you selected **Configure data tier**, and then selected only **Specify separate locations for database and/or transaction log files**, complete the following fields.

- **Shared data path** – Enter the path to a storage location that will house the data tier database and transaction log files.

  The path must point to a local storage device, or use a drive letter mapped on the data tier host. It cannot be a UNC path.

  The path must point to an existing, empty directory.
- **... data path** – (Optional) Enter the path to a storage location that will house the database files, for each database listed.

  Each path must point to an existing, empty directory.
- **... log path** – (Optional) Enter the path to a storage location that will house the transaction logs, for each database listed.

  Each path must point to an existing, empty directory.

9. (Optional, clustered data tier) If you selected **Configure data tier**, and then selected only **Install the data tier into high availability environment**, complete the following fields.
   - **Enter a path for the location of the high availability data** – Enter the path to a location in the shared data folder that will house the data tier database and transaction log files.

     Note: The shared data folder must be either a file share resource group, or a Client Access Point.

     The path must use the same drive letter mapped on all data tier hosts. It cannot be a UNC path.

     The path must point to an existing, empty directory, in the shared data folder.
   - **Enter a name for database server** – Enter the server name to be used for the cache, cluster, and logging (system monitoring and domain logging) database server.

     The database server name must be identical on all data tier hosts. The service identified by that name must be configured as a managed resource in the failover cluster.
   - **Enter a path for the transaction log file location of the high availability data** – (Optional) Enter the path to a storage location that will house the data tier transaction log files.

     The path must use the same drive letter mapped on all data tier hosts. It cannot be a UNC path.

     The path must point to an existing, empty directory.

10. (Optional, clustered data tier) If you selected **Configure data tier**, and then selected both **Specify separate locations for database and/or transaction log files** and **Install the data tier into high availability environment**:
    a) In **Shared data path**, enter the path to a location in the shared data folder that will house the data tier database and transaction log files.

       Note: The shared data folder must be either a file share resource group, or a Client Access Point.

The path must use the same drive letter mapped on all data tier hosts. It cannot be a UNC path.

The path must point to an existing, empty directory, in the shared data folder.

b) In **Enter a name for database server**, enter the server name to be used for the cache, cluster, and logging (system monitoring and domain logging) database server.

The database server name must be identical on all data tier hosts. The service identified by that name must be configured as a managed resource in the failover cluster.

c) (Optional) In **... data path** fields, enter the path to a storage location that will house the database files, for each database listed.

Each path must use the same drive letter mapped on all data tier hosts. It cannot be a UNC path.

Each path must point to an existing, empty directory.

d) (Optional) In **... log path** fields, enter the path to a storage location that will house the transaction log files, for each database listed.

Each path must use the same drive letter mapped on all data tier hosts. It cannot be a UNC path.

Each path must point to an existing, empty directory.

See also
- *Port Number Reference* on page 35

Completing the Installation

Review the installation summary and launch the installation process.

1. On the summary information page, verify the installation features and click **Install**.
2. (Optional) Click **View Release Bulletin**.
3. Click **Finish**.
4. Share the data folder on the network for the shared data path, giving full read and write access privileges to the Windows account(s) under which you plan to set Unwired Server services to run when you install Unwired Server instances.
   - If you did not specify a custom location, share the default location, `<UnwiredPlatform_InstallDir>`\Data.
   - If you specified a custom location, share that location.

For information about configuring Sybase Unwired Platform, see *System Administration*.

Verifying the Installation

When you have completed the installation, verify that the installation was successful before proceeding.

Verify that you can start the following services:

- Sybase Unwired CacheDB
- Sybase Unwired ClusterDB
- Sybase Unwired LogDataDB
- Advantage Database Server®

Installing the Unwired Server

This installation scenario locates Unwired Server components on a separate host from the data tier. It is suitable for a typical production system, allowing support for load balancing among Unwired Server instances.

Prerequisites

- Unwired Server installation depends on data tier installation. Data tier components must be installed first, before installing Unwired Server components.
- Ensure that all servers on which you install Unwired Server and data tier in a cluster are set to the same time and time zone.

1. *Preparing for Installation*

   Ensure that the host on which you are installing Sybase Unwired Platform is ready for you to begin the installation.

2. *Entering License Information*

   Start the Sybase Unwired Platform Runtime installer and enter license information.

3. *Selecting Installation Options*

   Specify the installation directory, installation type, Unwired Platform components, and additional installation options.

4. *Completing the Installation*

   Review the installation summary and launch the installation process.

5. *Verifying the Installation*

   When you have completed the installation, verify that the installation was successful before proceeding.

See also

Preparing for Installation
Ensure that the host on which you are installing Sybase Unwired Platform is ready for you to begin the installation.

1. Confirm that the installation target host meets minimum system requirements for all Unwired Platform components to be installed.

---

2. Verify that you have Administrator privileges on the installation target host.

3. If the JAVA_TOOL_OPTIONS environment variable is set, remove it before you start Unwired Platform installation.

   Check for the JAVA_TOOL_OPTIONS environment variable in both **User variables** and **System variables** panes of the Environment Variables dialog.

   a) Right-click **My Computer** and select **Properties**.
   b) Select the **Advanced** tab, then click **Environment Variables**.
   c) Select JAVA_TOOL_OPTIONS and click **Delete**.
   d) Click **OK** to exit all dialogs.

4. Shut down all Sybase software, Sybase processes, and associated third-party processes running on the installation target host.

   Note: This includes any database servers, Sybase Control Center, and if Sybase SAP® DOE Connector is present in an upgrade installation, SAP Data Orchestration Engine.

   If Sybase Unwired Platform was installed on the target host, ensure that all services that have names beginning with "Sybase" are stopped, and stop the Advantage Database Server® service and OpenDS service, if either is present.

   To verify that services are stopped, open the Services panel from Windows Control Panel.

See also
- *Deployment Planning* on page 2
- *Host Platform Provisioning* on page 20

Entering License Information
Start the Sybase Unwired Platform Runtime installer and enter license information.

1. Start the Sybase Unwired Platform Runtime installer using one of these methods:

   - Insert the Sybase Unwired Platform Runtime installation media.
   - Install from a Web download. Extract all the archive files to the same temporary directory on a local disk, not a shared drive.
   - Install from an image on the network. You must access the installation image from a mapped drive, not a UNC path.

   Browse to the location of the setup.exe file, and double-click it to start the installer.

2. On the installer welcome page, click **Next**.

3. Select your license model and click **Next**.

Evaluation	Allows you to evaluate Unwired Platform for 30 days. A license file is not required.

Unserved (local) license	Standalone license managed locally by the host.
Served (remote) license	Standalone license managed by a license server.

4. On the end-user license agreement page, select your country, then accept the terms of the license agreement and click **Next**.

5. On the license details page, select your License Product Edition and License Type.

    (Enterprise Server edition only) Enter the number of client licenses.

6. Enter the location of your license file.

    *   If you selected **Unserved (local) license**, enter the absolute path to the license file on the installation target host. The path must include only ASCII characters.
    *   If you selected **Served (remote) license**, enter the **Host Name of License Server** and **TCP Port of License Server**.

    If you get an error, such as `Failed to check out license`, click **OK**, then click **Back** to confirm the license model (served or unserved), License Product Edition, and License Type.

See also
*   *Unwired Platform Licensing* on page 14

Selecting Installation Options

Specify the installation directory, installation type, Unwired Platform components, and additional installation options.

1. Specify the absolute path to the installation location, which must reside in a local drive on the target host.

    The total length of the path must be 43 characters or less.

    Directory names in the path can contain only:
    *   ASCII alphanumeric characters
    *   Underscore (_) or hyphen (-) characters

2. On the installation option page, select **Unwired Platform Runtime** and click **Next**.

3. On the installation type page, select **Cluster** and click **Next**.

4. On the cluster setup selection page, select the option for this Unwired Server cluster node and click **Next**.

    *   **Install the first server node and connect it to the data tier**
    *   **Install an additional server node and connect it to the data tier**

5. If a page appears, indicating that the installer detected missing third-party software, click:

- **Next** to install the required software.
- **Back** to select components to install that do not require the third-party software.
- **Cancel** to stop the current installation.

6. (Optional) Select additional installation options.

   - **Configure Unwired Platform communication ports** to change default ports.
   - **Set Sybase Unwired Platform services to start automatically** to start services automatically when Windows starts.

     Set Unwired Platform services to start automatically if you plan to install products that work with Unwired Platform, such as Sybase SAP® DOE Connector and Sybase Mobile Sales for SAP® CRM. If Unwired Platform services do not start automatically, dependent products will encounter problems.
   - **Set Sybase Unwired Server name and cluster name** on the first node in an Unwired Server cluster (names must be unique on network segment).

     You can specify the cluster name, only when you install the first node in an Unwired Server cluster.

     Set Sybase Unwired Server name on subsequent nodes in an Unwired Server cluster (name must be unique on network segment).

7. Enter cluster configuration information that the installer needs to access the data tier.

   a) Enter the Unwired Platform cluster configuration password.

   The cluster configuration password is specified when the data tier is installed.

   b) Enter the UNC path to the file system that houses the data tier database files.

   The UNC path must use a fully qualified host name or network name (`name.domain`). For example, if the data tier node is installed in `C:\Sybase`, the data folder is `C:\Sybase\UnwiredPlatform\Data`. If the machine is named SUPDT, the UNC path to the data folder is `\\SUPDT\Data`.

   Note: If the data tier is installed in a failover cluster, the UNC path must point to the Network Name resource associated with either a file share resource group or a Client Access Point.

8. (Optional) If you selected **Set Sybase Unwired Server name...**, enter a name for this Unwired Server instance. (Name must be unique on network segment.)

   If you are installing the first node in the Unwired Server cluster, you can also enter a name for the cluster.

   Each server or cluster name:
   - Must contain only:
     - ASCII alphanumeric characters
     - Underscore (_) and hyphen (-) characters
   - Cluster names must be 22 characters or less

9. Enter information for the Windows account under which Unwired Server services will run.

The user ID (account name) must:
- Be a Windows domain user ID, preceded by a Windows domain.
- Be a member of the local Administrator's group on the installation target host
- Have read/write access to the file system that houses the data tier database files.

Note: You must enter identical Windows account information for each node in the Unwired Server cluster.

10. Enter information that Unwired Server needs to connect to the data tier.

   a) Enter the name of the data tier host.

   If the data tier is installed in a failover cluster, enter the network name of the cluster resource that acts as a "virtual host" for the data tier services.

   b) Enter the following for each configurable database listed:
   - **Database Name**
   - **Port Number**
   - **Login**
   - **Password**

   Default values in those fields are populated by the installer, from a properties file created when the data tier was installed. In a typical new installation, you need not change any pre-populated value, just enter "sql" as the default password for each database.

   In an upgrade installation, if the password fields are filled, do not change them. If they are not filled, enter the current the password for each database.

11. (Optional) If you selected **Configure Unwired Platform communication ports**, change the default port numbers as needed.

   - General ports:
     - **Server administration**
     - **Data change notification**
   - Synchronization ports:
     - **Messaging**
     - **Replication**

12. Enter the password for the supAdmin user and click **Next**.

   The password must:
   - Be at least 8 characters
   - Contain only ASCII alphanumeric characters

See also
- *Port Number Reference* on page 35

Completing the Installation

Review the installation summary and launch the installation process.

1. On the summary information page, verify the installation features and click **Install**.
2. (Optional) Click **View Release Bulletin**.
3. Click **Finish**.

Verifying the Installation

When you have completed the installation, verify that the installation was successful before proceeding.

1. Verify that the following services were started automatically, or that you can start them manually if you did not set Unwired Platform services to start automatically – open the Services panel from Windows Control Panel verify that services are stopped:
   - Sybase Control Center *X.X*
   - Sybase Unwired SampleDB (not applicable to Enterprise Server Edition)
   - Sybase Unwired Server
2. Log in to Sybase Control Center.

   From Windows, select **Start > (All) Programs > Sybase > Sybase Control Center**.
3. Verify that you can connect to the Unwired Server you just installed.
4. Verify that you can connect to the data tier.
5. If this is the last Unwired Server node in your cluster, verify that you can connect to all the Unwired Server instances you have previously installed.

See also
- *Configuring and Validating the System* on page 81

Installing Relay Servers

This high-level task includes activities required to install Relay Servers as part of an Unwired Platform system.

Note: Skip this task if you are planning to use Sybase Hosted Relay Service. Go directly to *Subscribing and Connecting to Sybase Hosted Relay Service* on page 105.

Installing a Relay Server

Install each Relay Server instance on a Web server host, on the DMZ subnet.

Prerequisites

You must provision an appropriate Web server host for each Relay Server.

Installing Relay Server on IIS

Install Relay Server executables and libraries on an IIS host.

Relay Server executables and libraries are supplied in an archive file, located on the installation media at: `modules\relayserver\`

1. Identify the appropriate archive for the IIS host architecture.

   - 32-bit system — `relayserver.zip`
   - 64-bit system — `relayserver_x64.zip`

2. Copy the Relay Server archive file to the IIS host.

3. Extract all files and folders from the archive to the `wwwroot\` directory.

   The following subdirectories are created:

   ```
   wwwroot\ias_relay_server\
   wwwroot\ias_relay_server\Client\
   wwwroot\ias_relay_server\Server\
   ```

4. Modify the system *Path* variable on the IIS host to include the `ias_relay_server\Server\` directory.

Configuring IIS 7 for Relay Server

Configure the IIS 7 to host a Relay Server.

This task involves editing the IIS `applicationHost.config` file.

Note: This task configures IIS for anonymous access to Relay Server. You should configure appropriate security for IIS and Relay Server, based on your business requirements.

