Entire Net-Work

Planning for Entire Net-Work 7

Version 7.9.1

October 2021

ADABAS & NATURAL

Table of Contents

1 About this Documentation

Document Conventions

Convention	Description
Bold	Identifies elements on a screen.
`Monospace font`	Identifies service names and locations in the format *folder.subfolder.service*, APIs, Java classes, methods, properties.
Italic	Identifies: Variables for which you must supply values specific to your own situation or environment. New terms the first time they occur in the text. References to other documentation sources.
`Monospace font`	Identifies: Text you must type in. Messages displayed by the system. Program code.
{ }	Indicates a set of choices from which you must choose one. Type only the information inside the curly braces. Do not type the { } symbols.
|	Separates two mutually exclusive choices in a syntax line. Type one of these choices. Do not type the | symbol.
[ ]	Indicates one or more options. Type only the information inside the square brackets. Do not type the [ ] symbols.
...	Indicates that you can type multiple options of the same type. Type only the information. Do not type the ellipsis (...).

Online Information and Support

Software AG Documentation Website

You can find documentation on the Software AG Documentation website at **https://documentation.softwareag.com**.

Software AG Empower Product Support Website

If you do not yet have an account for Empower, send an email to empower@softwareag.com with your name, company, and company email address and request an account.

Once you have an account, you can open Support Incidents online via the eService section of Empower at **https://empower.softwareag.com/**.

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If you have any questions, you can find a local or toll-free number for your country in our Global Support Contact Directory at **https://empower.softwareag.com/public_directory.aspx** and give us a call.

Software AG Tech Community

You can find documentation and other technical information on the Software AG Tech Community website at **https://techcommunity.softwareag.com**. You can:

- Access product documentation, if you have Tech Community credentials. If you do not, you will need to register and specify "Documentation" as an area of interest.

- Access articles, code samples, demos, and tutorials.

- Use the online discussion forums, moderated by Software AG professionals, to ask questions, discuss best practices, and learn how other customers are using Software AG technology.

- Link to external websites that discuss open standards and web technology.

Data Protection

Software AG products provide functionality with respect to processing of personal data according to the EU General Data Protection Regulation (GDPR). Where applicable, appropriate steps are documented in the respective administration documentation.

2 General Information

This chapter provides general information about this release.

Documentation Plans

The documentation for this release is distributed in HTML and PDF formats.

Entire Net-Work and Adabas Manager documentation are described in *Documentation and Other Online Information* in the *Entire Net-Work Release Notes*.

Compatibility

Entire Net-Work 7 is fully compatible with currently supported versions of Entire Net-Work and Adabas.

3 Migrating to this Entire Net-Work Version

The architectural changes for this version of Entire Net-Work enhance the functionality already introduced in Entire Net-Work 7.2 and later releases and are described in *Entire Net-Work 7.6 Release Notes*. We also recommend you read the following sections:

- *Architectural Changes Introduced in Entire Net-Work 7.2*
- *Planning Steps for Entire Net-Work 7*
- *Frequently Asked Questions for Entire Net-Work 7.2*

To migrate from Entire Net-Work versions later than 7.2 to Entire Net-Work 7.6, you need to install 7.6 and then migrate your earlier Entire Net-Work nodes (Kernels) to Entire Net-Work 7.6 Kernel configuration definitions. For complete information, read *Migrating Kernel Configurations from Prior Releases*, in the *Entire Net-Work Server LUW Installation and Administration Guide*.

To migrate from earlier Entire Net-Work Client versions to Entire Net-Work Client 1.6, you need to install 1.6 and then migrate your earlier Entire Net-Work Client client configurations to Entire Net-Work Client 1.6 client configuration definitions. For complete information, read *Migrating Entire Net-Work Client Configurations from Prior Releases*, in the *Entire Net-Work Client Installation and Administration Guide*.

> **Caution:** Once a Kernel configuration has been migrated to 7.6, it cannot be migrated back to any earlier version. If you really need to do so, contact your Software AG technical support representative for assistance. Once a client configuration has been migrated to 1.6, it cannot be migrated back to any earlier version; there is no procedure to do so.

The user exits you used in past releases are still valid and supported by Entire Net-Work 7.6. No user exit code changes are necessary, however, you must rebuild and recompile any existing user exits into the Entire Net-Work 7.6 installation library so they will be recognized by Entire Net-Work 7.6.

> **Note:** When you install Entire Net-Work 7.6 on a Windows system running an older version of Entire Net-Work, the older Entire Net-Work installation is automatically uninstalled.

However, on UNIX systems, the older Entire Net-Work installation must be removed manually.

4 Planning Steps for Entire Net-Work 7

The implementation of Entire Net-Work 7 must be carefully planned and controlled. Existing applications and databases should not be disturbed, so the installation must be planned so it creates a minimum of disruption to service. We encourage implementation in a lab or test environment before putting this Entire Net-Work version into production use. This will give you a chance to more fully understand the new concepts introduced in Entire Net-Work 7. A planned and controlled migration allows the classic product to be made obsolete over time and at your convenience.

The following diagram depicts the basic steps you must complete to implement Entire Net-Work 7.5. Each of the steps is numbered in the diagram and corresponding documentation is provided in this chapter.

	Is a Directory Server already installed?	
Install Directory Server ← No	**①**	Yes → Use Existing Directory Server

	Is AMN already installed?	
Install AMN ← No	**②**	Yes → Use Existing AMN

③ Determine Integration Strategy

④ Position Servers and Kernels

⑤ Obtain Licenses

⑥ Install Servers

⑦ Define Kernels

⑧ Install Clients
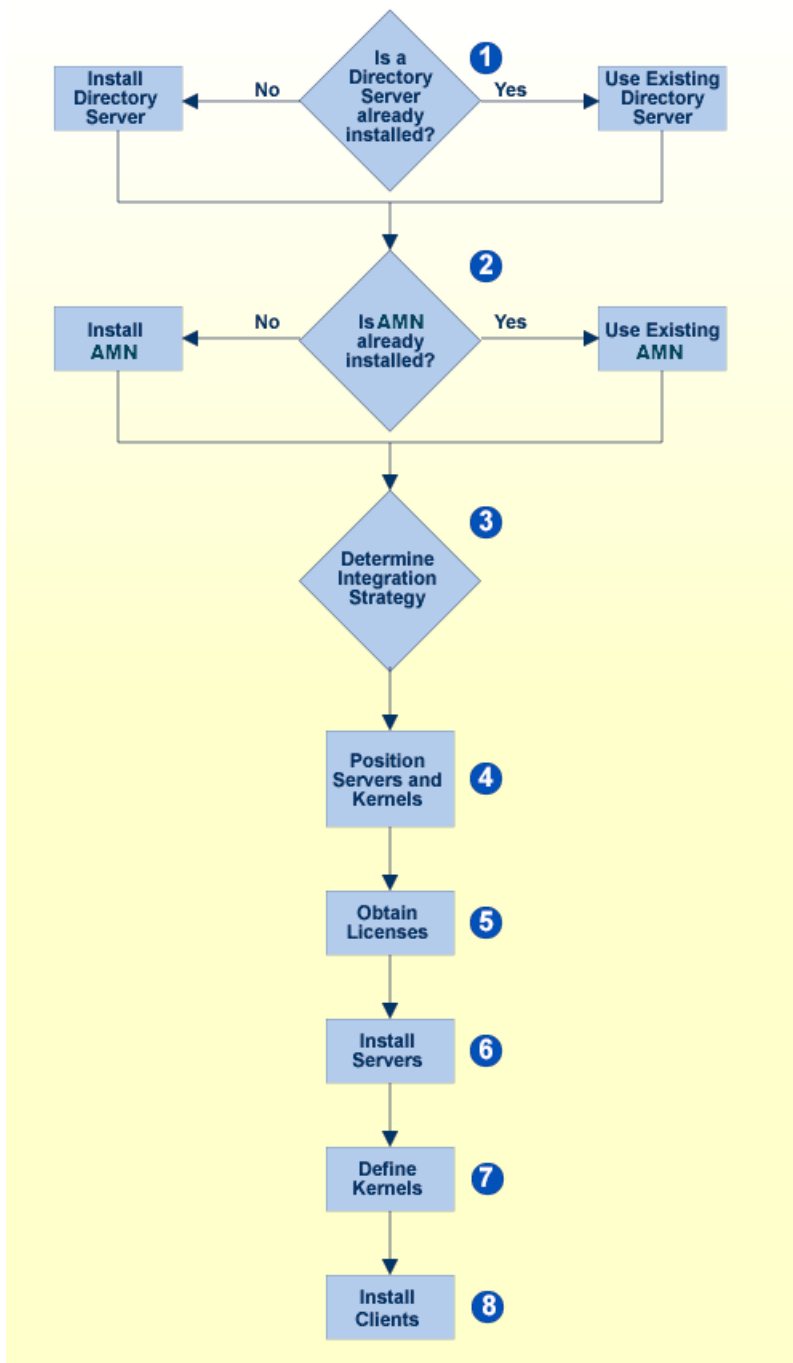
Step 1. Obtain an Operational Adabas Directory Server

