

Using the Entire System Server

This section describes how you can use the Entire System Server.

It covers the following topics:

- General
 - Multiple Entire System Server Node Support
 - Entire System Server in Single-User Mode
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General

When the Entire System Server is installed, the following macro statement is appended to the NATPARM module:

```
NTDB PROCESS,148.
```

The value **148** in this statement is the target node that Natural will use to identify calls to the Entire System Server (the Entire System Server is delivered with a default target node number of 148. It can be changed during the installation process, see Installation Step 3). All Natural statements that use DDMs with DBID 148 are handled as Entire System Server calls. This means that all Entire System Server DDMs must be cataloged with the DBID value that matches the target value used in the NTDB statement.

The target node specified in the NTDB statement is a **logical** target ID. You are not limited to using only an Entire System Server node with the **physical** target ID of 148. You can use any available value for each Entire System Server node you install and they are all accessible from the same Natural. Natural uses the logical target node of 148 simply to recognize a particular statement as being an Entire System Server statement. The NODE field in each Entire System Server view is used to direct the call to the desired physical Entire System Server target. Of course, if the NODE field is not used in a particular call, Natural will direct the call to a node with the same physical target ID as the logical target ID.

It is recommended that users adopt the practice of always including the NODE field in all of their Entire System Server calls. This enables them to easily access additional nodes in future without having to modify existing programs.

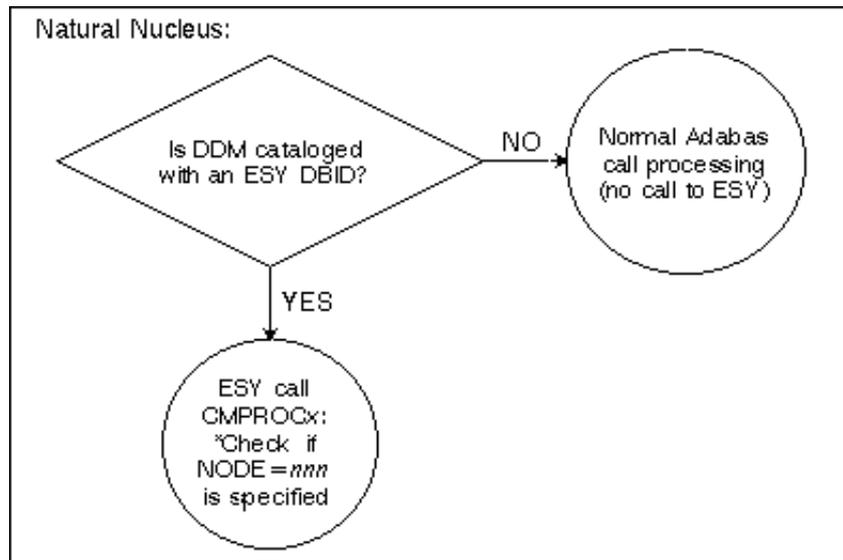
The following sequence illustrates how Natural statements are directed at Entire System Server. A Natural program may contain the statement:

```
FIND DDM WITH FIELDS
```

where DDM stands for any view and FIELDS for any sequence of fields in that view. The Natural nucleus checks whether the specified DDM is cataloged with the Entire System Server DBID.