---

1. Back up the `applicationHost.config` file (usually located in the `System32\inetsrv\config\` directory).

2. Open `applicationHost.config` in a text editor.

3. Create a Relay Server application pool.

   Insert the following snippet in the `<applicationPools>` collection:

   ```
   <add name="RelayServer" queueLength="65535" autoStart="true"
         managedRuntimeVersion="" managedPipelineMode="Integrated">
      <processModel identityType="LocalSystem"
   idleTimeout="00:00:00"
             maxProcesses="20" pingingEnabled="false"
            pingInterval="00:00:30" pingResponseTime="00:01:30" />
      <recycling disallowOverlappingRotation="true">
          <periodicRestart time="00:00:00">
             <schedule>
                  <clear />
             </schedule>
          </periodicRestart>
      </recycling>
   ```

```
    <failure rapidFailProtection="false" />
    <cpu resetInterval="00:00:00" />
</add>
```

4. Add the Relay Server application to the default Web site.

Insert the following snippet in the `<site name="Default Web Site">` element:

```
<application path="/ias_relay_Server"
applicationPool="RelayServer">
    <virtualDirectory path="/"
            physicalPath="C:\Inetpub\wwwroot\ias_relay_server" />
</application>
```

5. Enable Web extensions for Relay Server.

Insert the following snippet in the `<isapiCgiRestriction>` collection.

```
<add path="C:\Inetpub\wwwroot\ias_relay_server\Client
\rs_client.dll"
        allowed="true" />
<add path="C:\Inetpub\wwwroot\ias_relay_server\Server
\rs_server.dll"
        allowed="true" />
```

6. Add Relay Server locations to the default Web site.

Insert the following snippet in the `<configuration>` element.

```
<location path="Default Web Site/ias_relay_server/client">
    <system.webServer>
        <handlers accessPolicy="Execute, Script">
        </handlers>
    </system.webServer>
</location>

<location path="Default Web Site/ias_relay_server/server">
    <system.webServer>
        <handlers accessPolicy="Execute, Script">
        </handlers>
    </system.webServer>
</location>

<location path="Default Web Site/ias_relay_server">
    <system.webServer>
        <security>
            <authentication>
                <anonymousAuthentication userName="" />
            </authentication>
            <requestFiltering>
                <requestLimits
maxAllowedContentLength="2147483647" />
            </requestFiltering>
        </security>
    </system.webServer>
</location>
```

7. Save your changes in the `applicationHost.config` file.

8. Open a Web browser, and confirm that `http://localhost:80` loads the default page correctly.

See also
- *Configuring Unwired Server to use Relay Server* on page 84

Configuring IIS 6 for Relay Server
Configure IIS 6 to host Relay Server.

Use the IIS Manager Console to configure IIS 6 for Relay Server.

1. Start the IIS Manager Console.

2. Create a Relay Server application pool.
   a) Right-click **Application Pools** and create a new application pool.
   b) Right-click the application pool and select **Properties** to edit its properties.
   c) Open the **Performance** tab, and unselect **Shutdown Worker Processes After Being Idle**.
   d) Open the **Recycling** tab, and unselect **Recycle Worker Processes (In Minutes)**.

3. Enable Web extensions for Relay Server.
   a) Open the **Directory** tab to edit the properties of `ias_relay_server`.
   b) Set execute permissions to **Scripts And Executables**.
   c) Click **Create under Application Settings**.
   d) Select the Relay Server application pool you created.
   e) Under **Web Service Extensions**, allow both `rs_server.dll` and `rs_client.dll` to be run as ISAPI.

4. Configure IIS for Unwired Platform device clients to communicate with Relay Server:
   a) Navigate to `\Inetpub\AdminScripts`.
   b) Run the following console command:
   ```
   cscript adsutil.vbs set w3svc/1/uploadreadaheadsize 0
   iisreset
   ```
   If you do not perform this configuration step, you see this error message:
   ```
   Could not connect to the Server. Session did not complete.
   ```

5. Enable anonymous access, using an appropriate user name and password for an administrative group, or using `build-user IUSR_%computername%` for directory security.

   Grant permission to access IIS metabase for the user:
   ```
   C:\Windows\Microsoft.Net\Framework\<Version>
   \aspnet_regiis.exe -ga IUSR_%computername%
   ```

See also

- *Configuring Unwired Server to use Relay Server* on page 84

<u>**Installing Relay Server on Apache**</u>
Install Relay Server executables and libraries on an Apache HTTP Server (Linux) host.

Relay Server executables and libraries are supplied in an archive file, located on the installation media at: `modules\relayserver\`

1. Identify the appropriate archive for the Apache host architecture.

    - 32-bit system — `relayserver_linux_x86.tar.gz`
    - 64-bit system — `relayserver_linux_x64.tar.gz`

2. Copy the Relay Server archive file to the Apache host, and extract the archive into a Relay Server installation directory.

    For example: `/usr/local/relayserver/`

3. Copy the following files from the Relay Server installation to the Apache `modules/` directory:

    - `dbfhide`
    - `dblgen12.res`
    - `dbsupport`
    - `libdbicu12_r.so`
    - `libdbicudt12.so`
    - `libdblib12.so`
    - `libdblib12_r.so`
    - `libdbtasks12.so`
    - `mod_rs_ap_admin.so`
    - `mod_rs_ap_client.so`
    - `mod_rs_ap_monitor.so`
    - `mod_rs_ap_server.so`
    - `rshost`

    Note: Because of Apache requirements, you cannot configure Apache for Relay Server immediately after installation. You must first configure Outbound Enablers. Apache configuration is covered in *Configuring Apache for Relay Sever* on page 96.

Configuring and Validating the System

Some components of the Unwired Platform system must be configured after installation tasks are complete. Confirm that the system is operating as expected, after configuration tasks are complete.

1. *Configuring Sybase Control Center*

   Configure the Sybase Control Center (SCC) remote administration hosts, and confirm that SCC can connect to and manage all Unwired Servers in the system.

2. *Configuring Relay Servers and Outbound Enablers*

   Configure Relay Servers and Outbound Enablers (OEs) to support load balancing in an Unwired Server cluster.

3. *Configuring EIS Drivers*

   Configure any drivers and utilities that Unwired Server needs for connection to EIS data sources.

Configuring Sybase Control Center

Configure the Sybase Control Center (SCC) remote administration hosts, and confirm that SCC can connect to and manage all Unwired Servers in the system.

Configure SCC remote administration hosts after all Unwired Platform server installation tasks are complete.

1. Prepare the single-user host systems that can be used to administer the Unwired Platform system.

   See *Sybase Control Center for Sybase Unwired Platform*, "Getting Started After Installing" for more information.

2. Log in to Sybase Control Center (SCC) on each Unwired Server host.

   a) Confirm that SCC can connect to and manage all nodes in the Unwired Server cluster, from each Unwired Server node.

   b) If any Unwired Server node does not appear in the SCC resource list, you must register the node manually.

      See *Sybase Control Center for Sybase Unwired Platform*, "Registering a Resource as an SCC Managed Resource" for more information.

Configuring Relay Servers and Outbound Enablers

Configure Relay Servers and Outbound Enablers (OEs) to support load balancing in an Unwired Server cluster.

Choose one of two Relay Server deployment options:

- *Configuring Relay Servers* on page 83
  Configure locally installed Relay Servers and corresponding Outbound Enablers (OEs) for an Unwired Platform system.
- *Subscribing and Connecting to Sybase Hosted Relay Service* on page 105
  The Sybase Hosted Relay Service is an alternative to local Relay Server installation, for temporary use with development and test systems only. It is particularly suitable for a personal Unwired Platform system.
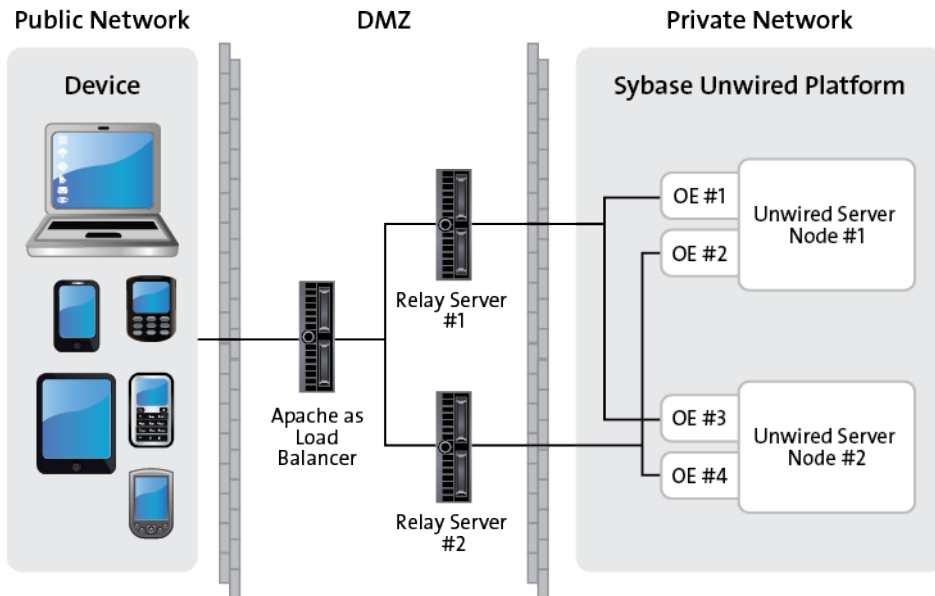
Configuring Relay Servers

Configure Relay Servers and corresponding Outbound Enablers (OEs) for an Unwired Platform system.

Prerequisites

- All Unwired Servers and data tier servers must be installed and running.
- The Unwired Server cluster and its nodes must be registered in Sybase Control Center.

Note: If the cluster or server name does not appear in the navigation pane, on the SCC console, you must register them with Sybase Control Center.

Task

The diagram above illustrates an Unwired Platform cluster with two Unwired Server nodes, using two Relay Servers, with Apache acting as a load balancer. This document focuses on this configuration, while providing information on what to do differently to set up different configurations, for example:

- More than two Relay Servers
- Hardware load balancer in place of Apache

1. *Configuring Unwired Server to use Relay Server*

Choose a method for configuring Unwired Server to use Relay Server, then generate a Relay Server configuration file. Copy the file to the Relay Server host, and quickly distribute the same configuration to multiple Relay Server nodes, with no changes.

2. *Deploying a Relay Server Configuration*

   After you generate a Relay Server configuration file, you must copy it to each Relay Server host, and use it to update the Relay Server configuration. All Relay Servers working with the same Unwired Platform installation must use identical copies of the Relay Server configuration file, rs.config.

3. *Configuring the Outbound Enablers*

   Set up one or more Outbound Enablers (OEs) for each Unwired Server, connecting to the load balancer, as identified in a Relay Server configuration.

4. *Configuring Apache for Relay Sever*

   Modify the Apache HTTP Server configuration and environment, as needed for Relay Server.

5. *Configuring State Manager as a Service*

   Set up the State Manager process to run as a service on the Relay Server host.

6. *Installing a Load Balancer*

   You can use either a software or a hardware load balancer to get the best performance out of your Relay Servers.

7. *Tips for Tuning Your Relay Server Configuration on IIS*

   Tips for increasing performance of Relay Servers hosted by IIS Web server.

Configuring Unwired Server to use Relay Server

Choose a method for configuring Unwired Server to use Relay Server, then generate a Relay Server configuration file. Copy the file to the Relay Server host, and quickly distribute the same configuration to multiple Relay Server nodes, with no changes.

This task applies only to a Relay Server installed on the LAN. It does not apply to the Sybase Hosted Relay Service.

Note: If you are creating a custom Relay Server configuration, go to *Creating a Custom Relay Server Configuration* on page 86 next.

If you are using a quick configuration, continue with the next topic, *Creating a Quick Configuration* on page 85.

See also

- *Deploying a Relay Server Configuration* on page 90

Creating a Quick Configuration
Create a Relay Server configuration primarily with system defaults, and create Outbound Enabler (OE) processes for each Unwired Server.

1. In the navigation pane, click the Unwired Server cluster name.
2. In the administration pane, click the **Relay Servers** tab.
3. Click **Quick Configure**.
4. Specify these property values:

    *   **Host –** for single Relay Server environments the host name of the Relay Server. Or, in the case of a Relay Server farm environments, the host name of the load balancer.
    *   **Http port –** the Relay Server HTTP port.
    *   **Https port –** the Relay Server HTTPS port.
    *   **URL suffix –** the URL suffix used by the Outbound Enabler to connect to a Relay Server. The prefix you set depends on whether Relay Server is installed on IIS or Apache hosts. For IIS, you would use `/ias_relay_server/client/ rs_client.dll`. For Apache you would use `/cli/iasrelayserver`.
    *   **Replication or Messaging farm token –** the security token used by the Outbound Enabler to authenticate its connection with the Relay Server. Assign a token string (up to 2048 characters); this same token can be shared by replication or messaging farms. The replication and messaging farm token values can be the same.
    *   **(Optional) Description –** a user-definable description of the Relay Server.

5. (Optional) Check **Advanced settings** and specify these property values:

    *   **Http user name –** user name for OE authentication on the Web server (Relay Server host).
    *   **Http password –** password for OE authentication on the Web server.

6. (Optional)For Online Data Proxy deployments, configure connection values to required Internet proxy servers:

    *   **Proxy server host –** host name of the Internet proxy server.
    *   **Proxy server port –** connection port on the Internet proxy server.
    *   **Http proxy user –** user name for OE authentication on the Internet proxy server.
    *   **Http proxy password –** password for OE authentication on the Internet proxy server.

7. Click **OK** to generate a Relay Server configuration file, and the OE processes for each Unwired Server.

Properties in the `[backend_farm]` and `[backend_server]` sections are populated automatically, based on the Unwired Server's cluster name and host name.

Six OE instances (three each for messaging and replication ports) are created on each Unwired Server host, but they are not started.

Next

Review the values in the Relay Server configuration file, and edit if necessary.

Continue with *Generating and Modifying Relay Server Configuration File* on page 88.

Creating a Custom Relay Server Configuration

Create a Relay Server configuration by specifying all configuration property values.

1. *Launching the Relay Server Configuration Wizard*

   Launch the Relay Server Configuration wizard to create a configuration file with customized property values.

2. *Setting Relay Server General Properties*

   Set basic connection properties for the Relay Server.

3. *Define Server Farms and Cluster Nodes*

   Set connection properties for the Unwired Server cluster and its constituent nodes.

4. *Reviewing Configured Relay Server Properties*

   Review the Relay Server configuration to confirm property values, before you generate the configuration file.

Launching the Relay Server Configuration Wizard

Launch the Relay Server Configuration wizard to create a configuration file with customized property values.

1. In the navigation pane, click the Unwired Server cluster name.
2. In the administration pane, click the **Relay Servers** tab.
3. Click **New**.

Setting Relay Server General Properties

Set basic connection properties for the Relay Server.

Prerequisites

Launch the Relay Server configuration wizard.

Task

1. Specify these property values:
   - **Host –** for single Relay Server environments the host name of the Relay Server. Or, in the case of a Relay Server farm environments, the host name of the load balancer.
   - **Http port –** the Relay Server HTTP port.
   - **Https port –** the Relay Server HTTPS port.

     Note: If Relay Server uses HTTPS and certificates, clients other than replication based synchronization may not be able to connect: messaging applications only support

HTTP, and hybrid workflow container applications for iOS support HTTPS — but not certificates.

- **URL suffix** – the URL suffix used by the Outbound Enabler to connect to a Relay Server. The prefix you set depends on whether Relay Server is installed on IIS or Apache hosts. For IIS, you would use `/ias_relay_server/client/rs_client.dll`. For Apache you would use `/cli/iasrelayserver`.

  Note: For IIS, the value identifies the *relative* path for `rs_client.dll`. Therefore, if your IIS directory structure is different, modify this value accordingly.

  Note: The value used in the client application connection for the URL prefix must match what the administrator configures in the URL suffix. Otherwise the connection fails. Test these value by using the Diagnostic Tool command line utility. See *Diagnostic Tool Command Line Utility (diagtool.exe) Reference* in *System Administration*.

- **(Optional) Description** – a user-definable description of the Relay Server.