Determine whether a Directory Server has already been established for your enterprise when a different Software AG product was installed. It can be located via the DNS entry SAGXTSDSHOST.

The Directory Server is by several other Software AG products. Only one Directory Server is needed in your enterprise, although more than one may be defined, depending on the needs of your enterprise. Once defined, all Software AG products that require a Directory Server can share it. It should run on a system that is highly reliable, preferably on a UPS or located in a data center and it should be available 24 hours a day, seven days a week. Access to the Directory Server at its physical location is not important because it is administered via the Adabas Manager (AMN) and your Web browser.

If a Directory Server is already defined for your enterprise, you can skip this step and continue with Step 2. If one has not been defined, you must install and define one now.

In Entire Net-Work 7, the Directory Server contains all network configuration data for your enterprise. Consequently, once you have located or installed the Directory Server, you should become familiar with its operations so you can confidently manipulate its repository of data.

For information on installing a Directory Server, read the *Software AG Directory Server Installation and Administration Guide*.

Step 2. Obtain an Operational Adabas Manager

Determine whether a Adabas Manager (AMN) has already been installed for your enterprise when a different Software AG product was installed.

Adabas Manager is the only administration tool required to manage the Directory Server and all Entire Net-Work 7 connections.

Only one Adabas Manager is needed in your enterprise. Once defined, all Software AG products that require it can share it. It should run on a system that is highly reliable, preferably on a UPS or located in a data center and it should be available 24 hours a day, seven days a week.

If Adabas Manager is already defined for your enterprise, you can skip this step and continue with Step 3. If one has not been defined, you must install and define one now.

Because Adabas Manager is used to manage and control Entire Net-Work 7 connections and Directory Server entries, you should become familiar with its operation and the screens that relate to these components. For more information about Adabas Manager, read the *Adabas Manager* documentation.

Step 3. Determine Your Site's Specific Integration Strategy

Identify the integration strategy your site will use when installing Entire Net-Work 7 in your environments.

Why is an integration strategy necessary?

- If you are upgrading databases, some downtime will be required for the installation process and database conversion.

- Your user applications may be distributed across geographical areas and disparate systems, requiring multiple installation kits.

- You may have to coordinate integration with other groups in your organization with whom you share resources.

- You will want to test Entire Net-Work 7's e-business communications to measure its performance and ease-of-use with a small subset of your enterprise (a test environment) before applying it to the entire enterprise (a production environment).

There are many integration strategies than can be applied when upgrading from the classic Entire Net-Work to Entire Net-Work 7. Software AG cannot dictate a particular strategy to be applied in your enterprise, however it can make recommendations and suggestions based on its experience with the communications product set.

The first step in the integration process is to determine and fully understand your current environment. This involves considering the following configuration issues and questions:

- One Entire Net-Work Server must be installed on each machine where you wish to define Kernels. Only one Entire Net-Work Server can be installed on a machine.

- At least Entire Net-Work 7 Kernel will be needed on each machine on which an Adabas database resides.

- Do you want to implement partitioning? Partitioning allows you to use one Directory Server for your whole enterprise, rather than separate Directory Server for different departments within your enterprise. For more information, read *Understanding Partitioning*, elsewhere in this guide.

- Do you want to implement filtering? You can filter Entire Net-Work Client configurations and Entire Net-Work Kernel definitions by Adabas database ID. In this way, individual Entire Net-Work Client configuration definitions and Kernel definitions can apply to only specific databases.

For more information on how to configure your system for Entire Net-Work 7, read *Configuration Considerations*, in the *Entire Net-Work Client Installation and Administration Guide* or the *Entire Net-Work Server LUW Installation and Administration Guide*

Regardless of what integration strategy you select, the objective is clear:

- You need to change from using classic Entire Net-Work Kernels on client-only (no databases installed) machines to using Entire Net-Work 7 Clients on those machines.

- You need to change from using classic Entire Net-Work Kernels on machines requiring Kernels to using Entire Net-Work 7 Kernels on those machines.

- You need to install a single Entire Net-Work Server on any machine for which you want to define Kernels.

Step 4. Determine How Many Entire Net-Work Servers and Kernels Are Required

Determine how many Entire Net-Work 7 Entire Net-Work Servers and Kernels need to be defined for your enterprise.

An Entire Net-Work Server must be installed on every open system on which an Adabas database resides and for which you want to create a Kernel definition. In addition, a Kernel definition must be created for every open system on which an Adabas database resides.

If an Entire Net-Work Client is installed on a system and no Adabas database resides on that system, you do not need to install an Entire Net-Work Server or define an Entire Net-Work 7 Kernel on that system; instead, install the more lightweight Entire Net-Work Client on that system.

Kernel definitions are only required for a system if:

1. It runs one or more local Adabas databases. The Kernel acts as a front-end for both Entire Net-Work Clients and for classic Entire Net-Work.

2. There are mainframe databases accessed via existing classic Entire Net-Work nodes that must be accessed from Entire Net-Work 7 Clients.

3. There are e-business databases that must be accessed from classic Entire Net-Work.

In situations 2 and 3 above, the Kernel acts as migration bridge between classic Entire Net-Work and Entire Net-Work 7 Clients. A single Kernel definition in your enterprise can perform this migration bridge function.

> **Note:** You need to install a single Entire Net-Work Server on any machine for which you want to define Kernels.

Step 5. Obtain Licenses for the Entire Net-Work Servers

One Entire Net-Work Server must be installed on any machine on which you want to define Kernels.

The Entire Net-Work Server is a licensed Software AG product and requires a license key file (with an *xml* file extension) before it will start. You will be asked for this license key every time you install an Entire Net-Work Server. Software AG distributes a separate license key file for each Customer system running Entire Net-Work Server. If you attempt to copy or alter a license file, the Entire Net-Work Server will not start.

Contact your Software AG representative and obtain license keys for all Entire Net-Work Servers before attempting any Entire Net-Work Server installation.

Step 6. Install the Entire Net-Work Servers

Install an Entire Net-Work Server on every machine for which you want to define Kernels.

For information on installing an Entire Net-Work Server, read *Installing and Uninstalling Entire Net-Work Server* , in the *Entire Net-Work Server LUW Installation and Administration Guide*. For information on managing Entire Net-Work Server definitions, read *Managing Servers*, in the *Entire Net-Work Server LUW Installation and Administration Guide*.

