Entire Net-Work Administration

Concepts and Facilities

Version 6.6.1

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ADABAS & NATURAL

This document applies to Entire Net-Work Administration Version 6.6.1 and all subsequent releases.

Specifications contained herein are subject to change and these changes will be reported in subsequent release notes or new editions.

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Entire Net-Work Concepts

This document introduces you to Entire Net-Work and provides information about designing your Entire Net-Work configuration.

The Entire Net-Work Concepts document is organized as follows:

Introduction to Entire Net-Work	Explains how Entire Net-Work operates and describes product components and features.
Designing Your Entire Net-Work Configuration	Describes Entire Net-Work design considerations.
Licensing Entire Net-Work	Describes the Entire Net-Work licensing concept.
Starting Entire Net-Work	Describes how Entire Net-Work is started.
Entire Net-Work Security (z/OS only)	Describes the (z/OS only) security features available with Entire Net-Work

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 (...).

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- Add product feature requests.

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 Introduction to Entire Net-Work

Entire Net-Work for z/OS provides transparent connectivity between client and server programs running on different physical or virtual machines, with potentially different operating systems and hardware architectures. The currently supported set of server programs includes Adabas, Entire System Server, EntireX Communicator, and any other software program that participates in cross-address communications defined by Software AG. A range of client programs are supported, including those written in Natural, the commonly used 4GL provided by Software AG, web-based applications such as Software AG's Jadabas and Tamino, and currently existing Adabas applications.

At its lowest level, Entire Net-Work accepts messages destined for targets or servers on remote systems and delivers them to the appropriate destination. Replies to these requests are then returned to the originating client application, without any change to the application. Entire Net-Work establishes these connections either through its line drivers.

The method of operation and the location and operating characteristics of the servers are fully transparent to the user and the client applications. The servers and applications can be located on any node within the system where Entire Net-Work is installed and communicating. The user's view of the network targets and servers is the same as if they were located on the user's local node. Note that due to possible teleprocessing delays, timing of some transactions may vary.

How Entire Net-Work Administration Operates

Entire Net-Work provides transparent support for remote and distributed server processing by supporting the existing Adabas database interface. An Entire Net-Work Client call to Adabas invokes the environment-specific Adabas Link Routine (ADALNKX). This routine issues an interregion call to Adabas through the Adabas router (the Adabas SVC). The router, in turn, locates the Adabas nucleus operating in a separate address space or partition, and adds the user call to the Command Queue (CQ). The Adabas nucleus then selects commands from the Command Queue and performs its normal processing.

Entire Net-Work Client establishes its connections using the Simple Connection Line Driver provided with Entire Net-Work Administration.

Entire Net-Work Components

Entire Net-Work is installed on each participating host or workstation system requiring client/server capability. The configuration for a given system includes the following components:

- an Entire Net-Work control module;
- control module service routines;
- Simple Connection Line Driver (TCPX); and

Actual network data traffic is controlled by the Simple Connection Line Driver. Each line driver supports multiple connections to other Entire Net-Work Clients.

Summary of Entire Net-Work Features

The following is an overview of Entire Net-Work Administration features:

- **Adabas compatibility**
  Entire Net-Work uses Adabas-dependent service routines for the operating system interface as well as for interregion communication, thus avoiding incompatibility.
- **Adabas-like "look and feel"**
  The similarity between Entire Net-Work and Adabas means that the job control statements for running Entire Net-Work are much like those needed to run Adabas. For example, the EXEC statement invokes the ADARUN program for Entire Net-Work just as it does for Adabas, and the ADARUN parameters for Entire Net-Work are a subset of Adabas parameters.
- **Access through e-business connections via the Simple Connection Line Driver**
  The Entire Net-Work Simple Connection Line Driver provides communication between Adabas databases (running on z/OS systems) and client applications that use Software AG's new e-business connections. The new e-business connections make use of:
  - an enhanced communication protocol provided by Software AG that links e-business applications with enterprise servers
  - the Adabas Directory Server (ADI).