2. Add or remove HTTP credentials as required:

   a) Check **Configure relay server HTTP credentials**.

   b) To add new credentials, specify these property values and click +:

      - **User name** – user name for RSOE authentication on the Web server (Relay Server host).
      - **Password** – password for RSOE authentication on the Web server.

   c) To remove credentials from the list, select the corresponding user name, then click **X**.

3. Click **Next**.

Define Server Farms and Cluster Nodes

Set connection properties for the Unwired Server cluster and its constituent nodes.

Repeat these steps to add or remove multiple Unwired Server clusters, as needed.

1. Define the Unwired Server cluster.

   a) Specify these property values:

      - **Farm ID** – a string that identifies the Unwired Server cluster, for which the Relay Server manages requests. This property is case-sensitive, and it must match the value in the Outbound Enabler configuration.
      - **Type** – the type of request managed by the Relay Server, Replication or Messaging protocol.
      - **(Optional) Description** – user-definable description of the Unwired Server cluster.

   b) Click +.

   c) Repeat steps 1 and 2 to add multiple Unwired Server clusters.

    d) To delete a configured Unwired Server cluster, select it in the list, then click the **X** button.

2. Identify each Unwired Server instance in the cluster.

    a) Select an existing Unwired Server cluster.

    b) Specify these property values:

- **Node ID** – a string that identifies the Unwired Server in the cluster. This property is case-sensitive, and it must match the value in the RSOE configuration.
- **Token** – the security token used by the Outbound Enabler to authenticate its connection with the Relay Server. Assign a token string (up to 2048 characters); this same token can be shared by replication or messaging farms.

    c) Click +.

    d) Repeat steps 1 and 2 to add Unwired Server cluster nodes.

    e) To delete a configured Unwired Server node, select it in the list and click **X**.

3. Click **Next** to review your settings, or click **Finish** to exit the wizard.

Note: After each change, you may need to update the relay server configuration, and take steps to manually update the relay server configuration.

Reviewing Configured Relay Server Properties

Review the Relay Server configuration to confirm property values, before you generate the configuration file.

1. Confirm the property values, ensuring that:

- No errors exist.
- All Unwired Server clusters are defined, and the correct type.

2. Click **Finish**.

The Relay Server is registered with Sybase Control Center, and it can be managed from the **Relay Servers** tab for the Unwired Server cluster.

Next

When you have finished adding all required Relay Servers, set up one or more Outbound Enabler (RSOE) for each Unwired Server in the cluster.

Generating and Modifying the Relay Server Configuration File

Generate all or part of a Relay Server configuration file. Then transfer the generated file to all Relay Server hosts.

Generating a configuration file extracts the property values stored in the cluster database during the configuration process, and writes them to a file. You may still need to edit this file after export.

1. In the navigation pane, click the Unwired Server cluster name.

2. In the administration pane, click the **Relay Servers** tab.

3. Click **Generate**.

4. Choose **Relay server properties configuration file**.

5. Select the parts of the file to generate:

    *   The entire Relay Server configuration
    *   A server node definition
    *   A farm definition

6. Select an output target for the file.

7. Click **Finish**.

8. Manually edit the file if this is required, and save the changes.
    For example, Relay Server farms that use a load balancer will likely require further edits.
    Consider:
    *   Updating the host name if the Relay Server needs to share the same name of the load
        balancer.
    *   Adding Relay Servers to the farm for which the load balancer manages inbound
        requests.

    For details on other manual edits that you can perform, see the Relay Server
    documentation at *http://infocenter.sybase.com/help/index.jsp?topic=/
    com.sybase.help.sqlanywhere.12.0.1/relayserver/relayserver12.html*.

9. If you need to configure a Relay Server farm, apply the same changes to the configurations
    of remaining farm members. The configuration among all members must be identical.

Next
If you are deploying multiple Relay Servers in a farm with a third-party load balancer, all
Relay Server Outbound Enablers must be configured to connect to the load balancer host name
as well. When all Relay Servers and Outbound Enablers are configured, test the setup and
ensure that connectivity from Unwired Server is possible.

Sample Relay Server Configuration File
A sample rs.config file for an Unwired Platform cluster with two Unwired Server nodes and
two Relay Servers.

This is an example of an `rs.config` file you might generate for two Relay Servers
supporting an Unwired Platform cluster with two Unwired Servers. After generating it, you
would copy it to each Relay Server host and use it to update the Relay Server configuration.

```
#-------------------
# Relay server peers
#-------------------
[relay_server]
enable          = yes
host            = 10.172.155.150
http_port       = 80
```

```
https_port      = 443
description     = Machine #1 in RS farm

[relay_server]
enable          = yes
host            = 10.172.148.40
http_port       = 5001
https_port      = 443
description     = Machine #2 in RS farm


#---------------
# Backend farms
#---------------
[backend_farm]
enable          = yes
id              = supqa-serv012.obqastress2
client_security = off
backend_security= off
description     = supqa-serv012.obqastress2

description     = supqa-serv012.obqastress2
#-----------------
# Backend servers
#-----------------
#supqa-serv01
[backend_server]
enable  = yes
farm    = supqa-serv012.obqastress2
id      = supqa-serv01
token   = MBS

[backend_server]
enable  = yes
farm    = supqa-serv012.obqastress2
id      = supqa-serv011
token   = MBS

#supqa-serv02
[backend_server]
enable  = yes
farm    = supqa-serv012.obqastress2
id      = supqa-serv02
token   = MBS

[backend_server]
enable  = yes
farm    = supqa-serv012.obqastress2
id      = supqa-serv021
token   = MBS
```

Deploying a Relay Server Configuration
After you generate a Relay Server configuration file, you must copy it to each Relay Server host, and use it to update the Relay Server configuration. All Relay Servers working with the

same Unwired Platform installation must use identical copies of the Relay Server configuration file, `rs.config`.

Prerequisites

- All Unwired Servers and data tier servers must be installed and running.
- The Unwired Server cluster and at least one node must be registered in Sybase Control Center.
- At least one Relay Server must be registered in Sybase Control Center, and a complete configuration file must be generated.

Task

1. Edit the generated configuration file, as needed to define unique property values for each Relay Server.

   For complete reference details on Relay Server configuration properties, see *http:// infocenter.sybase.com/help/topic/com.sybase.help.sqlanywhere.12.0.1/relayserver/ml-relayserver-config-file.html*.

2. Copy the Relay Server configuration file to the Web server host.

   The location of the configuration file depends on host type:
   - IIS host: `C:\Inetpub\wwwroot\ias_relay_server\Server \rs.config`
   - Apache host: `Apache_Home/modules/rs.config`

3. To update Relay Server with the new configuration, use the State Manager command line on the Web server host:

   `rshost -u -f WebServerPath/rs.config`

See also

- *Configuring Unwired Server to use Relay Server* on page 84

Configuring the Outbound Enablers

Set up one or more Outbound Enablers (OEs) for each Unwired Server, connecting to the load balancer, as identified in a Relay Server configuration.

Prerequisites

At least one Relay Server must be registered in Sybase Control Center, and a complete configuration must be defined.

Task

1. *Separating MBS and RBS Processing*

    If you wish to tune performance for messaging based synchronization (MBS) and
    replication based synchronization (RBS) applications independently, set up a separate
    Relay Server for each protocol.

2. *Configuring RSOE General Properties*

    Set general RSOE configuration properties to define the context in which the RSOE
    process operates.

3. *Configuring RSOE Connection Settings*

    Set connection configuration properties for an RSOE. These properties define the RSOE
    connection to the Relay Server.

4. *Configuring RSOE Start Options*

    Configure start options for RSOE.

5. *Generating the Relay Server Outbound Enabler Configuration File*

    To quickly and easily replicate a common Outbound Enabler (RSOE) configuration to
    multiple hosts, generate an RSOE configuration file.

See also
- *Configuring Apache for Relay Sever* on page 96

Separating MBS and RBS Processing

If you wish to tune performance for messaging based synchronization (MBS) and replication
based synchronization (RBS) applications independently, set up a separate Relay Server for
each protocol.

1. Set up separate Relay Server farms for MBS and RBS.

    See *Creating a Custom Relay Server Configuration* on page 86, *Generating and Modifying
    the Relay Server Configuration* on page 88, and *Deploying a Relay Server Configuration*
    on page 90.

2. When setting up each Outbound Enabler:
    - Set the **Farm type** to Messaging or Replication for Relay Servers that are to handle
      MBS processing.
    - Set the **Farm type** to Replication for Relay Servers that are to handle RBS processing.

    See *Configuring RSOE General Properties* on page 93.

3. If you wish to separate processing for messaging based synchronization (MBS) and
    replication based synchronization (RBS), so that you can tune performance for these
    independently:

- Set up separate Relay Server farms for MBS and RBS. See *Creating a Custom Relay Server Configuration* on page 86, *Generating and Modifying the Relay Server Configuration* on page 88, and *Deploying a Relay Server Configuration* on page 90.
- When setting up each Outbound Enabler, set the **Farm type** to Messaging or Replication. See *Configuring RSOE General Properties* on page 93.

Configuring RSOE General Properties

Set general RSOE configuration properties to define the context in which the RSOE process operates.

1. In the navigation pane, click **Servers > <ServerNode> > Server Configuration**.
2. In the administration pane, select the Outbound Enabler tab, then click **New**.
3. Specify these property values:
   - **Farm type –** select the type of request managed by the Relay Server, Replication or Messaging protocol.
   - **Unwired sever port –** select the port on which RSOE will manage requests.
   - **Relay server host –** for single Relay Server environments the host name of the Relay Server. Or, in the case of a Relay Server farm environments, the host name of the load balancer.
   - **Relay server port –** select the Relay Server HTTPS port.
   - **Unwired server farm –** select the string that identifies the Unwired Server cluster, for which the Relay Server manages requests. This property is case-sensitive, and it must match the value in the Relay Server configuration.
   - **Server node ID –** select the string that identifies the Unwired Server in the cluster. This property is case-sensitive, and it must match the value in the Relay Server configuration.
4. Click **Next**.

Configuring RSOE Connection Settings

Set connection configuration properties for an RSOE. These properties define the RSOE connection to the Relay Server.

1. Specify these property values:
   - **Http user name –** select the user name for RSOE authentication on the Web server (Relay Server host).
   - **Http password –** enter the password for RSOE authentication on the Web server.
2. If RSOE connections to the Relay Server must pass through an Internet proxy server, specify these property values:
   - **Proxy server –** select the Internet proxy server.
   - **Http proxy user –** select the user name for RSOE authentication on the proxy server.

- **Http proxy password** – type the password for RSOE authentication on the proxy server.

3. Specify these property values:
   - **Certificate file** – select this option and choose the `.CRT` file used to authenticate the RSOE to relay server. You can only choose this file if you have already loaded it into the Unwired Server certificate store and your your Relay Server Port selection is HTTPS: 443 in General Properties.
   - **Trusted certificate** – if the certificate file includes multiple certificates, choose whether to trust a single certificate or all of them.

Configuring RSOE Start Options
Configure start options for RSOE.

1. Enable an option:
   a) Check the box that corresponds to each name.
   b) Set a value. If you check the box but set no value for the option, the default is used.
2. Click **OK**.
3. Ensure the process starts by checking the Status column of the Outbound Enablers tab.

See also
- *Generating the Relay Server Outbound Enabler Configuration File* on page 96

Outbound Enabler Start Options Reference

Review available Outbound Enabler start options. These options affect Outbound Enabler logging. Each Outbound Enabler has its own log file that you can retrieve in Sybase Control Center.

Option	Default	Description
Verbosity level	0	Sets log file verbosity values: • 0 – Log errors only. Use this logging level for deployment. • 1 – Session level logging. This is a higher level view of a session. • 2 – Request level logging. Provides a more detailed view of HTTP requests within a session. • 3 - 5 – Detailed logging, used primarily for technical support.
Reconnect delay	5	Delay before retry after connection fails.
Maximum output file size	10KB	Maximum log file size.
Truncate log file	None	Option to delete the log file at RSOE startup.
Advanced	None	User-defined value for start parameters. For more information on configuring RSOE options, see *Outbound Enabler* in *SQL Anywhere 12.0.1* at http://infocenter.sybase.com/help/index.jsp?topic=/com.sybase.help.sqlanywhere.12.0.1/relayserver/ml-relayservers-6039420.html

Generating the Relay Server Outbound Enabler Configuration File
To quickly and easily replicate a common Outbound Enabler (RSOE) configuration to multiple hosts, generate an RSOE configuration file.

Administrators can use Sybase Control Center to configure an initial RSOE for development. Once a configuration proves valid and stable, the administrator can generate the RSOE configuration file, then use `regRelayServer.bat` to apply it to Unwired Server hosts.

1. In the navigation pane, click the Unwired Server cluster name.
2. In the administration pane, click the **Relay Servers** tab.
3. Click **Generate**.
4. Choose **Outbound enabler configuration XML file**, then click **Next**.
5. Select an output target for the file.
6. Click **Finish**.

See also
*   *Configuring RSOE Start Options* on page 94

Configuring Apache for Relay Sever
Modify the Apache HTTP Server configuration and environment, as needed for Relay Server.

Prerequisites
Before you modify the Apache configuration, you must create a Relay Server configuration file and deploy it on the Relay Server (Apache) host.

Task

Edit the Apache `httpd.conf` and `envvars` files to:

*   Load Relay Server client and server modules
*   Define locations and handlers for the client and server modules
*   Increase the number of concurrent clients (if necessary)
*   Set environment variables required by Relay Server executables

1. Open `httpd.conf` in a text editor.

   a) Add the following to load Relay Server modules:

   ```
   LoadModule iarelayserver_client_module modules/
   mod_rs_ap_client.so
   LoadModule iarelayserver_server_module modules/
   mod_rs_ap_server.so
   ```

   a) Add the following to define a LocationMatch for the Relay Server client module:

```
<LocationMatch /cli/iarelayserver/* >
    SetHandler iarelayserver-client-handler
</LocationMatch>
```

b) Add the following to define a Location for the Relay Server server module:

```
<Location /srv/iarelayserver/* >
    SetHandler iarelayserver-server-handler
    RSConfigFile "/apache-install/modules/rs.config"
</Location>
```

The server module Location must match the server URL suffix specified in the Relay Server configuration file.

The RSConfigFile directive specifies the location of the Relay Server configuration file, which must reside in the same directory with the State Manager executable (rshost).

c) (Optional) Add the following to increase the maximum number of concurrent clients, if necessary.

```
ServerLimit 1000
MaxClient 1000
```

By default, Relay Server on Apache is configured for 100 concurrent device users. If you need more than that, set the ServerLimit and MaxClient directives to an appropriate value.

2. Open envvars in a text editor.

a) Add the following to set and export environment variables required for Relay Server executables:

```
path="$path:/apache-install/modules"
export $path
LD_LIBRARY_PATH="$LD_LIBRARY_PATH:/apache-install/modules"
export $LD_LIBRARY_PATH
```

b) Determine if one of the following environment variables are set globally: *TMP*, *TMPDIR*, or *TEMP*.