Step 7. Define the Kernels

Having identified those systems that require a Kernel, you must decide if you wish to continue to run a classic Entire Net-Work on those systems during or after installation. We recommend that you stop any prior (classic) versions of Entire Net-Work you may have running on a system before you define an Entire Net-Work 7 Kernel definition for it. If you don't want to run the classic version, you can delete them after all appropriate Entire Net-Work 7 Kernels have been defined and tested.

For information on maintaining Kernel definitions, read *Managing Kernels*, in the *Entire Net-Work Server LUW Installation and Administration Guide*.

Step 8. Install the Clients

An Entire Net-Work Client should be installed on every machine from which an Adabas database needs to be accessed.

For information on installing an Entire Net-Work Client, read *Installing and Uninstalling Entire Net-Work Client*, in the *Entire Net-Work Client Installation and Administration Guide*. For information on managing Entire Net-Work Client configuration definitions, read *Entire Net-Work Client Administration*, in the *Entire Net-Work Client Installation and Administration Guide*.

Providing the previous integration steps have been successfully completed, client applications start to use the e-Business communications method provided with Entire Net-Work 7 immediately and without configuration.

When you install Entire Net-Work 7 clients on running systems with classic Entire Net-Work, use of the classic Entire Net-Work is immediately stopped and the e-business Entire Net-Work 7 clients will be used.

5 Architectural Changes Introduced in Entire Net-Work 7.2

This chapter describes the architectural changes made for Entire Net-Work 7.2.

Original Classic Architecture

The primary function of Entire Net-Work is to transmit Adabas calls from a client application (such as Natural) to a remote Adabas database. In the past, the model for Entire Net-Work has been 'nodal' in nature. That is, each system participating in network operations requires a separate task, known as the Entire Net-Work Kernel to process both client side and database messages. This is known as the *classic model* and is depicted in the following diagram:
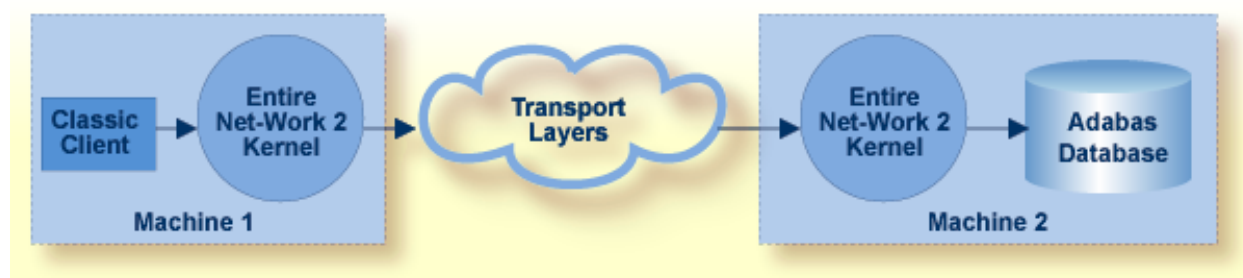
Different versions of Entire Net-Work have been developed on different platforms, using diverse construction languages and employing multiple communication protocols. In addition, multiple versions of the critical ADALNK module (the client interface for the Adabas call) have been developed with different Interprocess Communications (IPC) mechanisms that take advantage of specific equipment features, such as hardware instructions.

The disadvantages of pre-Version 7, classic, Entire Net-Work systems can be summarized as follows:

- Multiple code bases for the Kernel and the ADALNK module limit the ability to enhance them functionally and reduce the speed at which technology changes can be performed.

- The use of multiple communication protocols confuses administrators.

- The different configuration methods and file syntaxes used by different platforms are confusing.

- Users must configure all nodes in a network, including simple client systems.

- There are different command and control methods on different platforms.

- A heavyweight model Kernel is required on systems with only clients, leading to slow throughput.

- The use of multiple processes for the Kernel and protocol handlers on UNIX systems reduces system performance and requires extensive administration.

- The large size of messages headers increases networking traffic and requires extensive construction and processing.

- The UNIX installation process is particularly complex.

■ Irritating restrictions exist in the number of clients, message sizes, and database ID range.

■ There is no Java or other new language support.

Entire Net-Work 7 has been radically redesigned in response to these customer concerns with the classic model. The new Entire Net-Work 7 architecture is described in *New e-Business Architecture*.

New e-Business Architecture

Entire Net-Work 7 is a major redesign of prior versions of Entire Net-Work.

This section covers the following topics:

- Goals
- The New Design
- Design Advantages

Goals

The main goals of this Entire Net-Work redesign are to:

■ Increase its processing speed

■ Reduce the amount of space it occupies (its footprint), especially on the client side

■ Make it easier to manage

■ Simplify the installation, providing a common look and feel across all platforms

■ Rearchitect it so it can be easily expanded, removing all existing limitations and allowing any new products to be supported.

■ Provide a common code base with a common look and feel across all platforms

However, this new design must also be compatible with all current classic Entire Net-Work versions and must provide a comprehensive migration path for customers with production environments depending on it. For more information about migrating from prior versions of Entire Net-Work to Entire Net-Work 7, read *Planning Steps for Entire Net-Work 7*.

The New Design

The primary objective of Entire Net-Work has not changed. Adabas calls are still shipped from a client to a database and a reply is shipped back. However, the Entire Net-Work 7 model, referred to as the *e-business model*, is asymmetric in nature, providing for far simpler client operations. The following diagram depicts this asymmetric design (which can be compared with the classic design depicted in *Original Classic Architecture*, earlier in this section):
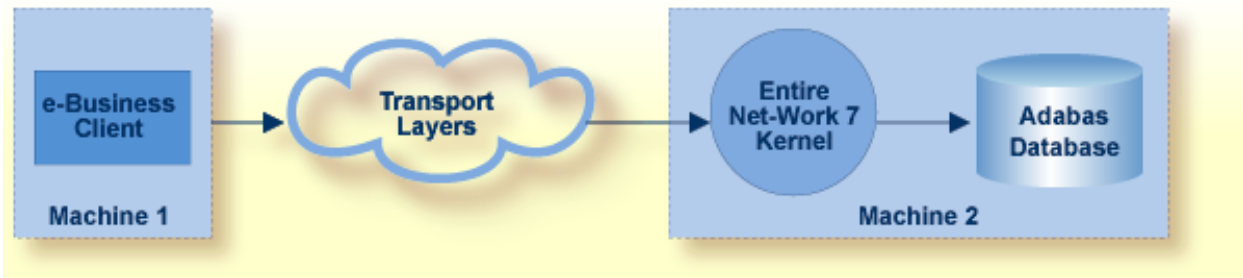
An *e-business client* is any Adabas client application that uses the Entire Net-Work 7 e-Business model and its associated message protocol and Directory Server entries to access Adabas databases. Hence, all of the following applications are or can be e-business clients:

- Jadabas client applications
- Natural applications
- Tamino applications
- Adabas SQL Gateway applications
- Any 3-GL user-written application that makes the Adabas() call.

Entire Net-Work 7's e-business model makes use of a number of other Software AG products to achieve its **design goals**: the Directory Server and the Adabas Manager.

This section covers the following topics:

- The Client
- The Kernel
- The Adabas Directory Server
- Partitioning

■ The Adabas Manager

The Client

The new Entire Net-Work 7 client uses the new Entire Net-Work 7 e-business message protocol to access Adabas databases. It no longer needs a Kernel residing on the same system or its attendant control console, so the Entire Net-Work 7 client is much smaller than in previous versions and no longer requires any client-side IPC mechanisms to manage. Entire Net-Work 7 clients are simpler, faster and easier to deploy.

Simply install an Entire Net-Work 7 client on any machine from which you wish to access Adabas databases. Assuming the appropriate Entire Net-Work 7 Kernels have been installed in your enterprise and the Adabas Directory Server entries have been migrated for Entire Net-Work 7, your client should be immediately able to access the Adabas databases it needs.