  Software AG products that support the e-business communication protocol and the Adabas Directory Server currently include Tamino, Jadabas, Entire Net-Work 7 and any other product that transports client requests using Software AG's ADALNKX module. The underlying transport mechanism is TCP/IP.

  

  Note: The Simple Connection Line Driver cannot connect to another Simple Connection Line Driver.

  The Adabas Directory Server is a centralized component that provides all directory information required to communicate between clients and servers and eliminates the need for directory configuration files on every machine. The code for the Adabas Directory Server is included in the Entire Net-Work Client code available on Servline 24. To use the Simple Connection Line Driver, you must have the Adabas Directory Server installed somewhere on your system. If you have already installed this code with another Software AG product, we recommend that you use the installed code, so that your organization uses only one shared Directory Server. For more information about the Adabas Directory Server, read *Software AG Directory Server Documentation* in the *Software AG Directory Server Installation and Administration Guide*. The documentation for Entire Net-Work Client is included with its code on Servline 24.

- **Unique target ID enforcement**
  Entire Net-Work enforces the Adabas requirement that each enterprise-wide target be assigned a unique target ID. (With Adabas, local targets that are introduced may have non-unique IDs.)
- **Remote processing of client/server request**
  A request can be made from within a Software AG or third party application client program to a server (typically Adabas) located on a remote system, as if the server were running locally with no client changes.
- **Single request queue for all remote targets**
  Each Entire Net-Work node maintains only one request queue and one attached buffer pool for economical use of buffer storage.
- **All buffer sizes allowed**
  Buffer size support in Entire Net-Work is comparable to that in Adabas, ensuring that all buffer sizes that are valid for Adabas can also be transmitted to remote nodes.
- **Entire Net-Work communication in heterogeneous systems**
  Simple Connection Line Drivers support communication between systems with different hardware architectures. This allows for client/server communications to and from Entire Net-Work on Windows.
- **Model Links**
  The "model" link facility allows users to code one or more model links with parameter values that serve as default values for many partners, instead of coding one LINK statement for each partner. As each partner connects, new control blocks are allocated and initialized from the model link.
- **Additional operator commands**
  Entire Net-Work's TCPX line driver has the ability to process operator commands that are directed to a specific link or directly to the driver. Some driver and link parameters can be modified with the ALTER operator command while the driver or link is open, thus allowing dynamic reconfiguration of the network. Refer to the specific parameter description for information on possible restrictions about modifying the parameter using the ALTER command.

3 Designing Your Entire Net-Work Configuration

This section describes network design considerations.

Network Design

Network design is critical to providing the best response time to client applications. Client/server applications tend to multiply rapidly, causing networks to expand without following a carefully considered design plan. Entire Net-Work is often installed after a major local or wide area network is already in place.

Whether you are working with a new network or an existing one, it is important to make and follow a plan when installing Entire Net-Work in order to best utilize the existing facilities and provide the best possible response time to your applications.

Entire Net-Work Components

The information in this section refers to the following Entire Net-Work components:

node	An Entire Net-Work instance.
target	A source of information, such as Adabas, EntireX Communicator, or Entire System Server.
client	An application that is accessing a target.

Topologies

Entire Net-Work should be designed to use the same topology used by the underlying network. There are usually several underlying layers of logical and physical configurations that are invisible to Entire Net-Work. Those who design and maintain these underlying layers should be involved in the network design process.

Point-to-point is the simplest of all configurations and is supported by Entire Net-Work Administration. It consists of a client and server connected by a link, and is the way most networks start; for example, an Entire Net-Work Client application using a direct connection to access a mainframe database.

Many modern networks run TCP/IP in a formation that logically consists of many point-to-point sessions.

4 Licensing Entire Net-Work

You must install a valid license file on all mainframe platforms in which your Software AG mainframe product is installed.