If none of those variables is set globally, or if you want to save the default Relay Server log file in another specific directory, set and export the *TMP* variable to point to the log file location.

Note: The Apache user process must have write permission in the directory specified by *$TMP*.

Next

Restart the Apache HTTP Server after you make the configuration changes.

See also

Configuring State Manager as a Service
Set up the State Manager process to run as a service on the Relay Server host.

This task uses the **dbsvc** utility on the Web server host. The **dbsvc** utility is installed from the
Relay Server archive file, which is supplied on the Sybase Unwired Platform Runtime
installation media.

1. Open a command shell window, and set the current directory to the location of the **dbsvc**
   executable.
2. Enter the following at the prompt.
   - IIS host (Windows)
     ```
     dbsvc -as -s auto -t rshost -w SUPRelayServer "C:\Inetpub
     \wwwroot\ias_relay_server\Server\rshost.exe" -q -qc -f
     "C:\Inetpub\wwwroot\ias_relay_server\Server\rs.config" -
     o "C:\Sybase\logs\rs.log"
     ```

     Note: The log file path you specify with -o must exist, before you invoke **dbsvc**.
   - Apache host (Linux)
     ```
     dbsvc -y -a apache_user -t rshost -w SUPRelayServer -q -
     qc -f /apache_install/modules/rs.config -os 100K -ot /
     tmp/rs.log
     ```

   Substitute parameter values shown here to match your configuration.

   This command configures the State Manager process (rshost) as a service.
3. To start the State Manager service:
   - From the Windows Services Control Panel:
     a. Locate the service named "SQL Anywhere - SUPRelayServer".
     b. Right-click the service and select Start.
   - From a Linux command shell:
     a. Make sure the State Manager service runs under the same user credentials as the
        Apache service.
     b. Change the current directory to:
        - IIS host (Windows) `C:\Inetpubs\wwwroot\ias_relay_server
          \Server`
        - Apache host (Linux) `/apache_install/modules/`
     c. Enter the following at the command prompt:
        ```
        dbsvc -u SUPRelayServer
        ```
   - You can stop the State Manager service either from the Windows Services control
     panel, or by entering the following at a command shell prompt:
     ```
     dbsvc -x SUPRelayServer
     ```

- You can uninstall the State Manager service by entering the following at a command shell prompt:
  ```
  dbsvc -d SUPRelayServer
  ```

Installing a Load Balancer

You can use either a software or a hardware load balancer to get the best performance out of your Relay Servers.

If you are using only a single Relay Server, skip this topic.

You should be able to use any hardware or software load balancer that you prefer with the Relay Servers you have installed to support your Unwired Platform cluster. This document describes use of Apache 2.2, with proxy load balancing.

If you are using a hardware load balancer, see the product documentation for instructions on setting it up.

If you are using a software load balancer other than Apache 2.2, see the program documentation for instructions on setting it up

See also

- *Tips for Tuning Your Relay Server Configuration on IIS* on page 103

Configuring Apache 2.2 as a Load Balancer

To use Apache 2.2 and later as a software load balancer, edit the Apache configuration file to enable mod_proxy and mod_proxy_balancer and set up the load balancing features.

Prerequisites

Review the relevant Apache reference documentation:

- `mod_proxy` – *http://httpd.apache.org/docs/2.2/mod/mod_proxy.html*
- `mod_proxy_balancer` – *http://httpd.apache.org/docs/2.2/mod/mod_proxy_balancer.html*

Task

1. Install Apache 2.2 or later on a server in your DMZ.
2. Secure the server.

   Do not enable proxying until your server is secure.
3. Enable `mod_proxy`, `mod_proxy_balancer`.

   Uncomment the following lines in the Apache Web Server configuration file (`httpd.conf`):
   ```
   # mod_proxy - core module for proxying:
   LoadModule proxy_module modules/mod_proxy.so
   ```

```
# mod_proxy_balancer implements clustering and load balancing:
LoadModule proxy_balancer_module modules/mod_proxy_balancer.so
```

4. On Linux, build Apache with these modules enabled.

5. Enable additional modules as needed.

   Uncomment the lines for any additional modules for which you need the functionality. For more information about these modules, see the Apache documentation at *http:// httpd.apache.org/docs/2.2/mod/*.

6. On Windows, use the template below to set up load balancing between your Relay Servers.

   Add the lines below to the Apache Web Server configuration file (`httpd.conf`). Replace terms in italics with actual values in your environment:
   - *Apache_port* – Apache server port number
   - *Apache_srvr_name* – Apache server name
   - *host_id* – virtual host ID
   - *host_port* – virtual host port number
   - *RS_farm* – Relay Server farm ID
   - *RS#_IP* – IP address or server name for Relay Server #
   - *RS#_node* – node name for Relay Server #
   - *RS#_port* – port number for Relay Server #
   - *webserver_doc_root* – doc root in file system used by Apache Web server

```
<VirtualHost host_id:host_port>

    ServerName Apache_srvr_name:Apache_port
    DocumentRoot webserver_doc_root

    # Enable forward proxy
    ProxyRequests On
    ProxyVia On
    <Proxy *>
        Order deny,allow
        Allow from all
    </Proxy>

    # Enable reverse proxy
    ProxyPass / balancer://RS_farm/ stickysession=JSESSIONID
    ProxyPassReverse / http://RS1_IP:RS1_port/
    ProxyPassReverse / http://RS2_IP:RS2_port
    <Proxy balancer://RS_farm>
        BalancerMember http://RS1_IP:RS1_port/ route=RS1_node
        BalancerMember http://RS2_IP:RS2_port/ route=RS2_node
        # Set counting algorithm to more evenly distribute work:
        ProxySet lbmethod=byrequests
    </Proxy>

    # Enable load balancer management
    <Location /balancer-manager>
        SetHandler balancer-manager
    </Location>
```

```
    <Directory "htdocs">
        AllowOverride AuthConfig
    </Directory>

</VirtualHost>
```

Extend the example above to any number of Relay Servers by adding them to the `ProxyPassReverse` and `BalancerMember` lists.

7. On Linux, use the template below to set up load balancing between your Relay Servers.

Add the lines below to the Apache Web Server configuration file (`httpd.conf`). Replace terms in italics with actual values in your environment:

- *RS_farm* – Relay Server farm ID
- *RS#_IP* – IP address or server name for Relay Server #
- *RS#_node* – node name for Relay Server #
- *RS#_port* – port number for Relay Server #
- *RS1#_srvr* – server name for Relay Server #

```
# Enable forward proxy
ProxyRequests On
ProxyVia On
<Proxy *>
    Order deny,allow
    Allow from all
</Proxy>

<Proxy balancer://mycluster>
    BalancerMember http://RS1_IP:RS1_port/ route=RS1_node
loadfactor=5 route=RS1_srvr
    BalancerMember http://RS2_IP:RS2_port/ route=RS2_node
loadfactor=5 route=RS2_srvr
    # Set counting algorithm to more evenly distribute work:
    ProxySet lbmethod=byrequests
</Proxy>

# Enable reverse proxy
ProxyPass / balancer://RS_farm/ stickysession=JSESSIONID
ProxyPassReverse / http://RS1_IP:RS1_port
ProxyPassReverse / http://RS2_IP:RS2_port

# Enable load balancer management
<Location /balancer-manager>
    SetHandler balancer-manager
    Order Deny,Allow
    Allow from all
</Location>
```

Configuring Apache as a Load Balancer for EIS Back End
When used as a load balancer for the EIS back end, some of the configuration file settings are different.

---

1. If the load balancer connects to SAP Data Orchestration Engine – DOE to load balancer to Unwired Platform cluster to device – use the settings below in place of the corresponding settings in *Configuring Apache 2.2 as a Load Balancer* on page 99.

   Add the lines below to the Apache Web Server configuration file (`httpd.conf`). Replace terms in italics with actual values in your environment:
   - *DOE_cluster* – DOE cluster ID
   - *US#_IP* – IP address for Unwired Server #
   - *US#_node* – node name for Unwired Server #
   - *US#_port* – port number for Unwired Server #

   ```
   ProxyPass / balancer://DOE_cluster/ stickysession=JSESSIONID
   ProxyPassReverse / http://US1_srvr:US1_port/doe/publish
   ProxyPassReverse / http://US2_srvr:US2_port/doe/publish
   <Proxy balancer://DOE_cluster>
     BalancerMember http://US1_srvr:US1_port/doe/publish
   route=US1_node
     BalancerMember http://US2_srvr:US2_port/doe/publish
   route=US2_node
   ```

   Extend the example above to any number of Unwired Servers by adding them to the `ProxyPassReverse` and `BalancerMember` lists.

2. If the load balancer connects to SAP MobileGateway – MobileGateway to load balancer to Unwired Platform cluster to device – use the settings below in place of the corresponding settings in *Configuring Apache 2.2 as a Load Balancer* on page 99.

   Add the lines below to the Apache Web Server configuration file (`httpd.conf`). Replace terms in italics with actual values in your environment:
   - *DOE_cluster* – DOE cluster ID
   - *US#_IP* – IP address for Unwired Server #
   - *US#_node* – node name for Unwired Server #
   - *US#_port* – port number for Unwired Server #

   Note: The only difference in the settings below, relative to the settings above, is the omission of "/doe/publish" in the references to Unwired Server instances.

   ```
   ProxyPass / balancer://DOE_cluster/ stickysession=JSESSIONID
   ProxyPassReverse / http://US1_srvr:US1_port
   ProxyPassReverse / http://US2_srvr:US2_port
   <Proxy balancer://DOE_cluster>
     BalancerMember http://US1_srvr:US1_port route=US1_node
     BalancerMember http://US2_srvr:US2_port route=US2_node
   ```

   Extend the example above to any number of Unwired Servers by adding them to the `ProxyPassReverse` and `BalancerMember` lists.

Tips for Tuning Your Relay Server Configuration on IIS

Tips for increasing performance of Relay Servers hosted by IIS Web server.

Tuning your Relay Server configuration is a complex, iterative process that is beyond the scope of this document to cover in detail. This topic provides some basic tips to get you started on IIS. For instructions on implementing these tips, see the Microsoft documentation for your version of IIS.

1. Use a separate application pool for ias_relay_server\client and ias_relay_server\server.
2. For the ias_relay_server\client application pool:
   a) Disable the request queue limit.
   b) Increase the Web garden size to 4 times the number of CPU cores.
3. For the ias_relay_server\server application pool, set the Web garden size to 1.
4. Use a 64-bit Windows OS to get past the 32-bit limits non-paged pool memory and virtual address space.
5. Monitor network performance and upgrade the network or switches if they are identified as bottlenecks.
6. Add Relay Servers to the farm.

Next

For an overview of performance tuning for Relay Server clusters, see the following topic, *Performance Tuning Considerations on IIS* on page 103.

For a comprehensive guide to IIS tuning, refer to the *Internet Information Services (IIS) 7.0 Resource Kit*, written by Mike Volodarsky, Olga Londer, Brett Hill, Bernard Cheah, Steve Schofield, Carlos Aguilar Mares, and Kurt Meyer with the Microsoft IIS Team.

See also

- *Installing a Load Balancer* on page 99

Performance Tuning Considerations on IIS

Many characteristics of the network environment in which Unwired Platform and Relay Servers are installed can reduce performance. Understanding what these are and which are most likely to cause problems will give you some guidance in how to approach perfomance tuning.

Traffic Factors Affecting Performance

All of the following traffic factors can affect Relay Server cluster performance:

- Persistency
- Concurrency

- Timeout
- HTTP request/response size
- Back-end farm size
- Back-end server compute time
- Relationship between transfer rates of client-Relay Server network and Outbound Enabler-Relay Server network

Iterative Tuning

The key objective in performance tuning is to identify the bottlenecks, or limiting points, in the overall system so you can increase capacity where more capacity is needed.

In practice, you need to iteratively test with a targeted set of loads for your business and factor in traffic patterns at different times of day, especially at peak levels. Identify the bottlenecks in the overall system and then tune to relieve one or more identified bottlenecks. This process keeps shifting the bottleneck from one compoment to another in the overall system, while gaining overall performance on each tuning iteration.

Where to Start

If the network surrounding the Relay Servers is not saturated, your first iteration will identify the Relay Servers as the bottleneck. You want to see if the existing Relay Servers can be tuned to perform better before considering adding Relay Servers to the farm. Relay Servers can be limited in speed by the resources in the table below.

Potential Speed Limiting Resource	Likelihood
Network I/O between Relay Servers and Outbound Enablers	Likely
Network I/O between Relay Servers and clients	Likely
Application pool process (IIS) and thread availablilty	Unlikely
CPU (including overhead on context switching and interrupts)	Very unlikely

Relay Servers can be limited in data volume by the resources in the table below.

Potential Data Volume Limiting Resource	Likelihood
Application pool process (IIS) and thread availablilty	Likely
Pre-allocated shared memory of a fixed size	Likely under heavy load
Virtual memory	Unlikely
Non-paged pool memory consumed by HTTPS system driver and kernel	Unlikely

You can monitor all these resources via Windows performance monitor except for shared memory consumption; you can view this in a shared memory report in the Relay Server log whenever you archive the log. Tuning these elements, except shared memory size, falls under

general IIS tuning practices. Separating `rs_client.dll` and `rs_server.dll` into different application pools enable resource partitioning and makes fine tuning possible.

Subscribing and Connecting to Sybase Hosted Relay Service

The Sybase Hosted Relay Service is an alternative to local Relay Server installation, for temporary use with development and test systems only. It is particularly suitable for a personal Unwired Platform system.

Prerequisites

- All Unwired Servers and data tier servers must be installed and running.
- The Unwired Server cluster and its nodes must be registered in Sybase Control Center.

Note: If the cluster or server name does not appear in the navigation pane, on the SCC console, you must register them with Sybase Control Center.

Task

Subscribe online to the Sybase Hosted Relay Service, and configure your Unwired Platform system with the information you provide during subscription.

1. Register Unwired Server with the relay service.
   a) Register or log in to the Sybase Hosted Relay Service at *https://relayserver03.sybase.com/ias_relay_server/account/index.php*.

   Complete any mandatory fields, then click **Submit**.
   b) From the navigation bar on the left, click **Manage Account**.
   c) Click **Add New Sybase Unwired Platform Farm**.

   Create one or more farms as required by your development or test environment.
   - Select at least one farm type.
   - Do not select **DCN farm**.
   - Select **MBS farm** for Hybrid Web Container applications.
   - Enter the farm name, which serves as the farm ID in Sybase Control Center. The suffix `RBS` or `MBS` is appended to the end of the farm name.
   - Enter the server name, which is used as the server node ID in Sybase Control Center. The server name must contain only alphanumeric characters.
   d) Click **Create Farm**.
   e) Click **Configuration Instructions** from the confirmation message.