The Kernel

The new Entire Net-Work 7 Kernel provides access to local and e-business Adabas databases. It requires a set of standard URLs (maintained using the Directory Server) to control its activities.

The Entire Net-Work 7 Kernel is the most complex component in the product because it provides various migration bridge technologies to assist you.

1. A Kernel provides access to local Adabas databases. It manages Directory Server URLs so that all e-business clients can use the new e-business message protocol to access the database via the Kernel. In addition, it broadcasts database availability to all connected classic nodes so that clients on those nodes can also access the database via the older protocol.
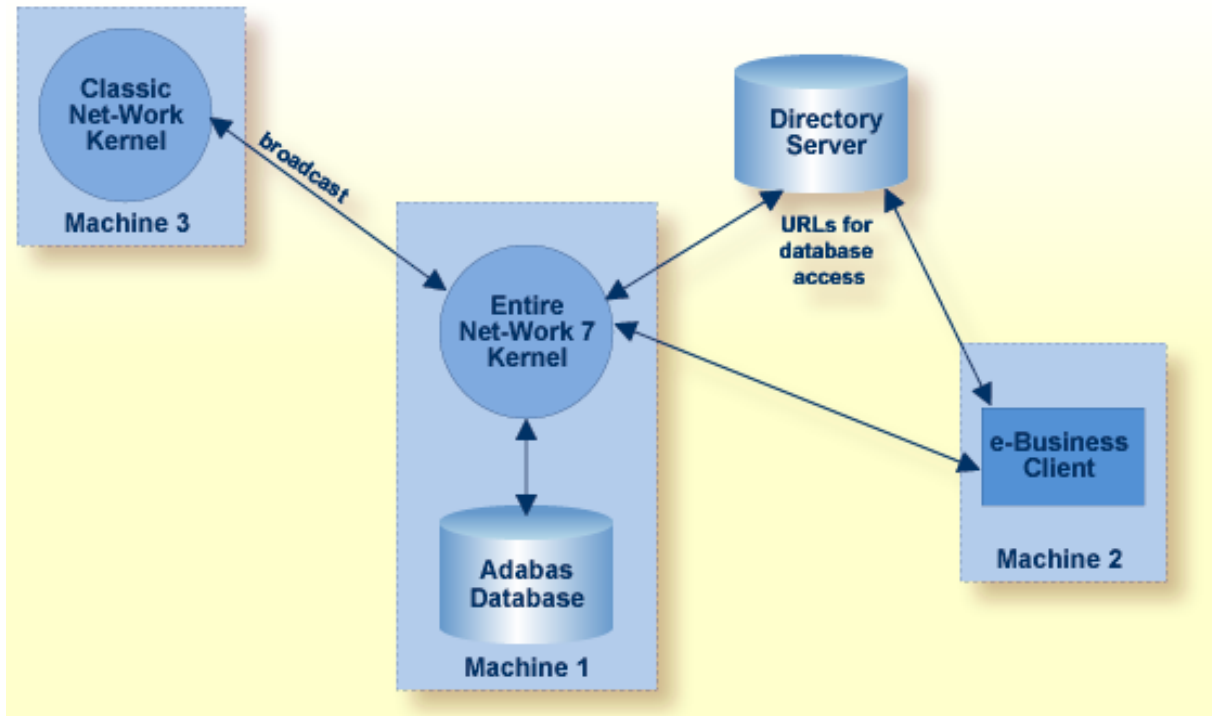
2. A Kernel provides access from e-business clients to databases on connected classic nodes using the older Entire Net-Work protocols. When a classic node connects or is connected to, the Kernel detects available remote databases and manages Directory Server URLs accordingly. Consequently, e-business clients can send Adabas calls to the Kernel where they will be converted to the older Entire Net-Work protocol and relayed to the classic node. Each reply is reconverted to the newer, e-business protocol and returned to the client. The Kernel also keeps track of database transitions (starts, stops, crashes), connections, and disconnections for databases on connected classic nodes.
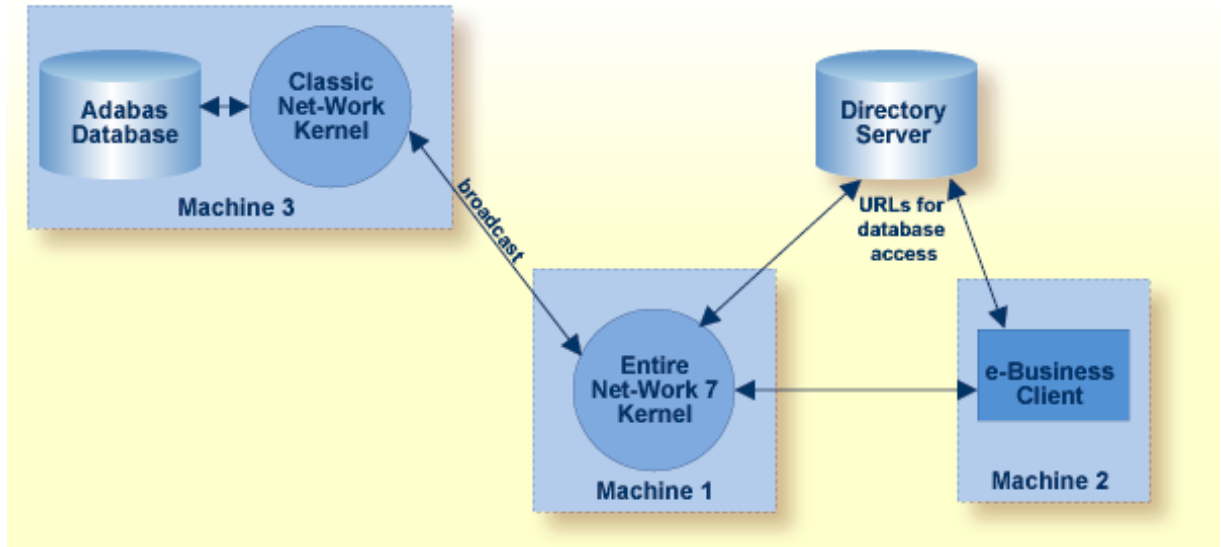
3. A Kernel provides access from classic clients to *e-Business Adabas databases*. When an e-Business database is connected to a Kernel, the database availability is broadcast to all connected classic nodes using the older Entire Net-Work protocol. Classic clients can then send Adabas calls to the Kernel where they will be converted into the e-business protocol and sent to the database. Replies are reconverted to the classic message protocol and relayed back to the client.