Please also ensure that the MLC version used corresponds to your version of Entire Net-Work. Details on the required MLC version are given under *Software AG Mainframe Product Licensing*, in the *Entire Net-Work Installation Guide*

The license file is provided as an XML document (encoded in US-ASCII). This document can be viewed using a browsing tool or text editor on a PC. It can also be viewed on the mainframe using the DISPLAY function of the license utility, LICUTIL, described *Software AG Mainframe Product Licensing*, in the *Entire Net-Work Installation Guide*. The license file contains text that represents the licensing information for your product and an associated digital signature, the license key. Among other things, it also displays Software AG legal notices and environmental information.

Your license file is obtained from your Software AG sales representative. If you should have problems with your license file, please contact your sales representative. Please do not edit the file yourself, as you may invalidate it during your attempt. If the product license is incorrect, insufficient, or not installed, Entire Net-Work terminates. Contact your Software AG sales representative for assistance.

For complete information about the licensing process for Software AG mainframe products, read *Software AG Mainframe Product Licensing*, in the *Entire Net-Work Installation Guide*.

5 Starting Entire Net-Work

Entire Net-Work is started by running a batch job or as a started task. Sample startup (execution) batch jobs can be found in the Entire Net-Work installation instructions for each platform.

Reusable address space IDs (ASIDs) are supported in z/OS environments. So you can specify the z/OS REUSASID system parameter on the start command for Entire Net-Work. For example:

```
/S NETWORK,REUSASID=YES ↩
```

For more information about the REUSASID system parameter, refer to your z/OS documentation.

6 Entire Net-Work Security (z/OS only)

SAF-based Security Packages

The System Authorization Facility (SAF) is used by z/OS and compatible sites to provide rigorous control of the resources available to a user or group of users. Security packages such as RACF, CA-ACF2, and CA-Top Secret allow the system administrator:

- to maintain user identification credentials such as User ID and password; and
- to establish profiles determining the datasets, storage volumes, transactions, and reports available to a user.

The resulting security repository and the infrastructure to administer it represent a significant investment. At the same time, the volume of critical information held by a business is constantly growing, as is the number of users referencing the data. The challenge of controlling these ever-increasing accesses requires a solution that is flexible, easy to implement and, above all, one that safeguards the company's investment.

NETSAF

NETSAF (product code WAF) is a separate product for z/OS environments which provides point of access verification for incoming requests.

Adabas SAF Security

Adabas SAF Security (product code AAF) is a separate product for z/OS environments which enhances the scope of SAF-based security packages by integrating Adabas and Entire Net-Work resources into the central security repository.

With Entire Net-Work version 6.5 SP2 or above, and in conjunction with Adabas SAF Security, the following security-related facilities are available:

- Protecting Entire Net-Work Start-up
- Protecting Entire Net-Work Administration Functions

Note: The pre-requisites for providing this protection are:

- Adabas version 8.5 SP2 or above
- Adabas Limited Library (WAL) version 8.5 SP2 or above
- Adabas SAF Security version 8.2 SP2 Patch level 2 or above

Protecting Entire Net-Work Start-up

Entire Net-Work start-up can be protected by defining appropriate resource profiles denoting Target ID and SVC number.

Refer to the *Operations* section of the *Adabas SAF Security* documentation for more information on this topic including the format of the resource names used.

Protecting Entire Net-Work Administration Functions

Entire Net-Work administration functions can be protected ensuring unauthorized use of such functions is not permitted.

For example, a user or group may be allowed to use the `DISPLAY` command to display current information about a network component but disallowed from using the `SET` command to dynamically change parameter settings.

Refer to the *Operations* section of the *Adabas SAF Security* documentation for more information on this topic including the list of applicable administration functions and the format of the resource names used.

This protection is available for operator commands issued from both the console and the Programmable Command Interface (PCI).

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