   Keep this page open, or make a copy of these details so you have them available for further configuration tasks in Sybase Control Center and on the client devices.
2. Use Sybase Control Center to register the hosted relay service as a Relay Server.
   a) Click the Unwired Platform cluster, and open the **Relay Servers** tab, then click **New**.

b) Enter general configuration information from the configuration instructions, then click **Next**.

Host	relayserver.sybase.com
HTTP port	80
HTTPS port	443

c) Enter the server farm (Unwired Server cluster) information.

Farm ID	Copy the farm name from configuration instructions
Type	Messaging or Replication

d) Click +, then click the farm ID field.

e) Enter the **Node ID**.

Use the server name you registered with the hosted relay service.

f) Enter the **Token**.

Copy the token string from the configuration instructions and paste it in the field.

g) Click + to add the server node to the list, then **Finish**.

3. Create Outbound Enablers (RSOEs) to connect with the hosted relay service.

a) In the left pane, under **Servers > <*Unwired Server name*>**, select **Server Configuration**.

b) Select the **Outbound Enabler** tab.

c) Click + **New** to create the RSOEs.

d) Select the details from the drop-down lists, then click **Finish**.

4. Start all RSOEs.

a) Select some or all RSOEs, then click **Start**.

The Status column should show `Running`.

b) Select one or more RSOEs, then click **Retrieve Log**.

Review log messages to ensure each RSOE is running correctly.

Record the connection property values shown on the Configuration Instructions page to share with developers and device users.

Developers must use those values to configure an Unwired Server connection profile, and to set values in the Connection screen of a mobile application.

Configuring EIS Drivers

Configure any drivers and utilities that Unwired Server needs for connection to EIS data sources.

See also
- *Configuring Relay Servers and Outbound Enablers* on page 82

Preparing to Connect to JDBC Databases

To enable Unwired Server connections to Oracle, DB2, and SQL Server databases, download the appropriate JDBC driver and install it on each Unwired Server host.

1. Download the JDBC driver.

JDBC driver	URL
Oracle	*http://www.oracle.com/technology/software/tech/java/sqlj_jdbc/index.html*
DB2	*http://www-306.ibm.com/software/data/db2/express/download.html*
SQL Server	*http://msdn.microsoft.com/en-us/data/aa937724.aspx*

2. Install the JDBC driver.
   a) Copy JDBC driver files to the `<UnwiredPlatform_InstallDir>\Servers \UnwiredServer\lib\3rdparty\` directory.
   b) Restart the Unwired Server.
   c) Repeat these steps on each node in the Unwired Server cluster.

Preparing Unwired Server to Connect to SAP using Java Connectors

Unwired Server can use Java Connectors (JCo) to connect to SAP data sources. With the correct security setup, you can implement single sign-on (SSO) authentication.

Prerequisites

You must have an SAP account to access the SAP Web site and download libraries and utilities.

Task

After installing the required SAP files see the *Security* chapter for details on configuring Unwired Server to use SSO.

Installing the SAPCAR Utility

Unzip and install the latest SAPCAR utility on your Unwired Server or Unwired WorkSpace host, which you can use to extract the contents of compressed SAP files, for example RFC and cryptographic library files.

The installation package is available to authorized customers on the SAP Service Marketplace. There are different distribution packages for various hardware processors. Select the package appropriate for your platform.

1. Go to the SAP Web site at *http://service.sap.com/swdc*.
2. From the SAP Download Center, navigate to **Support Packages and Patches > Browse our Download Catalog > Additional Components**

3. Select **SAPCAR**.

4. Select the current version. For example, **SAPCAR 7.10**, then select and download the SAPCAR appropriate for your platform.

Installing the SAP Cryptographic Libraries on Unwired Platform

Installation and configuration is required if you want to configure Secure Network Communications (SNC) for Unwired Platform SAP JCo connections. SNC may be required by the SAP EIS in question, if SSO2 tokens or X.509 certificates are used for connection authentication.

Prerequisites

Download and install the SAPCAR utility, which is required to extract the contents of the cryptographic library.

Task

Unzip and install the contents of the latest SAP Cryptographic archive on your Unwired Server host. There are different distribution packages for various hardware processors.

Make sure you are installing the correct libraries for your environment, and into folders based on the particular architecture of your machine.

1. Go to the SAP Web site at *http://service.sap.com/swdc* and download the latest SAP cryptographic library suitable for your platform.

    a) Navigate to **Installations and Upgrades > Browse our Download Catalog > SAP Cryptographic Software > SAP Cryptographic Software**.

    b) Select and download the platform specific file.

2. Create a directory in which you unzip the Cryptographic zip file. For example: `C:\sapcryptolib`.

3. Copy the appropriate Windows cryptographic library for your machine (for example, 90000101.SAR) to the `C:\sapcryptolib` directory.

4. Open a command prompt and navigate to `C:\sapcryptolib`.

5. Extract the SAR file. For example:

    SAPCAR_4-20002092.EXE -xvf C:\90000101.SAR -R C:\sapcryptolib

6. Create a new directory somewhere on your computer (for example, `C:\sapcryptolib`), then:

    • For Itanium 64 bit processors, copy the `ntia64` subdirectory contents.

    • For Intel 64 bit processors, copy the `nt-x86_64` subdirectory contents.

    • For Intel 32 bit processors, copy the `ntintel` subdirectory contents.

7. Delete the corresponding subdirectory when files have been moved.

8. (Optional) Add the SECUDIR environment variable to the user environment batch file:
   `<`*`UnwiredPlatform_InstallDir`*`>\UnwiredPlatform\Servers`
   `\UnwiredServer\bin\usersetenv.bat.`

9. If you have installed Sybse Mobile SDK, you must add the SECUDIR variable to the
   Unwired WorkSpace batch file: `<`*`UnwiredPlatform_InstallDir`*`>`
   `\UnwiredPlatform\Eclipse\UnwiredWorkspace.bat.`

Installing DOE-C on Unwired Server

Install the DOE Connector (DOE-C) on Unwired Server hosts that enable communication
between Unwired Server and the SAP system

See the latest version of the *Sybase SAP DOE Connector Installation Guide* for details.

CHAPTER 4   **Upgrading and Migrating**

The upgrade to Unwired Platform 2.1 is performed in place.

Upgrade and Migration Paths

Paths available to upgrade Unwired Platform servers and migrate server data.

The installer can directly upgrade your Unwired Platform 2.0.x installation to version 2.1. If you have a version of Unwired Platform earlier than 2.0.x, additional steps are required to upgrade to version 2.1.

Migrate Unwired Platform customizations at the same time you upgrade Unwired Platform servers. See *Installation Guide for Sybase Mobile SDK*, "Upgrading and Migrating."

Current Unwired Platform Version	Server Upgrade
1.2	**Server Upgrade Tasks:** **1.** Upgrade to version 1.5.2 via fresh install in a new location. Use Sybase Unwired Platform 1.5.2 *Installation Guide*, "Upgrading and Migrating" chapter, as a guide. **2.** Upgrade in place to version 2.0. See Sybase Unwired Platform 2.0 *Installation Guide*, "Upgrading to Sybase Unwired Platform 2.0." **3.** Upgrade in place to version 2.1. See Sybase Unwired Platform 2.1 *Installation Guide for Runtime*, "Upgrading and Migrating." **Server Data Migration Tasks:** • Manually copy database files from a version 1.2 installation to a version 1.5.2 installation. Use Sybase Unwired Platform 1.5.2 *Installation Guide*, "Migrating Production Unwired Server Runtime Data" topic, as a guide.
1.5.2 1.5.3 1.5.5	**Server Upgrade Tasks:** **1.** Upgrade in place to version 2.0. See Sybase Unwired Platform 2.0 *Installation Guide*, "Upgrading to Sybase Unwired Platform 2.0." **2.** Upgrade in place to version 2.1. See *Upgrading Sybase Unwired Platform Servers* on page 113.

Current Unwired Platform Version	Server Upgrade
2.0 2.0.1	**Server Upgrade Tasks:** • Upgrade in place to version 2.1. See *Upgrading Sybase Unwired Platform Servers* on page 113.
2.1 Online Data Proxy	**Server Upgrade Tasks:** • Upgrade in place from version 2.1 Online Data Proxy option to version 2.1 Unwired Platform Runtime option. See *Upgrading Online Data Proxy to Unwired Platform Runtime* on page 116.

Native Client Version Compatibility Matrix

This shows compatibility between versions of the client object API and Unwired Server.

Native Client Object API and Unwired Server Version Compatibility

	Unwired Server 1.2	Unwired Server 1.5.x	Unwired Server 2.0.x	Unwired Server 2.1
Native Client Object API 1.2	YES	NO	NO	NO
Native Client Object API 1.5.x	NO	YES	YES	YES
Native Client Object API 2.0.x	NO	NO	YES	YES
Native Client Object API 2.1	NO	NO	NO	YES

Hybrid Web Container Version Compatibility Matrix

This shows compatibility between versions of the Hybrid Web Container and Unwired Server and Hybrid Web Container and Mobile Workflow applications.

Hybrid Web Container and Unwired Server Compatibility

	Unwired Server 2.0	Unwired Server 2.0.1	Unwired Server 2.1
Hybrid Web Container 2.0	YES	YES	YES
Hybrid Web Container 2.0.1	NO	YES	YES
Hybrid Web Container 2.1	NO	NO	YES

Hybrid Web Container and Mobile Workflow Application Compatibility

	Mobile Workflow Application 2.0	Mobile Workflow Application 2.0.1	Mobile Workflow Application 2.1
Hybrid Web Container 2.0	YES	NO	NO
Hybrid Web Container 2.0.1	YES	YES	NO
Hybrid Web Container 2.1	YES	YES	YES

Upgrading Sybase Unwired Platform Servers

Follow these guidelines when upgrading an existing Unwired Platform system, in any configuration.

You can upgrade existing Unwired Platform servers by installing this version in place – overwriting the existing installation. When you run the Sybase Unwired Platform Runtime installer, follow the same instructions as for a new installation.

Before upgrading Unwired Platform servers:

- If you have mobile applications that use a custom SAP result checker, upgrade those applications to use JCo version 3, before you upgrade production servers. See *Migrating Applications that Use a Custom SAP Result Checker* on page 114.
- Make sure the existing Unwired Platform system is version 2.0 or 2.0.1.
- Back up the current installation. See *System Administration*, "Backup and Recovery" and "Advantage Database Server Backup (adsbackup) Utility" for details.
- If Sybase SAP DOE Connector is present, shut down SAP Data Orchestration Engine.

Migrating Applications that Use a Custom SAP Result Checker

If you have mobile applications that use a custom SAP result checker, you must upgrade those applications to use JCo version 3, before you upgrade production servers to Sybase Unwired Platform 2.1.

Any package that uses custom SAP result checkers with JCo prior to version 3 is disabled when you upgrade to Unwired Platform 2.1. To reenable a disabled package, see *Sybase Control Center*, "Enabling and Disabling a Package."

1. Confirm that each mobile application project that uses custom SAP result checkers was upgraded to use JCo version 3.

   See *Installation Guide for Sybase Mobile SDK*, "Upgrading Applications that Use a Custom SAP Result Checker."

   If you are upgrading an Unwired Server cluster, perform the following steps on each Unwired Server node. See also *Upgrading a Simple Load Balancing Cluster Installation* on page 114.

2. Shut down the Unwired Server node to be upgraded.

3. Copy the package `lib\jar` file that was upgraded to use JCo version 3 into the identical package deployment `lib` folder, replacing the JCo version 2 file.

4. Run the Sybase Unwired Platform Runtime installer to upgrade the Unwired Server node.

Upgrading a Simple Load Balancing Cluster Installation

Where the cluster uses only the basic load balancing cluster support that is built into Unwired Platform.

1. Shut down all Sybase-related processes on cluster nodes in this sequence:
   - Secondary Unwired Servers – shut down services in this order:
     a. Sybase Unwired Server
     b. Sybase Control Center *X.X*
     c. Sybase Unwired SampleDB (not applicable to Enterprise Server Edition)
   - Primary Unwired Server – shut down services in this order:
     a. Sybase Unwired Server
     b. Sybase Control Center *X.X*

   c. Sybase Unwired SampleDB (not applicable to Enterprise Server Edition)
   • Data tier server – shut down these services, in any order:
      • Sybase Unwired CacheDB
      • Sybase Unwired ClusterDB
      • Sybase Unwired LogDataDB
      • Advantage Database Server®
2. Upgrade servers in this sequence, leaving Sybase services restarted on completion of each upgrade:
   a. Data tier.
   b. Primary node.

   > **Note:** Do not begin upgrading any secondary servers until the primary server has completely finished restarting all its services after being upgraded.

   c. Secondary nodes.

Upgrading a Microsoft Cluster Service or Failover Cluster

Follow this sequence for shutting down, upgrading, and restarting cluster components.

1. Shut down all Sybase-related processes on cluster nodes in this sequence:
   • Secondary Unwired Servers – shut down these services in this order:
      a. Sybase Unwired Server
      b. Sybase Control Center *X.X*
      c. Sybase Unwired SampleDB (not applicable to Enterprise Server Edition)
   • Primary Unwired Servers – shut down these services in this order:
      a. Sybase Unwired Server
      b. Sybase Control Center *X.X*
      c. Sybase Unwired SampleDB (not applicable to Enterprise Server Edition)
2. On the active data tier server, launch the Microsoft Cluster Administrator and take the following active resources offline for this node:
   • Advantage Cluster Service
   • AFDB Cluster Service
   • CDB Cluster Service
   • Other services specified by your Microsoft Cluster administrator

   All other resources must remain online and accessible. If a resource other than those listed above becomes unavailable, the data tier upgrade fails.
3. Upgrade the active data tier.
4. Validate the upgrade on the data tier node by bringing the stopped Microsoft Cluster resources online and confirming that they are restarted.
5. Upgrade the passive node.

    a. Launch Microsoft Cluster Administrator.

    b. Failover the active node to the passive node. The passive node is now active.

    c. Repeat steps 2-4.

6. With all data tiers started, upgrade Unwired Platform on the remaining server nodes in this sequence:

    a. Primary node.

> **Note:** Do not begin upgrading any secondary servers until the primary server has completely finished restarting all its services after being upgraded.

    b. Secondary nodes.

> **Note:** Ensure that the user credentials used to perform the upgrade on the Unwired Server nodes has the same permissions to read/write to the shared data path of the data tier node.

7. Restart all Unwired Servers, beginning with the primary server.

Upgrading Online Data Proxy to Unwired Platform Runtime

This installation scenario upgrades a single-server Online Data Proxy installation to a single-server Unwired Platform Runtime installation. Online Data Proxy cannot be installed in a cluster configuration. When upgraded to Unwired Platform Runtime, it remains a single server installation.

1. *Preparing to Upgrade*

Ensure that Online Data Proxy is currently installed on the target host and that you have a license file for Unwired Platform Runtime.