> **Note:** Currently mainframe e-business Adabas database access is only supported if Entire Net-Work 6 (or later) ADATCP or Simple Connection Line Driver (TCPX line driver) are installed on the mainframe host.
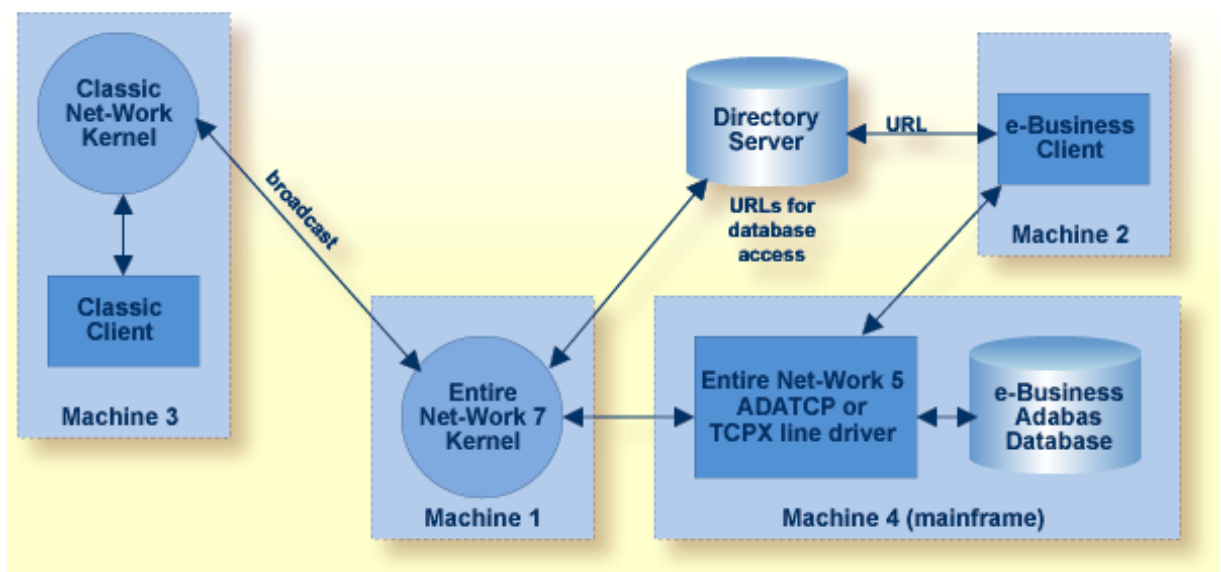
In summary, once all classic connection definitions have been converted, the Entire Net-Work 7 Kernel, using the Directory Server entries, becomes the bridge between classic Entire Net-Work installations and new e-business Entire Net-Work 7 installations, as depicted in the following diagram:
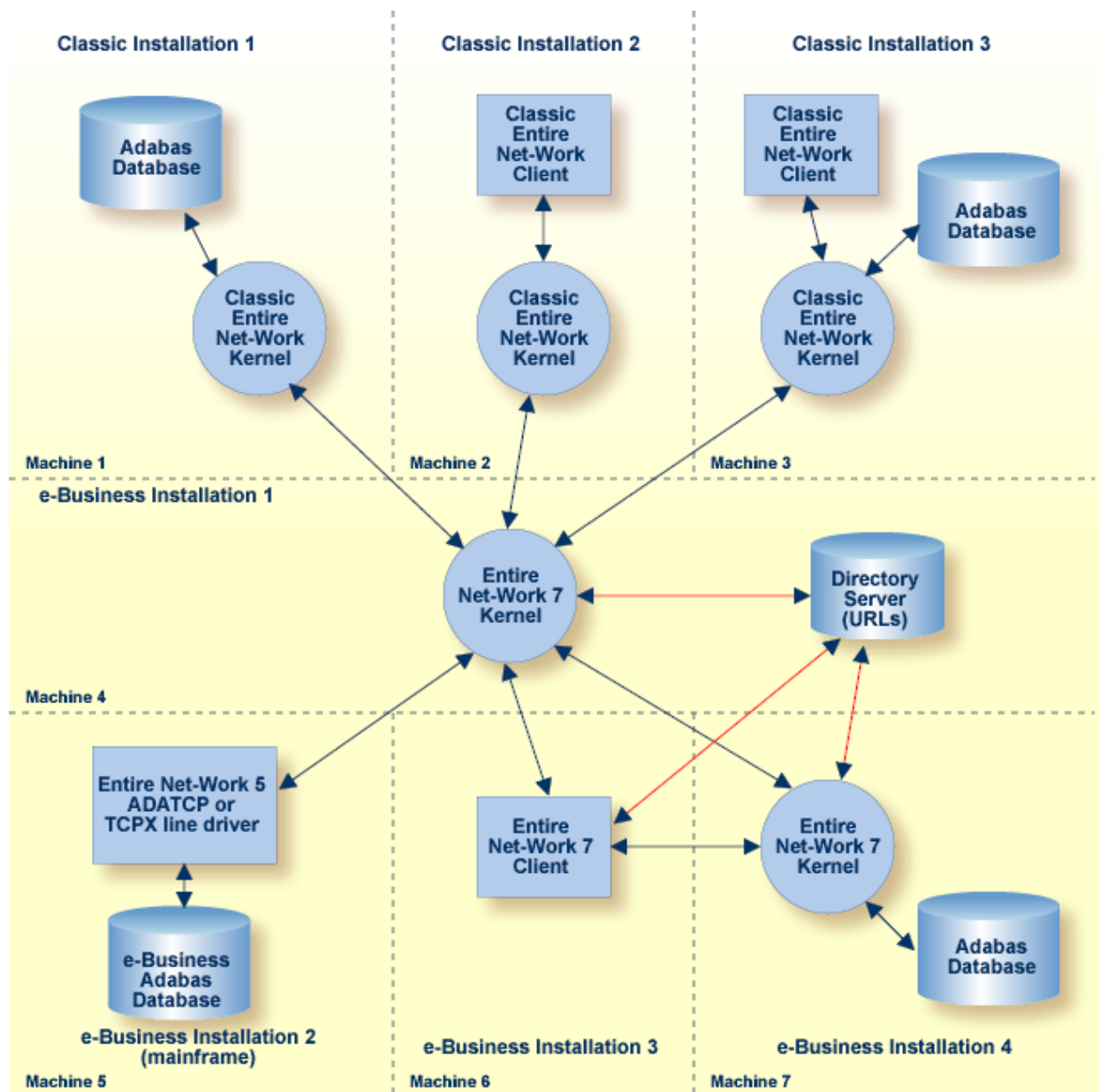
Kernels can also be assigned to specific Entire Net-Work 7 partitions. For more information, read *Partitioning*, later in this section.

The Adabas Directory Server

The Adabas Directory Server is used to store Entire Net-Work configuration information. Both clients and Kernels retrieve all necessary data from the Directory Server. Consequently, populating and maintaining the Directory Server is an important task.

🛑 **Caution:** The Directory Server is critical to the functions of Entire Net-Work 7. It should be on a dedicated system that is operational 24 hours a day, with a UPS. The location of the Directory Server must be specified to the Kernel and clients when they are installed. In addition, the location of the default Directory Server may be defined in the SAGXTSDSHOST entry in the DNS. You may need to consult with your Information Technology department to make updates to the DNS. If no Directory Server can be found for your enterprise, Entire Net-Work cannot function.

All Directory Server data is stored in the form of a Universal Resource Locator (URL) that is familiar to any Internet user. The Directory Server allows complex URLs to contain management data for Entire Net-Work using this standard industry-wide syntax. More importantly, an Entire Net-Work Kernel can dynamically add, modify, or delete URLs in the Directory Server for use by clients.

An Entire Net-Work Client only needs to be able to extract the location of the Adabas database it is trying to access from the Directory Server. Consequently, a single Directory Server URL is required for each Adabas database in the enterprise in order for all e-business clients to access that database. If Entire Net-Work partitioning is used, more than one Directory Server entry may exist for a given database. For more information, read *Partitioning*, later in this section.

When operational changes occur for a database (startups, shutdowns, and movement between machines), the Entire Net-Work Kernel automatically maintains the URLs in the Directory Server: it adds a URL to the Directory Server when it discovers a database (and can accept Adabas calls intended for that database); likewise it can remove the same URL when a database becomes unavailable.
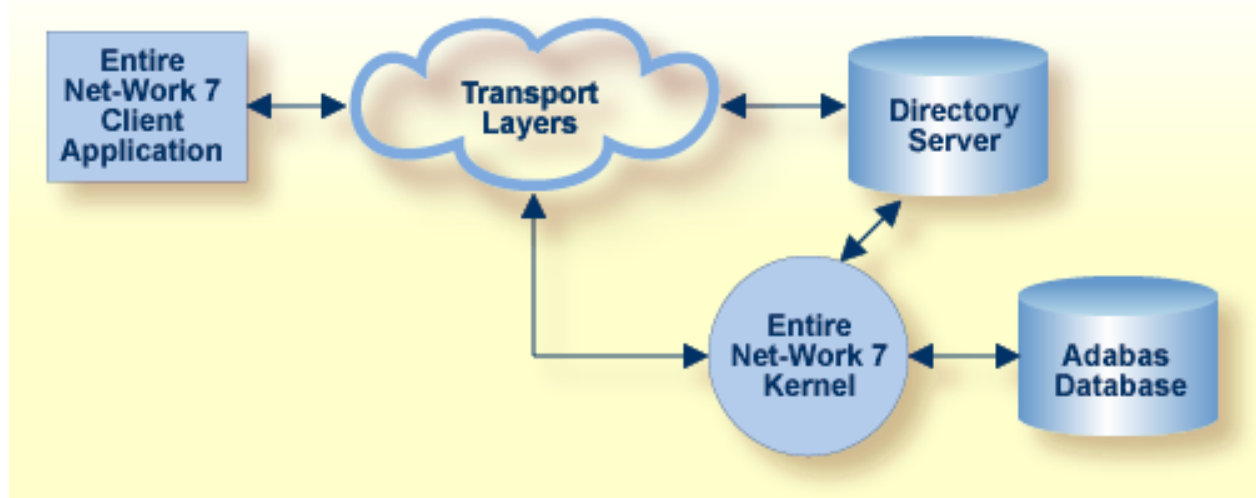
At least one Adabas Directory Server should be installed in your enterprise; we recommend that you install only one Directory Server to ensure centralized administration. However, your enterprise network configuration may require more than one. For example, you may want to install more than one Directory Server to fully direct requests to specific databases. While partitioning can also be used to restrict database access, all entries (in all partitions) of a Directory Server can be maintained via the Adabas Manager, so restriction is not complete. If, however, you use multiple Directory Servers, you can limit what entries are available for viewing in the Directory Server portion of the Adabas Manager.

Partitioning

Entire Net-Work 7 introduces partitioning of Adabas Directory Server entries. Partitioning allows you to use one Directory Server for your whole enterprise, rather than separate Directory Servers for different departments within your enterprise. The partitions each need to be managed separately, but only one Directory Server needs to be installed.

When you install an Entire Net-Work 7 Kernel or client, you are prompted for an optional partition name. If you specify one during a Kernel installation, the Directory Server entries created for that Kernel are stored in a partition by that name in the Directory Server; the Directory Server entries in the partition are maintained separately from the other entries in the Directory Server. The Kernel is only able to access databases, classic Entire Net-Work nodes, and other Kernels that have entries in this partition. Likewise, when you specify a partition name during a client installation, the client can only access databases for which there are Directory Server entries in the specified partition.

Here are some of the advantages of partitioning:

- You can use partitioning to direct specific clients to specific databases.

- If you have created Adabas databases with identical database IDs, you can use partitioning to correctly identify which client calls get directed to which Adabas database.

- You can use partitioning to group client calls to an Adabas database, thus reducing the number of actual connections required for that database. This can be especially useful if you are using an Entire Net-Work mainframe product to access a specific Adabas database. It also provides you with some level of client control: if you want to remove access to a specific database for clients in a given partition, simply remove the access URL entry for that database (using the Adabas Manager) or stop the Kernel in that partition.

- Using SSL, you can use impose real security requirements on calls made by clients in specific partitions.

The Adabas Manager

The Adabas Manager (AMN) provides centralized management of all Software AG products installed in the enterprise, using a Web-based graphical user interface. The use of the Adabas Manager eliminates the need for a system administrator to visit individual machines or maintain multiple product windows on the desktop.

⚠ **Caution:** Adabas Manager should be on a dedicated system that is operational 24 hours a day. If Adabas Manager is not available, you cannot maintain and control Entire Net-Work or the Adabas Directory Server.
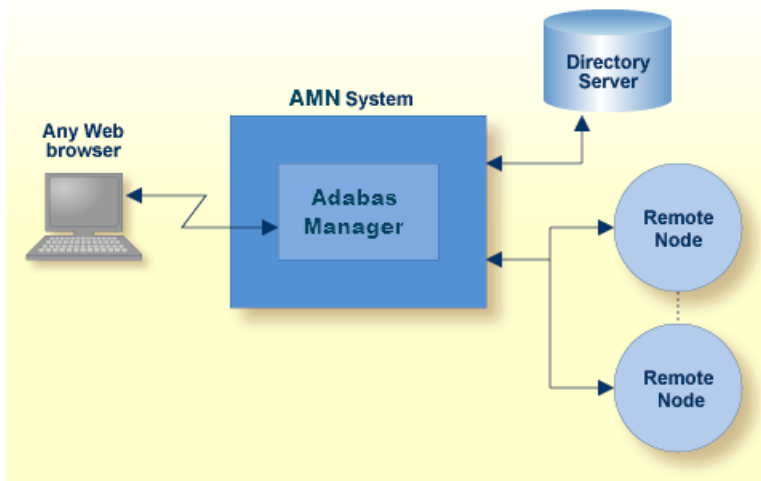
Adabas Manager is used by Entire Net-Work 7 to manipulate configuration information. Using Adabas Manager, you can easily change the URLs stored in the Directory Server without fully understanding the syntax. In addition, the Kernel can be examined and controlled via Adabas Manager. The status of classic nodes and databases for which connections have been defined can be determined. Statistics can be examined and various control functions, such as node disconnection, Kernel shutdown, and trace settings can be performed.

Design Advantages

This new e-business Entire Net-Work 7 design has the following advantages:

▪ A single, platform-independent ADALNK module (the client interface for the Adabas call) which supports multithreading is used.

▪ All control operations are centralized using the Adabas Manager (AMN), easing network administration.

▪ The client no longer needs a Kernel or its attendant control console, so its footprint is much smaller than in previous versions and you no longer need to manage the Kernel on the client side. In addition, there are no client-side IPC mechanisms to manage. Consequently, Entire Net-Work Clients are simpler, faster, and easier to use and deploy.

- The client deployment is unfettered by networking resource limitations that existed in prior releases.

- A new message protocol is used that speeds message transmission and reduces processing load. This new protocol layer is one-third the size of the protocol layer used by classic Entire Net-Work.

- A standardized installation method is provided that is similar on all platforms.

- A Kernel is only required on a system where databases are present or if a migration path to a classic Entire Net-Work system is required. Hence, management is further reduced.

- Partitioning may be used to direct specific Kernels and clients to specific databases.

For information about migrating from prior versions of Entire Net-Work for open systems to Entire Net-Work 7, read *Planning Steps for Entire Net-Work 7*, later in this guide.

6 Frequently Asked Questions for Entire Net-Work 7

This section provides answers to a number of frequently asked questions about Entire Net-Work 7.2 (and later releases) and the migration from Entire Net-Work 2 to Entire Net-Work 7.2 (and later releases).

What is an "e-business Adabas?"

An e-business Adabas is a database that can communicate with an Entire Net-Work 7 client without the use of an intermediate Entire Net-Work 7 Kernel. Instead, it communicates via the ADATCP component or with the Simple Connection Line Driver (TCPX line driver) component provided with Entire Net-Work 6 (or later).

What is the "e-business model?"

The *e-business model* refers to the new Entire Net-Work 7 model which does not require that an Entire Net-Work Kernel be installed on the client system, uses Directory Server entries to locate Adabas databases, and uses the new e-business transport protocol.

What is an "e-business client?"

An *e-business client* is any Adabas client application that uses the Entire Net-Work 7 e-business model and its associated message protocol and Directory Server entries to access Adabas databases. Hence, all of the following applications are or can be e-business clients:

- Jadabas client applications
- Natural applications
- Tamino applications
- Adabas SQL Gateway applications
- Any 3-GL user-written application that makes the Adabas() call.