2. *Selecting Installation Options*

Start the Sybase Unwired Platform Runtime installer, accept the end user license agreement, and confirm the upgrade.

3. *Completing the Upgrade*

Review the installation summary and launch the installation process.

Preparing to Upgrade

Ensure that Online Data Proxy is currently installed on the target host and that you have a license file for Unwired Platform Runtime.

1. Verify that Sybase Online Data Proxy is installed on the target host.

2. Verify that you have Administrator privileges on the installation target host.

Selecting Installation Options

Start the Sybase Unwired Platform Runtime installer, accept the end user license agreement, and confirm the upgrade.

1. Start the Sybase Unwired Platform Runtime installer using one of these methods:

   - Insert the Sybase Unwired Platform Runtime installation media.
   - Install from a Web download. Extract all the archive files to the same temporary directory on a local disk, not a shared drive.
   - Install from an image on the network. You must access the installation image from a mapped drive, not a UNC path.

   Browse to the location of the `setup.exe` file, and double-click it to start the installer.

2. On the installer welcome page, click **Next**.

3. On the end-user license agreement page, select your country, then accept the terms of the license agreement and click **Next**.

4. Click Next to use the existing Unwired Platform installation directory.

5. Confirm the upgrade by selecting **Yes, Upgrade Sybase Unwired Platform 2.1 Online Data Proxy to Sybase Unwired Platform 2.1 Runtime**, then click **Next**.

Completing the Upgrade

Review the installation summary and launch the installation process.

1. On the summary information page, verify the installation features and click **Install**.

2. (Optional) Click **View Release Bulletin**.

3. Click **Finish**.

For information about configuring Sybase Unwired Platform, see *System Administration*.

Upgrading Relay Servers

To upgrade Relay Servers that were installed with Unwired Platform version 2.0, you must uninstall the Relay Server components on Web server hosts, and replace them with the components supplied on the Unwired Platform Runtime version 2.1 installation media.

When you upgrade an Unwired Platform system from version 2.0 to 2.1, upgrading existing Relay Servers (from version 11.x to 12.0.1) is optional.

1. Shut down the Relay Server.
   a) Shut down the Web server application.
   b) Shut down the Relay Server State Manager service.

2. Save the existing Relay Server configuration file (`rs.config`) for use with the new Relay Server components.

3. Delete all Relay Server components installed on the Web server host.

   • On an IIS host, delete the `wwwroot\ias_relay_server\` directory, including all files and subdirectories.
   • On an Apache host, delete all Relay Server libraries and executables in the `modules\` directory, and all Relay Server components installed elsewhere on the Apache host.

Next

Use instructions in the related topic to install new Relay Server components.

See also

CHAPTER 5   **Uninstalling**

Uninstall Sybase Unwired Platform server components, before reinstalling them or upgrading to a new version.

1. *Preparing to Uninstall*

    Follow these steps before you start the Sybase Unwired Platform Runtime uninstaller.

2. *Uninstalling Unwired Platform Servers*

    Use the Control Panel to uninstall Unwired Platform server components.

Preparing to Uninstall

Follow these steps before you start the Sybase Unwired Platform Runtime uninstaller.

1. If Sybase SAP® DOE Connector is present, use the SCC console to remove any DOE-C packages.

    See *Sybase Control Center* , "Deploy" chapter.

2. While Unwired Server is running, uninstall any other Sybase products that require Unwired Platform to be installed first.

    This includes products such as:
    *   Sybase SAP® DOE Connector
    *   Sybase Mobile Sales for SAP® CRM
    *   Sybase Mobile Workflow for SAP® Business Suite

    See the product-specific *Installation Guide* for instructions.

3. Shut down all Sybase software, Sybase processes, and associated third-party processes running on the host.

    a) Shut down all Unwired Servers, before shutting down the data tier.

        Ensure that all services that have names beginning with "Sybase" are stopped.

        This includes Sybase Control Center, and if Sybase SAP DOE Connector is present, SAP Data Orchestration Engine.

    b) Shut down all database servers on data tier hosts.

        *   Ensure that all services that have names beginning with "Sybase" are stopped.
        *   Ensure that the Advantage Database Server service and OpenDS service are stopped, if either is present.

Open the Windows Services panel to confirm services are stopped. You may need to manually stop any Unwired Platform services still running.

4. Move or copy any user-created files and log files that you want to keep, from the Unwired Platform installation directories to another location.

If you plan to reinstall Unwired Platform, preserve data by backing up the Unwired Platform databases.

See *System Administration*, "Operational Maintenance" chapter.

Uninstalling Unwired Platform Servers

Use the Control Panel to uninstall Unwired Platform server components.

Prerequisites
Confirm all preparation tasks are complete, before you start the Sybase Unwired Platform Runtime uninstaller.

Task

1. From the Control Panel, begin removing the program.
   This starts the uninstaller.

2. Click **Next** in the welcome window.

3. Select the components to remove, and click **Next**.

4. Review the list of components to remove, then click **Uninstall**.

5. Click **Finish** when you see:
   ```
   The InstallShield wizard has successfully uninstalled
   Sybase Unwired Platform ...
   ```

6. Restart the system.

   Restart is necessary to delete folders and files remaining in the Unwired Platform installation directory.

7. Delete any folders and files remaining in the Unwired Platform installation directory, if the uninstaller could not remove them.

   If you cannot delete the SCC installation directory (`C:\Sybase\SCC-XX` by default), see *Troubleshooting Uninstallation*.

CHAPTER 6   **Scripting Silent Installation, Upgrade, or Uninstallation**

You can automate installation, upgrade, or uninstallation of Unwired Platform server components by specifying settings in a text file, then running a script that silently runs the Sybase Unwired Platform Runtime installer or uninstaller.

Silent Installation or Upgrade

Use the `SilentInstall_Win.bat` script to automate the installation or upgrade process. The Sybase Unwired Platform Runtime installer runs silently, taking input from the `SilentInstall_Win.txt` file.

The silent installation capability allows you to perform any particular type of Unwired Platform Runtime installation or upgrade, without entering information through the installer interface. There is no difference in the scripting process between a silent installation and a silent upgrade.

- Configure installer settings in a `SilentInstall_Win.txt` file.
- Run the installer from the command prompt, using the `SilentInstall_Win.bat` script.
- Each type of installation requires a `SilentInstall_Win.txt` file, with one or more settings that are required to perform the installation. For example, different settings perform a single-node installation, or one of three types of installation required for a clustered system.
- If User Access Control (UAC) is present in the version of Windows where you are installing, disable it.

Note: The Unwired Platform Runtime installer can install server components only. The Sybase Mobile SDK requires a different installer.

Planning a Silent Installation or Upgrade

Review the content of the default `SilentInstall_Win.txt` file and determine what changes you need to make for the type of Unwired Platform server installation or upgrade you want to automate.

1. Locate the `SilentInstall_Win.bat` script and `SilentInstall_Win.txt` file in the root directory of the Sybase Unwired Platform Runtime installation media.

2. If you cannot modify those files on the installation media, create a copy of the installer image in a location from which you can run the installer.

3. Open the `SilentInstall_Win.txt` file in a text editor and review the current settings.

   Comments preceding each group of settings describe the valid options, and any special requirements for the entry.

4. Determine what changes you want to make in the installation settings.

   For example, you may want to match non-default port number assignments used in an existing installation.

Modifying Properties in the SilentInstall_Win.txt File

Edit a separate copy of the default `SilentInstall_Win.txt` configuration file for each type of Unwired Platform server installation you want to automate.

1. From the root directory of the installer image, open `SilentInstall_Win.txt` in a text editor.

2. Make the changes you have determined are necessary.

   Some settings must be different for different types of installations, for example:

   ```
   ...
   #Note:  Only one of the three properties can be set to true at any
   given time.
   #
   ###########################################################
   #-V clusterCDB="true"
   #-V clusterCreateNew="false"
   #-V clusterAddToExisting="false"
   ...
   ```

3. Save your changes.

   If you are preparing to run several types of silent installation, say for different types of cluster nodes, save the configuration file with a unique name, or in a separate folder.

   Note: When you run a silent installation, the configuration file must be named `SilentInstall_Win.txt`, and it must be located in the root directory of the installer image.

Running a Silent Installation

Make sure you have the correct version of the modified `SilentInstall_Win.txt` file in the installer image, then run the `SilentInstall_Win.bat` script from a command prompt.

1. For each type of installation you want to automate, perform a trial run of these instructions using your modified `SilentInstall_Win.txt` configuration files, on a temporary or test server host.

Confirm that each modified configuration file produces the desired installation outcome, before you proceed with silent installation on an actual target host.

2. Confirm that the root directory of the installer image contains the correct version of the `SilentInstall_Win.txt` configuration file that you modified for a particular installation type.

3. From a command prompt on the installation target host, navigate to the root directory of the installer image and launch the silent installation script:

    ```
    SilentInstall_Win
    ```

4. Check the log files for errors.

    *   Errors that cause a silent installation to fail before the installation directories are created are logged in *<InstallDrive>*`\UPInstall.log`.
    *   Errors encountered after the installation destination is created are logged in *<UnwiredPlatform_InstallDir>*`\InstallLogs\UPInstall.log`.

5. Repeat these steps on different servers for each type of installation you are automating.

Silent Uninstallation

Use the `SilentUninstall_Win.bat` script to automate the uninstallation process. The Sybase Unwired Platform Runtime uninstaller runs silently, taking input from the `SilentUninstall_Win.txt` file.

The silent uninstallation capability allows you to perform selective uninstallation of Unwired Platform server components, without entering information through the uninstaller interface.

*   You control which Unwired Platform components are uninstalled with settings in a `SilentUninstall_Win.txt` file. The default settings remove all Unwired Platform server components on the target host.
*   Run the uninstaller from the command prompt, using the `SilentUninstall_Win.bat` script.
*   Each uninstallation that removes a different combination of Unwired Platform server components requires a separate `SilentUninstall_Win.txt` file.

When you run a silent installation, the `SilentUninstall_Win.bat` script and `SilentUninstall_Win.txt` configuration file are copied to the *<UnwiredPlatform_InstallDir>*`\Uninstallers\UnwiredPlatform\` directory. If you do not run a silent installation, you must copy those files to that location from the Sybase Unwired Platform Runtime installation media root directory.

Note: The Unwired Platform Runtime uninstaller can uninstall server components only. The Sybase Mobile SDK requires a different uninstaller.

Planning a Silent Uninstallation

Review the content of the default `SilentUninstall_Win.txt` file and determine what changes you need to make to selectively remove Unwired Platform server components in the uninstallation.

1. Locate the `SilentUninstall_Win.txt` file in the `<UnwiredPlatform_InstallDir>\Uninstallers\UnwiredPlatform\` directory, on the host where you want to run a silent uninstallation.

   If Unwired Platform server components were not installed silently, the `SilentUninstall_Win.txt` file is not present. Copy the `SilentUninstall_Win.bat` script and `SilentUninstall_Win.txt` file to that location from the root directory of the Sybase Unwired Platform Runtime installation media.

2. Open the `SilentUninstall_Win.txt` file in a text editor and review the current settings.

   Comments preceding each group of settings describe the valid options, and any special requirements for the entry. Any component identified with `.activeForUninstall=true` will be uninstalled.

3. Determine the Unwired Platform server components you want to keep.

   The default settings remove all Unwired Platform server components.

Modifying Properties in the SilentUninstall_Win.txt File

Edit a separate copy of the default `SilentUninstall_Win.txt` configuration file for each type of Unwired Platform server uninstallation you want to automate.

1. From the `<UnwiredPlatform_InstallDir>\Uninstallers\UnwiredPlatform\` directory on the host where you want to run a silent uninstallation, open the `SilentUninstall_Win.txt` file in a text editor.

2. Make the changes you have determined are necessary.

   Set property values to "false" for any Unwired Platform server component you do not want to uninstall:

   ```
   # false here = KEEP feature
   ...
   # Data Tier Feature
   -P SupDB.activeForUninstall=true

   # Unwired Server Feature
   -P MobileServer.activeForUninstall=true
   ```

3. Save your changes.

   If you intend to run several types of silent uninstallations, keeping different combinations of Unwired Platform server components, save the configuration file with a unique name, or in a separate folder.

> **Note:** When you run a silent uninstallation, the configuration file must be named
> `SilentUninstall_Win.txt`, and it must be located in the
> `<UnwiredPlatform_InstallDir>\Uninstallers\UnwiredPlatform\`
> directory on the host where you want to run a silent uninstallation.

Running a Silent Uninstallation

Make sure you have the correct version of the modified `SilentUninstall_Win.txt`
file, in the correct location on the host where you want to run a silent uninstallation, then run
the `SilentUninstall_Win.bat` script from a command prompt.

1. For each type of uninstallation you want to automate, perform a trial run of these
   instructions using your modified `SilentUninstall_Win.txt` configuration files,
   on a temporary or test server host.

   Confirm that each modified configuration file produces the desired uninstallation
   outcome, before you proceed with silent uninstallation on an actual target host.

2. On the host where you want to run a silent uninstallation, confirm that the
   `<UnwiredPlatform_InstallDir>\Uninstallers\UnwiredPlatform\`
   directory contains the correct version of the `SilentUninstall_Win.txt`
   configuration file that you modified for a particular uninstallation type.

3. From a command prompt on the installation target host, navigate to the
   `<UnwiredPlatform_InstallDir>\Uninstallers\UnwiredPlatform\`
   directory and launch the silent uninstallation script:

   ```
   SilentUninstall_Win
   ```

4. Check for errors in `<UnwiredPlatform_InstallDir>\InstallLogs`
   `\UPUninstall.log.`

5. Repeat these steps on different servers for each different type of uninstallation you are
   automating.

CHAPTER 7 **Troubleshooting**

Review information about common problems that arise in the Sybase Unwired Platform Runtime installation process, including SySAM licensing issues.

If you need to contact Sybase Technical Support, see *Troubleshooting*, *Reporting Errors*.

Troubleshooting Installation

Determine the cause of installation problems and apply the recommended solution.

See the Sybase Unwired Platform *Troubleshooting* guide for additional information.