What is the "e-business message protocol?"

The new *e-business message protocol* is a new message protocol (referred to internally as the *A1 protocol*). This protocol minimizes overhead and reduces the system processing load, thus increasing the speed of message transmission. It is one-third the size of the classic Remote Database Architecture (RDA) protocol used in classic Entire Net-Work 2 installations.

Must there be an Adabas database running on every system with an Entire Net-Work 7 Kernel running?

No. The Kernel can be installed on other systems and used to access databases on connected classic Entire Net-Work nodes (using the classic message protocol) and e-business Adabas databases.

Must there be an Entire Net-Work 7 Kernel running on every system running an Adabas database?

Yes, if you want your users to be able to access the database remotely.

How do I select the systems on which I should install Kernels?

An Entire Net-Work 7 Kernel must be installed on every open system on which a local Adabas database resides. In addition, you can install Entire Net-Work 7 Kernels on other open systems if you want the Kernel to be used to access databases on connected classic Entire Net-Work nodes (using the classic message protocol) and e-business Adabas databases.

How do I change configuration information for an Entire Net-Work 7 Kernel?

You can change configuration information for a Kernel using the System Management Hub. For more information, read *Entire Net-Work Server Administration* in the *Entire Net-Work LUW Administration Guide*.

Configuration information for classic Entire Net-Work 2 Kernels must be changed as before.

How do I change configuration information for a Directory Server?

You can change configuration information for a Directory Server using the System Management Hub. For more information, read *Performing Directory Server Administration* in the *Software AG Directory Server Installation and Administration Guide*.

How do I change configuration information for the Adabas Manager (AMN)?

Read the documentation provided with your Adabas Manager installation.

Can I install and run Entire Net-Work 7 Kernel on a system where a classic Entire Net-Work Kernel is running?

Yes, but we do not recommend it. In general, installing the two versions on the same system will not cause any problems, but running them at the same time might.

We recommend that you avoid this scenario. When you are ready to migrate a system to Entire Net-Work 7, stop the classic Entire Net-Work Kernel and install the Entire Net-Work 7 Kernel. The migration will happen smoothly, without complications, and you can use Entire Net-Work 7 to access the same databases you accessed using classic Entire Net-Work.

While it is possible to install and run an Entire Net-Work 7 Kernel on a system where an Entire Net-Work 2 Kernel is installed and running, choosing to do so is an advanced option. We recommend that you contact your Software AG technical support representative for assistance in doing this.

Should I uninstall my existing Entire Net-Work 2 Kernels and clients before installing Entire Net-Work 7 Kernels and clients?

No. This is not recommended.

We recommend that you install Entire Net-Work 7 Kernels and clients in a test environment prior to applying it to your entire network.

Once you are satisfied that the test system is running smoothly, install Entire Net-Work 7 Kernels and clients on the rest of your network systems, as necessary.

> **Note:** If you are migrating from a classic Entire Net-Work installation (Version 2) to Entire Net-Work 7.5, use the Configuration Utility provided with Entire Net-Work 7.2 to migrate to 7.2 and then use the Directory Server entries created for 7.2 as a basis for your manual configuration to Entire Net-Work 7.5; migration to Entire Net-Work 7.5 must be performed manually.

Once you are satisfied that the Entire Net-Work 7 Kernels and clients are running satisfactorily, you can safely remove your existing Entire Net-Work 2 Kernels and clients. The installation of this product requires that you uninstall any Entire Net-Work version 2 products, once your testing and migration to Entire Net-Work 7 is complete and before you attempt to use Entire Net-Work 7 in your licensed production environments.

When should I uninstall my existing classic Entire Net-Work 2 Kernels and clients?

When you have installed comparable Entire Net-Work 7 Kernels and clients and you are satisfied with their operation.

Can I run both e-business and classic Entire Net-Work Kernels concurrently on the same machine?

Yes, but we do not recommend it.

We recommend that you avoid this scenario. When you are ready to migrate a system to Entire Net-Work 7, stop the classic Entire Net-Work Kernel and install the Entire Net-Work 7 Kernel. The migration will happen smoothly, without complications, and you can use Entire Net-Work 7 to access the same databases you accessed using classic Entire Net-Work.

While it is possible to install and run an Entire Net-Work 7 Kernel on a system where an Entire Net-Work 2 Kernel is installed and running, choosing to do so is an advanced option. We recommend that you contact your Software AG technical support representative for assistance in doing this.

Is a new license required to install Entire Net-Work 7?

Yes. You must have a unique license key for each Entire Net-Work 7 Kernel you install. Entire Net-Work 7 is the first Entire Net-Work version to require this.

Can Entire Net-Work 7 be installed from a central network disk server?

Yes, but a unique license key is still required for each Entire Net-Work 7 Kernel you install.

Does Entire Net-Work 7 run as a Windows service or as an application?

Either. When you install an Entire Net-Work 7 Kernel, you are prompted to indicate whether or not you want it running as a Windows service.

How can I run Production and Test environments on a single UNIX system with separate databases?

Use the partitioning feature introduced with Entire Net-Work 7. For more information, read *Partitioning*, elsewhere in this guide.

What is the advantage of running Entire Net-Work 7 as a Windows service?

When you run Entire Net-Work 7 as a Windows service, it will automatically start up when your system is started.

How can I run Production and Test environments on a single UNIX system with separate databases?

Use the partitioning feature introduced with Entire Net-Work 7. For more information, read *Partitioning*, elsewhere in this guide.

With Entire Net-Work 2 for UNIX, I used the NET_WORK_ID environment variable to segment my Test and Production systems. Can I still use this method?

No. The NET_WORK_ID environment variable is not used by Entire Net-Work 7. Instead, use the partitioning feature introduced with Entire Net-Work 7. For more information, read *Partitioning*, elsewhere in this guide.

With Entire Net-Work 2 for workstations, I used the DOMAIN field in my configuration to segment my Test and Production systems. Can I still use that method?

No. "Domaining" is not used by Entire Net-Work 7.2 and is not migrated during Configuration Utility processing. Instead, use the partitioning feature introduced with Entire Net-Work 7. For more information, read *Partitioning*, elsewhere in this guide.

With Entire Net-Work 2 for UNIX, I spent a lot of time fiddling with the netrdo attach and detach commands so that my clients could access a database. Will I still have to do this with Entire Net-Work 7?

No. All that manual configuration has been eliminated. Once you have established an Entire Net-Work 7 Kernel on each system with a database, client access is automatic (unless partitioning is used).

I have a database on my mainframe with an ID above 255. Are there extra precautions I should take?

Yes. It is better to plan ahead for a database ID greater than 255 than to fix problems later. If you use the ADATCP features or the TCPX line driver of Entire Net-Work 6 (or later) on your mainframe, your Entire Net-Work 7 clients will be able to access that database directly. If you have clients accessing the database via Entire Net-Work 2 on Open Systems, you will need to retain those Entire Net-Work 2 systems until your migration to Entire Net-Work 7 is fully tested and complete.

Several of the databases in my enterprise have the same database ID. How can Entire Net-Work 7 handle this?

Entire Net-Work 7 can handle this in two ways.

1. You can set up separate Directory Servers; one for each database with the same database ID. While this may seem a simple solution, it requires that you manage and administer multiple Directory Server configurations. In addition, your DNS and system settings must be set carefully to ensure that the correct clients are using the correct databases.

2. The more elegant solution is to use partitions, one partition for each database with the same database ID. Partitioning allows you to subdivide a single physical Directory Server into a series of logical partitions that do not interfere with each other. Using this solution, you have only one Directory Server to manage.