Problem	Resolution
Visual C++2008 wizard starts up when installing Unwired Platform	If Visual C++ 2008 runtime is installed in the root directory of the system where you are installing Unwired Platform server components, the Visual C++ wizard starts up soon after you start the Sybase Unwired Platform Runtime installer.
	Workaround: Verify that the following files have a date stamp of 11/7/2007, and then move them to another location:
	• VC_RED.MSI
	• VC_RED.CAB
	• eula.1028.txt
	• eula.1031.txt
	• eula.1033.txt
	• eula.1036.txt
	• eula.1040.txt
	• eula.1041.txt
	• eula.1042.txt
	• eula.2052.txt
	• eula.3082.txt
	• globdata.ini
	• install.exe
	• install.ini
	• install.res.1028.dll
	• install.res.1031.dll
	• install.res.1033.dll
	• install.res.1036.dll
	• install.res.1040.dll
	• install.res.1041.dll
	• install.res.1042.dll
	• install.res.2052.dll
	• install.res.3082.dll
	• vcredist.bmp

Problem	Resolution
Silent install gives Registry error	If Sybase Unwired Platform was previously installed on the target system, and either the installation was canceled before completion or the uninstallation was incomplete, the installer detects Windows Registry keys that must be deleted and prompts you to OK the deletion before the installer continues. This aborts a silent installation. **Workaround**: Run the Sybase Unwired Platform Runtime installer interactively, OK the Registry key deletion, and complete the installation. Then immediately uninstall Unwired Platform components through the Windows Control Panel. The system is then ready for a silent installation.
Uninstaller might not run on Windows Vista	Sometimes, the uninstaller does not launch on Windows Vista. This may be caused by the operating system changing the launch command for the Unwired Platform uninstaller, preventing it from using its own JVM to start itself. **Workaround**: Run an external 32-bit JDK version 1.6.0_26 to launch the uninstaller with the following, where *<jdk_installdir>* is similar to `C:\jdk1.6.0_26\bin`: `<jdk_installdir>\java -Dtemp.dir=%TEMP% -jar C:\Sybase\UnwiredPlatform\Uninstallers\UnwiredPlatform\uninstall.jar` When you uninstall—or cancel out of uninstalling—Unwired Platform, the Program Compatibility Assistant dialog appears with the message `This program might not have uninstalled correctly`. At this point, you can avoid the uninstaller issue altogether by selecting the **This program uninstalled correctly** option in the dialog instead of **Uninstall with recommended settings**.
Unwired Servers do not shut down during an uninstallation	Shut down all Sybase products, Sybase processes, and associated third-party products and processes before launching the uninstaller. **Note:** Shut down the Unwired Servers before shutting down the data tier.
Cannot start an Unwired Platform component	Make sure that all services are started for the installed components. See *System Administration > System Reference > Unwired Platform Windows Services*.

Problem	Resolution
Cannot start Sybase Control Center	Make sure that you have installed an appropriate version of Adobe Flash Player.

Problem	Resolution

Network domain name is invalid on virtual machine (VM) installation or when switching to different networks after installation	Configure Unwired Server to use the valid network domain name.
	
	1. Shut down Unwired Server and Unified Agent services.
	2. Obtain the correct host and domain name.
	3. Open a command window and enter:
	`ipconfig /all`
	4. Run:
	`configure-mms.bat `*`<clustername>`*
	5. To set the proper domain name in all the Unwired Server configuration files, run:
	`<UnwiredPlatform_InstallDir>``\Servers`
	`\UnwiredServer\bin\configure.bat`
	6. Manually edit `%SYBASE%\SCC-3_2\services`
	`\RMI\service-config.xml`, modifying the address property to reflect the new fully qualified host name.
	
	``
	<properties>
	    <set-property property="address" val-
	ue="supvm.mycompany.com" />
	    <set-property property="port" val-
	ue="9999" />
	    <set-property property="timeout" val-
	ue="43200" />
	  </properties>
	``
	
	Replace *supvm* with your host name and *mycompany.com* with your domain name.
	7. If the DNS server cannot resolve the fully qualified name and this server is accessed only locally, edit the `c:\Windows`
	`\system32\drivers\etc\hosts` file to add **127.0.0.1** to the current fully qualified name. You can add as many 127.0.0.1 entries as needed for each host and domain in which your machine works.
	8. Restart Sybase Unified Agent and Unwired Server.
	9. Log in to Sybase Control Center.
	10. Open **Perspective Resources** view.
	11. Update the **host** property of the registered resource for Unwired Server for which the network domain name changed.
	12. Choose **Authenticate** and then launch Management Console using **Manage** option on the resource.

Problem	Resolution
	13. For Unwired WorkSpace components only, launch Eclipse and modify the domain name in the connection profile for Unwired Server.
Unable to install Enterprise Developer Edition on Virtual Machine (VM) with Unserved License	If you need to use a Developer edition via Remote Desktop Connection (RDC), Terminal Services, or similar remote access technology, you cannot use unserved licenses.
	Workaround: Generate served licenses and use a license server. Virtual machines (VMs) that are not locally hosted typically require RDC, so also require served licenses.
	You may be able to install on a VM with an unserved license if you use console 0 to access the VM to perform the installation.
`Unable to open Service` error appears during installation and, after installation, Messaging service is not in Windows Service list.	The root cause of this problem may be that the local .NET framework is corrupted. Check this by going to `C:\WINDOWS\Microsoft.NET\Framework\v2.0.50727\` and running `installutil`. A configuration error message indicates that the local .NET framework is corrupted. Help information indicates normal function.
	If the local .NET framework is corrupted, uninstall and reinstall .NET 2.0.

Unwired Server or RSOE Startup Problems

Problem: Problems, such as Unwired Server or RSOE failing to start, are encountered without any obvious error messages.

Explanation 1: This may occur if the Unwired Server host machine is running intrusion detection software, such as the McAfee Host Intrusion Prevention service. This may cause a connection from the CDB to the Unwired Server node to be flagged as an attack, and the CDB host to be added to the list of Blocked Hosts, preventing communication between Unwired Server and the CDB. The Unwired Server log reports connectivity problems with the CDB, and startup failure problems similar to:

```
YYYY-MM-DD HH:MM:SS.SSS ERROR MMS Thread-55
[com.sybase.djc.log.SystemExceptionLog]
com.sybase.djc.DataStoreException was thrown by method
com.sybase.djc.server.PartitionLock.updateLock(boolean)
\ncom.sybase.djc.DataStoreException: Connection Failed:
java.sql.SQLException: JZ006: Caught IOException:
java.net.SocketException: Software caused connection abort:
connect ...
```

Workaround 1: You may want to set up some exclusion rules to allow the required communication between the CDB and Unwired Server nodes. Use the following information to formulate the exclusion rules; rules may vary depending on the intrusion detection software used.

- SQL Anywhere® to Unwired Server – SQL Anywhere sends UDP packets on port 2638 in response to discovery probes. The JDBC/ODBC client (on Unwired Server) sends a UDP broadcast on 2638 outbound to all servers on the local network(s) with the name of the database service to which the client is trying to connect. If a SQL Anywhere hosting the given database sees that UDP broadcast request, it responds with a UDP targeted directly back to the host that sent the broadcast.

  The installer also issues a 'dblocate' query, which receives UDP responses back from every SQL Anywhere on the local network. Unwired Server uses that to filter out < *cluster-name* > _clusterdb responses to form a list of reachable Sybase Unwired Platform clusters to populate the dropdown list for subsequent installs where the user is adding a new Unwired Server to an existing cluster. If Sybase Unwired Platform is installed in a cluster, the MobiLink™ services also open connections among each other to coordinate activities of the MobiLink farm. Those connections are on the MobiLink listener ports.

- Sybase Unwired Platform to CDB – uses a JDBC connection through jConnect™ for JDBC™ driver. There are two kinds of protocols between Sybase Unwired Platform and CDB:
  - The MobiLink and CDB connection uses Command Sequence.
  - The jConnect for JDBC connection uses TDS.
- RSOE to Relay Server – uses either an HTTP and HTTPS connection.
- Unwired Server to Unwired Server – for administration communication uses:
  - Administration communication (MMS to MMS) uses IIOPS protocol by default.
  - Administration communication (MMS to Mobile Office service) uses IIOPS protocol by default.
- Unwired Server to Advantage Database Server – uses an OLE DB connection through ADO driver.

Explanation 2: If .Net is present when Unwired Platform is installed, and the .Net installation is corrupt, the Unwired Platform installer does not detect the problem, leaves the corrupt .Net in place and Unwired Server does not start.

Workaround 2: Uninstall both Unwired Platform and .Net, then reinstall Unwired Platform, letting the Unwired Platform installer install .Net.

Advantage Database Server Cannot Authenticate

Problem: After installing Unwired Platform data tier servers in a failover cluster, an error message appears in the event viewer.

One or more of the following messages may appear:

- `7078: The Advantage Database Server cannot authenticate the user. Make sure the name and password are correct. axServerConnect AdsConnect.`
- `5004: Either ACE could not find the specified file, or you do not have sufficient rights to access the file. The data dictionary file is not found on the server. AdsConnect.`

Explanation: The message indicates the Unwired Server messaging service cannot locate the shared data folder, on the shared cluster storage that houses the database files, or cannot access the file.

Solution:

1. On a data tier host, check the following registry key value to find the location of the `adsserver.ini` file:
   `HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\services\Advantage\Configuration\TPS_LOGS`
   The default value is: `C:\`

2. If the `adsserver.ini` file does not exist, create it in the location identified in the registry key value, on each data tier host.

3. Add the following lines to the `adsserver.ini` file on each data tier host, to identify the local path to the shared data folder:
   ```
   [ServerAliases]
   share_name=local_path
   ```

   where *share_name* is the file share resource group (or Client Access Point) that you created under the Microsoft Cluster file share service.

   In this example, `supData` is the file share resource group that you created under the Microsoft Cluster File share service, and `F:\` is the local physical path on each data tier server host.
   ```
   [ServerAliases]
   supData=F:\
   ```

4. Restart the Advantage Database Server service (cluster resource). See *System Administration > System Reference > Unwired Platform Windows Services > Starting and Stopping Unwired Platform Server Services*.

End-to-End Encryption and HTTPS Options Not Configured Correctly after Upgrade

Problem: End-to-end encryption (E2EE) and HTTPS settings are not retained in the upgrade to version 2.1.

Explanation: If the version 2.0 Sybase Unwired Server had E2EE and HTTPS options configured, after upgrading to 2.1, `E2E Encryption Public Key` and `Secure Sync Port Public Certificate` are empty. These fields need to be manually configured.

Workaround: Use Sybase Control Center to manually configure these same settings. See *Sybase Control Center*, "Configuring a Synchronization Listener" and "Security Settings" topics.

Workflow Deployment Fails with SoapException

Problem: After migration, a workflow deployment may fail with a SoapException error.

Explanation: Occasionally a migrated workflow application fails with a SoapException error.

Workaround: Just rev the module version number that is displayed on the **Flow Design** page, **General** tab.

Cannot Access sampledb

Problem: After installation, you cannot access the sample database (`sampledb`).

Explanation 1: If you installed Unwired Platform with an Enterprise Server (production) license, this is expected behavior. You must start `sampledb` manually.

Solution: Use the Start and Stop sampledb command line utility (**sambledb.bat**) to start the sample database. See *System Administration for Sybase Unwired Platform > System Reference > Command Line Utilities > Unwired Server Runtime Utilities > Start and Stop sampledb Server (sampledb) Utility*.

Explanation 2: If you installed Unwired Platform with an Enterprise or Personal Development license, make sure the `sampledb` windows services is installed properly and started. See *System Administration for Sybase Unwired Platform > System Reference > Command Line Utilities > Unwired Server Runtime Utilities > Start and Stop sampledb Server (sampledb) Utility*.

Troubleshooting SySAM

If you do not address SySAM errors in a timely fashion, Sybase Unwired Platform may cease to function.

There may be more recent information published in the *SySAM Asset Management Users Guide* online at *SySAM FAQ*, and in the *Fast Track to SySAM 2.0* white paper, available at *Fast Track to SySAM 2.0*. If your Sybase product cannot find a required license, it operates in grace mode, if a grace period is available.

Typically, there is a 30-day grace period during which to resolve any SySAM-related issues. When a license is awarded in grace mode, the Sybase product error log entry includes the grace period expiry date and time. To view the expiration date for your license, in the Sybase Control Center folder for your server, open the **Users** folder, go to the **Messaging** tab, and click **Licensing**.

The Sybase product log includes information about licenses awarded under grace mode. The warnings in the Sybase product error log are repeated daily while the license is under grace mode.

SySAM-Related Errors

All SySAM-related errors print in your Sybase product error log.

The error log for Sybase Unwired Platform is `<UnwiredPlatform_InstallDir>`
`\Servers\UnwiredServer\logs\<server_name>-server.log`.

To locate SySAM related entries, search for "LicenseManager" in this file. For example:

```
2010-02-01 18:07:32.138 WARN MMS Thread-3
[com.sybase.sup.server.lm.LicenseManager] - msgId: 1,
message: Failed to open the localised message file '%SYBASE%
\locales\unicode\sylapi\en_us\sylapi.lcu' (i18nuni_FileOpen
returned -479)
```

If you are using a served license model, the license server's debug log, located in the `<UnwiredPlatform_InstallDir>\Servers\UnwiredServer`
`\sysam-2.0\log` directory, provides information about any license checkout issues.

Problems and Solutions

If the product does not install or does not function after installation, contact SySAM Technical Support.

Error	Possible Causes	Solution
Installation Warning: Cannot Find a Valid License	You may not have the required licenses installed. If there are installed licenses, the licenses may be incorrect for the product or feature you are trying to install.	See *Installing for the First Time* in the *SySAM Users Guide*.
Updating an Existing Installation	If you are updating an existing installation, make sure your license authorizes you to install the update. See *Installing Product Updates, EBFs, and Support Renewal* in the *SySAM Users Guide*. If your license does not allow you to perform the update, the product may not be usable.	If you are installing an update that is authorized by the license, see the solution for *Product Cannot Checkout a License and Starts in Grace Period* error below before you proceed with the update.

Error	Possible Causes	Solution
License Server Executables and Scripts not Installed	When you installed your product, the license server was not installed. Some product installations offer the option to install a license server; however when available, this option is not selected, by default, for installation. You may need to explicitly install a license server. See your product's installation guide and release bulletin to determine if the product installer offers this option.	Depending on the options provided by your Sybase product's installation wizard, use one of the following solutions: • If your product offers this option, use the instructions in your product's installation guide to install the license server. • If your product does not include the option to install a license server, go to *http://www.sybase.com/sysam* and click **Download the SySAM Standalone License Server – Free!**.
License Server Does not Start	See *Possible Causes of a License Server Failure* in the *SySAM Users Guide*.	Go to SPDC or SMP, generate a valid served license for your product, and copy it into the `licenses` directory on the machine where the license server is installed. See *Generating Licenses at SPDC* or *Generating Licenses at SMP*.
License Server Does not Recognize the License Files	• The license was generated for a different machine or generated using an incorrect host ID. • The license has been altered. You cannot change any information in a generated license. • If the host ID for your platform is based on the network adapter identification, the most common problem occurs when you have used an ID associated with the address of a virtual network adaptor.	• Verify that the host ID recorded in the license file matches the host ID of the actual machine for which the license was issued. If the host IDs do not match, go to SPDC or SMP, check in the license, then regenerate the license with the correct host ID. • If your license is being created by typing from a paper copy, verify whether errors occurred when the license information was entered. You can also download a new copy of the activated license from SPDC or SMP. • If the host ID for your platform is based on a network adapter, verify that the ID you are using is associated with a valid NIC and that the ID is not associated with loopback or virtual adapters. If the ID you are using is associated with a removable network adapter, verify that the adapter is actually attached to the computer.