    In addition, only your DNS settings need to be defined; defining system settings on client machines is no longer necessary. Instead, Clients can be defined as part of the partition to which the database they should access belongs.

    For more information, read *Partitioning*, elsewhere in this guide.

You can set up separate Directory Servers; one for each database with the same database ID.

For example, multiple Directory Servers might be appropriate if your enterprise has multiple databases with the same database ID. However, in this case, you could also partitioning to direct specific Kernels and clients to those databases.

You emphasize the need for a single, centralized, Directory Server, but I want a separate Directory Server for each department in my organization. Is this possible?

Yes. While Software AG recommends that you use only one Directory Server in your enterprise, you can set up as many Directory Servers as you wish, but remember:

- You will have to manage and administer multiple Directory Server configurations.

- The more Directory Servers you use, the more physical resources on your system will be consumed.

- You will need to be very careful about which Directory Server you select to use in your installation of Entire Net-Work -- especially if other Directory Servers have been installed by other Software AG products.

■ As you are restricted to a single pointer to a Directory Server in your DNS (via its SAGXTSDSHOST and SAGXTSDSPORT entries), all systems required to use a different Directory Server must be redirected using local, manual, administration. For more information on this manual administration, contact your Software AG technical support representative.

> **Note:** You can also use partitioning to subdivide a single physical Directory Server into a series of logical partitions that do not interfere with each other. For more information, read *Partitioning*, elsewhere in this guide.

Should the Directory Server and Adabas Manager be installed on the same system?

The Directory Server and Adabas Manager can be installed on the same system, but it is not required.

Now that all administration is centralized in Adabas Manager, how can I prevent unauthorized users from performing administration tasks?

Adabas Manager requires user authentication.

With Entire Net-Work 2, I needed to allocate a unique node ID for each node. Where do I do that now?

You do not need to use a node ID in Entire Net-Work 7 unless you are communicating with Entire Net-Work 5 on the mainframe using the RDA protocol. In Entire Net-Work 7.2 installations, the Kernel Configuration Utility will automatically migrate your old configuration file to URLs in the Directory Server, so there is no need for any manual configuration.

> **Note:** If you are migrating from a classic Entire Net-Work installation (Version 2) to Entire Net-Work 7.5, use the Configuration Utility provided with Entire Net-Work 7.2 to migrate to 7.2 and then use the Directory Server entries created for 7.2 as a basis for your manual configuration to Entire Net-Work 7.5; migration to Entire Net-Work 7.5 must be performed manually.

The node ID will become totally obsolete as classic Entire Net-Work 2 products are removed from your enterprise.

With Entire Net-Work 2 there was a limit of 255 remote nodes per Kernel. Has that limit changed?

Yes. With Entire Net-Work 7, the only limit on the number of connections to a Kernel is imposed by the operating system. All previousEntire Net-Work limits on node connections have been removed. During internal tests of Entire Net-Work 7, Software AG has exceeded 1000 connections to a single Kernel.

> **Note:** Some mainframe databases do have limits on the number of connections they can support. So the number of connections you can make from Entire Net-Work 7 to these databases may be limited.

My company policy is not to use any Microsoft product. Can I use an alternative Web browser for Adabas Manager?

Yes. You may use any browser you wish. However, Software AG only tests with and warrants the use of Internet Explorer.

Must the Web browser run on the same system as Adabas Manager?

No. The Adabas Manager is a standard Web server application. It can be accessed by any Web browser in your enterprise. However you will need valid login credentials to the system running Adabas Manager.

With the classic versions of Entire Net-Work, I had a lot of problems with node names. Your products have problems if the system name is greater than eight characters.

You need only be concerned with node names when connecting back to the classic Entire Net-Work products. In the e-business world, system names are not used for identification. Each Entire Net-Work 7 Kernel determines the name of the local system and constructs an eight-character restricted name to use for the system in classic connections. So, yes, you do need to ensure that systems running Kernels have names that are unique in the first 8 characters as long as you are making classic connections.

Can I install an Entire Net-Work 7 Kernel and client on the same system?

Yes. This is unusual on a Windows machine, but it can be done without affecting applications. Remember that after the client installation, the ADALNK module (the Adabas linkage module for communication) becomes the e-business version so all remote databases will need to use the e-business message protocol. Installing both components on the same system will not affect local communication.

On Windows systems, there is a problem with compatibility between Adabas Version 3.2.2 databases and Entire Net-Work 7 clients installed on the same system. We recommend that you upgrade your databases to Adabas Version 3.3.1 or higher before installing an Entire Net-Work 7 client on the same system.

On UNIX systems, there are no restrictions or compatibility issues.

After I install an Entire Net-Work 7 Kernel, how do I configure it to access local databases?

You don't. There are no manual steps required for local database access. You can start either the Kernel or the database first; the Kernel automatically detects the presence of a database and broadcasts or creates Directory Server entries for the database, as appropriate. It also detects when a database shuts down and removes the Directory Server entry for that database accordingly.

There may be a slight delay of a few seconds before the Directory Server entries match the current state of the database during transitions.

What has happened to the showipc utility?

Entire Net-Work 7 does not use the same IPC mechanism used in classic Entire Net-Work systems. Consequently, the showipc utility and manual IPC cleanup are no longer required. However, the showipc utility is still delivered with Adabas.

How are duplicate database IDs managed?

By default, Adabas on open systems will create a demo database with an ID of "12". This has always been a problem if multiple databases with the same ID participate in networking connections. With Entire Net-Work 7 the chance of duplicate database IDs causing conflicts has been reduced because there are far fewer Kernels exchanging broadcast data.

The principle employed by an Entire Net-Work 7 Kernel when detecting a duplicate database ID broadcast, is to ignore it. Consequently, the *first* database detected with the ID will be used for *all* network traffic, even though the database may not be on the most efficient route.

> **Note:** With Entire Net-Work 7, you can also use partitioning to separate and isolate databases with the same database ID. For more information, read *Partitioning*, elsewhere in this guide.

In classic Entire Net-Work 2 installed on workstations, I had to add weights to my connections. Is this still necessary?

No. With Entire Net-Work 7, there are far fewer Kernels and most client to database access is direct, without going through intermediate Kernels. So, routes between Kernels are not weighted, but are considered equal.

What is the difference between a "ping" and a "probe?"

None. These are different terms used to describe the same technique: sending one or more messages from one Entire Net-Work component to another to test the communications path.

Both Software AG and its customers use *ping* and *probe* functionality as a performance measurement tool. Classic Entire Net-Work has a special probe message format for this test; e-business Entire Net-Work uses a simple database command (the CL command) to confirm database communication. Sometimes, this is called a *ping*. In Entire Net-Work 7, the term ping has become predominant.

Why do I need to reboot my Windows PC after installing Entire Net-Work 7?

Software AG works hard to keep the situations where a reboot is necessary after installation to a minimum. However, there are some instances where a reboot is necessary to start the Windows services associated with these components. You may need to schedule these installations for a time when such a reboot is non-disruptive.

How can I make Entire Net-Work 7 use Secure Sockets Layer (SSL)?

Entire Net-Work 7 supports communications using Secure Sockets Layer (SSL). This support is provided using SSL protocol target entries in the Adabas Directory Server. For more information about target entries in the Directory Server, read *Directory Server Target Entries* in the *Software AG Directory Server Installation and Administration Guide*.

In addition, Software AG has an SSL Toolkit you can use, for testing purposes, to set up a certificate authority. You can then use the certificate authority to create security certificates for test purposes only. For more information about the SSL Toolkit, read *Using the SSL Toolkit* in the *Encryption for Entire Net-Work User Guide*, available from your Software AG support representative.

> **Note:** Due to export restrictions, the SSL Toolkit is not included on the installation CD. If you plan to use SSL in your enterprise and want to use the SSL Toolkit, please contact your Software AG support representative.

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