Error	Possible Causes	Solution
Linux virtual machine does not appear to be part of the Microsoft Hyper-V host.	`/usr/sbin/dmide-code` in Linux virtual machine cannot read from `/dev/mem`.	Log in to Linux virtual machine as root, then execute **chmod 4555 /usr/sbin/dmi-decode**.

Product Does not Start, License Check-out Error	• You have not generated and deployed the valid licenses for the product requesting licenses.
	• The required license does not exist and the product does not award a license on grace.
	• The product is configured to use the wrong edition or license type.
	• You have the wrong host ID for an unserved license.
	• When multiple product editions include optional features, the features are offered as separately licensed items for each edition. Licensed optional features work only with the licensed base product of the same edition. For example, if you order Adaptive Server Enterprise, you cannot use a Small Business Edition optional feature license with an Enterprise Edition base product.
	• You are using an unserved Standalone Seat (SS) type license on a terminal server.
	• The license is for a different operating system.
	• The license is a Floating License (FL) but is currently in use elsewhere.
		At a command prompt or in a terminal window, execute the following commands, where *feature_name* is the name of the feature for which SySAM failed to check out a license:
		
		`sysam diag feature_name`
		
		If the SySAM script is unavailable, enter:
		
		`lmutil lmdiag -c license_directory_location feature_name`
		
		Go to SPDC or SMP and generate your product's required licenses. If you are trying to use a separately licensable optional feature you must have a license for both the base product and the option, and if the product has more than one edition, the edition of the base product and option must be the same.
		
		If you generated an invalid license, check in the license at SPDC or SMP, and regenerate the license with the correct information.

Error	Possible Causes	Solution
Product Cannot Check Out a License and Starts in Grace Period	To help you determine the possible causes when your product cannot check out a license, execute the following command from the `SYSAM-2_0/bin` directory, at a Windows command prompt or in a UNIX system terminal window, where *feature_name* is the name of the feature license that could not be checked out. `sysam diag `*`feature_name`* If the command output says that no licenses are available for checkout, this may be due to one of the reasons below, which are separated into served and unserved license deployment model causes and solutions.	See *Served License Deployment Models* or *Unserved License Deployment Models*, both in the *SySAM Users Guide*.
Product Continues to Run in Grace Period After Fixing a License Problem	The license status has not yet been updated. When the product periodically performs license checks, the license status is not immediately updated.	Wait up to 6 hours for server products, and up to 1.5 hours for tool products.
Product Cannot Find Licenses for Optional Features	You either have not installed the license for the optional feature, or the license exists, but cannot be checked out.	See *Solution for Problem: Product Cannot Find Licenses for Optional Features* in the *SySAM Users Guide*.

Error	Possible Causes	Solution
Product Obtains the Wrong License	These locations are searched, in the order specified, until a suitable license is found. When a license directory is specified, license files in that directory are loaded in the directory sort order. When a product looks for a license, it looks in: • The locations that represent the values set for the SYBASE_LICENSE_FILE and LM_LICENSE_FILE variables. Sybase does not advocate using environmental variables and recommends that all licenses be located centrally in the expected licenses directory. • All files with a `.lic` extension in the licenses directory. This location is product specific, though typically the directory is `$SYBASE/SYSAM-2_0/licenses`. The first license that matches the feature name, version, edition, and license type filter is used; however, this license may not be the intended license your product requested.	• Configure your product to choose a license for a specific edition and license type. • If you are using served licenses, use the options file to ensure that the correct license is used.
License checkout problems with unserved license	See *Unserved License Deployment Models* in the *SySAM Users Guide*.	
License checkout problems with served license	See *Served License Deployment Models* in the *SySAM Users Guide*.	

Problems and Solutions for Unwired Platform

Troubleshoot SySAM issues that are specific to Unwired Platform.

Table 5. Troubleshooting SySAM

Problem	Resolution

With a served license, Sybase Unwired Platform Runtime installer generates a license checkout failure error and cannot complete the installation	This is most likely due to unavailability of a port for the license server's VENDOR SYBASE daemon to use in communicating with Sybase Unwired Platform.
	
	Check the entries in the `sybase.log` file in the `SYSAM-2_0\log` directory where the SySAM license server is installed. Locate the line containing "FLEXnet Licensing" – your log file may look something like this:
	
	`11:20:27 (lmgrd) `**`FLEXnet Licensing`**` (v11.6.1.0 ...`
	`11:20:27 (lmgrd) Copyright (c) 1988-2008 Acresso ...`
	`11:20:27 (lmgrd) US Patents 5,390,297 and 5,671,412.`
	`11:20:27 (lmgrd) World Wide Web:  http://...`
	`11:20:27 (lmgrd) lmdown/lmreread only allowed on ...`
	`11:20:27 (lmgrd) License file(s): .../licenses/...`
	`11:20:27 (lmgrd) `**`lmgrd tcp-port`**` 27000`
	`11:20:27 (lmgrd) Starting vendor daemons ...`
	`11:20:27 (lmgrd) `**`Started SYBASE`**` (internet ...`
	
	About 6 lines below the "FLEXnet Licensing" line is a line containing "lmgrd tcp-port," and just below that should be a line containing "Started SYBASE."
	
	• If you do not see the "Started SYBASE" line, this indicates that the license server started up without successfully opening a port for the VENDOR SYBASE daemon. Contact your network security administrator and arrange for a port number to be available, then restart the license server. Check the `sybase.log` file again to be sure that the port was successfully opened.
	• If you see the "Started SYBASE" line, with no error messages, his indicates that the license server successfully opened a port for the VENDOR SYBASE daemon. Edit this port number from the "lmgrd tcp-port" line into your Sybase Unwired Platform license file.

Problem	Resolution
Sybase Unwired Platform does not start, and generates a license check-out failure error	If Sybase Unwired Platform cannot check out the required license, it determines whether the license can be issued in grace mode. If a grace period cannot be given, the license is not granted. If the base license for Sybase Unwired Platform (SUP_ENTSRVR, for Enterprise Edition, SUP_ENTDEV for Enterprise Developer Edition, or SUP_DEVELOPER for Personal Developer Edition) was in grace mode and the issue is not fixed by the end of the grace period, Sybase Unwired Platform fails to start. For more information, see "Sybase Unwired Platform cannot check out a license and starts with license in grace mode" in this table. The troubleshooting tips for resolving licenses issued in grace mode apply to solve this issue as well.

Problem	Resolution

Sybase Unwired Platform cannot check out a license and starts with license in grace mode	Execute the **sysam diag feature_name** command from the SySAM bin directory, where *feature_name* is the SySAM feature name for Sybase Unwired Platform or the optional feature that is in grace mode. The feature name is printed in the Sybase Unwired Platform error log and in the optional e-mail notifications.
	
	If the **diag** command shows that there are no licenses available to be checked out, it may be due to one of these reasons:
	
	• If you are using a served model:
	  • Verify that the license server is running and reachable from the machine you are using. Use "sysam status" to verify that you can access the license server. If you cannot access the license server, make sure it is running.
	  • If the license server is running, use "sysam status -f *feature_name*" to determine whether the license server is serving a license for the given feature. If not, obtain the correct licenses from SPDC or SMP.
	  • All licenses on the license server may be in use. If "sysam status -f *feature_name*" indicates that no licenses are available, obtain additional licenses or shut down existing instances of Sybase Unwired Platform.
	• If you are using an unserved model:
	  • The license for the given feature may not be in the local licenses directory. Obtain the correct licenses from SPDC or SMP and copy them to the local licenses directory.
	  • The license may have been activated for a different machine or with an incorrect host ID. Check the license back in to SPDC or SMP and reactivate it with the correct host ID.
	• The available licenses are for a different operating system or architecture. Obtain license for the correct platform from SPDC or SMP.
	• If you are running in a terminal server environment, you cannot use unserved licenses. Set up served licenses.
	• The available license may not authorize use of this version of Sybase Unwired Platform. For information about date based versioning, see "Installing Product Updates, EBFs, and Support Renewal" in the *SySAM Users Guide*.

Problem	Resolution
Sybase Unwired Platform cannot check out a license and starts with license in grace mode (continued)	If the **diag** command shows that the license for the given feature is available, Sybase Unwired Platform may not be able to check it out because: • The product edition or license type does not match the requirement. If the **product edition** and **license type** configuration parameters are set, Sybase Unwired Platform uses only the license that matches these settings. • Also see "Sybase Unwired Platform cannot find license for optional feature, even though the license exists" in this table.
Sybase Unwired Platform shows licenses as being in grace mode even after the issue has been fixed	Sybase Unwired Platform periodically performs license checks, and the license status is updated only after the next heartbeat cycle is completed. This may take a few hours.
Sybase Unwired Platform cannot find license for an optional feature, even though the license exists	Execute "sysam diag *feature_name*" to ensure that license for the optional feature exists and can be checked out from the machine on which Sybase Unwired Platform is running. If the feature exists, but cannot be checked out from Sybase Unwired Platform, it may be because: • The optional feature is for a different edition. • The active or standby flags do not match for the base server license for Sybase Unwired Platform and the optional feature.
Sybase Unwired Platform does not start with the expected edition or license type	If the **edition** and **license type** configuration parameters are not set, Sybase Unwired Platform uses the first available base license (SUP_ENTSRVR, for Enterprise Edition, SUP_ENTDEV for Enterprise Developer Edition, or SUP_DEVELOPER for Personal Developer Edition) . If you have multiple base licenses with different editions and license types, the first-available depends on many license factors such as license file directory sort order, available licenses on the license server, and so on. The product edition and license type that are granted by SySAM cannot be guaranteed. Sybase recommends that you set the **edition** and **license type** configuration parameters. During installation, you set these parameters on the license details page, following the end user license agreement. When these parameters are set, Sybase Unwired Platform starts with that configuration. If a matching license is unavailable, Sybase Unwired Platform starts in grace mode (if available) to allow you to resolve the licensing issue.

Calling Sybase Technical Support

Information to have available if you call Sybase Technical Support for SySAM-related issues.

• The Sybase Unwired Platform error log.

- *<UnwiredPlatform_InstallDir>*\Servers\UnwiredServer\logs
  <server_name>-server.log
- The bootstrap log file that is created on license expiration, if it exists.
    - *<UnwiredPlatform_InstallDir>*\Servers\UnwiredServer\logs
      \bootstrap*<randomNo>*.log
- If Sybase Unwired Platform does not start, check the server's properties file:
    - *<UnwiredPlatform_InstallDir>*\Servers\UnwiredServer
      \Repository\Instance\com\sybase\sup\server\SUPServer
      \sup.properties
- The license files (.lic extension) saved in the
  <UnwiredPlatform_InstallDir>\Servers\UnwiredServer
  \sysam-2.0\licenses directory on the machine running Unwired Server.
- Output from **lmutil lmpath -status** command. The lmutil program is located in the
  $SYBASE/SYSAM-2_0/licenses directory on the system where the SySAM license
  server is installed.
- If you are using a served license model:
    - The license files (.lic extension) saved in the *$SYBASE*/SYSAM-2_0/
      licenses directory of the license server.
    - The license server log file in the *$SYBASE*/SYSAM-2_0/log directory.

Troubleshooting Uninstallation

See *Sybase Unwired Platform Troubleshooting* for the most recent troubleshooting
information.

Problem	Resolution
Sybase Control Center installation directory, `SCC-3_2`, cannot be removed	The Windows uninstaller fails to remove the Sybase Control Center installation directory (`C:\Sybase\SCC-3_2` by default). Manual attempt to delete the directory fails saying that the files could not be deleted. To remove the directory: 1. Find: `<SCC-install_dir>\services\EmbeddedWeb-Container\container\Jetty-6.1.22\work\Jet-ty_0_0_0_0_8282_help.war__help__.smpe97` 2. Change the name of `Jet-ty_0_0_0_0_8282_help.war__help__.smpe97` to a single character, such as j. 3. Retry deleting the Sybase Control Center installation directory.

CHAPTER 8   **Obtaining Help and Additional Information**

Use the Sybase Getting Started CD, Product Documentation site, and online help to learn more about this product release.

- The Getting Started CD (or download) – contains release bulletins and installation guides in PDF format, and may contain other documents or updated information.
- Product Documentation at *http://sybooks.sybase.com/* – is an online version of Sybase documentation that you can access using a standard Web browser. You can browse documents online, or download them as PDFs. In addition to product documentation, the Web site also has links to EBFs/Maintenance, Technical Documents, Case Management, Solved Cases, Community Forums/Newsgroups, and other resources.
- Online help in the product, if available.

To read or print PDF documents, you need Adobe Acrobat Reader, which is available as a free download from the *Adobe* Web site.

Note: A more recent release bulletin, with critical product or document information added after the product release, may be available from the Product Documentation Web site.

Documentation Roadmap for Unwired Platform

Sybase® Unwired Platform documents are available for administrative and mobile development user roles. Some administrative documents are also used in the development and test environment; some documents are used by all users.

See *Documentation Roadmap* in *Fundamentals* for document descriptions by user role. *Fundamentals* is available on the Sybase Product Documentation Web site.

Check the Sybase Product Documentation Web site regularly for updates: *http://sybooks.sybase.com/sybooks/sybooks.xhtml*, then navigate to the most current version.

Index

A

Advantage Database Server
    authentication error 133
    service 133
Apache
    Relay Server configuration 88

B

backing up data
    before uninstalling 119
    before upgrading 113
BlackBerry Enterprise Server
    connection to Unwired Server 12

C

cannot access sampledb
    Enterprise Server (production) license 135
    Personal Development license 135
check out errors 136
choosing
    the correct license 136
clustered systems 3
    cluster types 4
    data tier clusters 5
    load balancing 10
    Relay Server clusters 34
    Unwired Server clusters 4, 45, 64, 74
communication ports 35
    conflict 21
    data tier 36
    Relay Server 36
    reserved 37
    Sybase Control Center 22, 36
    SySAM license server 37
    Unwired Server 35
configuration
    SCC services 22
configuration files
    Relay Server 84, 90
    Relay Server sample 89
connections
    hosted relay service 105

preparing 23
custom SAP result checker
    migrating applications 114

D

data tier
    authentication error in cluster 133
    cluster host provisioning 20
    communication ports 18, 21
    in cluster 5
    in multi-node system 8
    in single-node system 6
    installation directories 37
    installation options 69
    on shared host in failover cluster 9
    personal system 43
    ports reference 36
    services 40
    single-node installation 62
    uninstalling 119
data tier installation 66
databases
    JDBC drivers 107
DB2 JDBC drivers 107
deployment
    planning 2
    scenarios 1
    tasks 49
deployment planning 49
design, system 2
development system
    personal system 43
documentation roadmap 147
drivers
    EIS resources 51

E

end-to-end encryption (E2EE) setting not retained
        after upgrade 134
Enterprise Information System (EIS)
    configuring drivers 106
    provisioning resources 51

Index