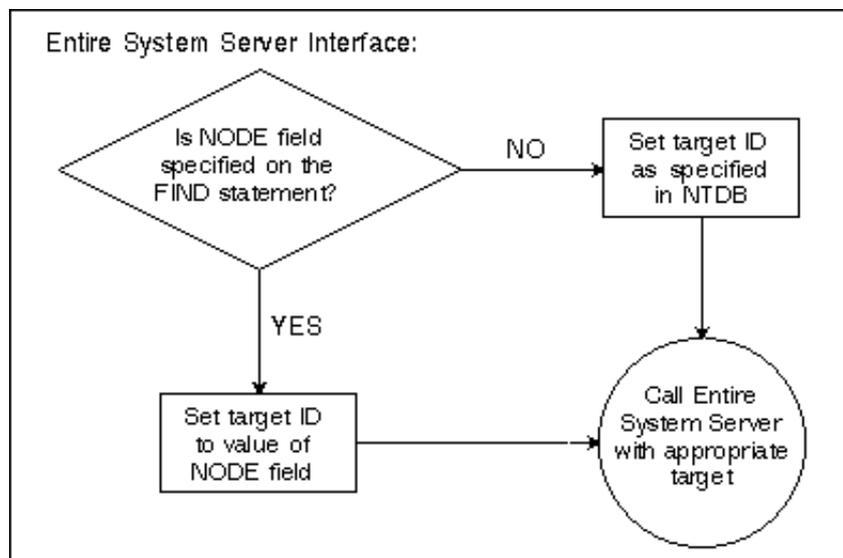
In the following figure, Entire System Server is abbreviated to ESY.

Natural PROGRAM: FIND <DDM> WITH...



If the DDM was cataloged with the Entire System Server DBID, the Entire System Server Interface (ESX) gets control (see Installing the Entire System Server Interface in the Natural Installation Guide for Mainframes). Among other things, it checks whether the NODE field is specified on the FIND statement, and issues a call to the Entire System Server with the appropriate target ID.

This is illustrated by the following figure:



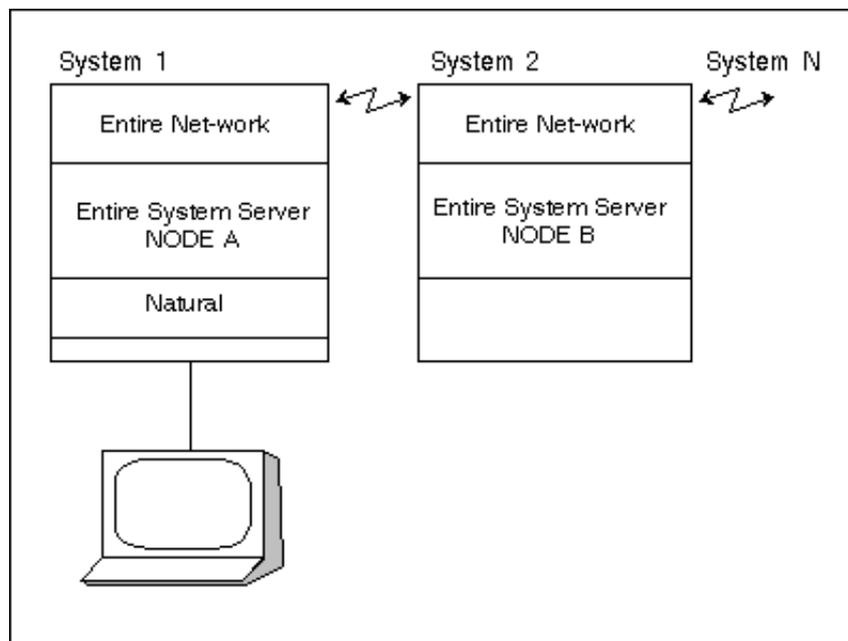
Using the Entire System Server Interface has several advantages:

- It checks the node number specified by the client and sends the request to the corresponding Entire System Server.
- When working with sequences of records, ESX performs a prefetch. This accelerates work considerably.

Multiple Entire System Server Node Support

Entire System Server is usually installed for a multi-user environment. Therefore, it must be able to run in its own partition / address space.

In a multiple-system configuration, it may be desirable to run multiple Entire System Server nodes. By using a Software AG network facility (such as Entire Net-Work), an Entire System Server request can be directed to a remote node. For example: a file can be transmitted from Node **A** to Node **B**; a job can be submitted to a remote node; and the VTOC of a disk in a remote node can be retrieved. The following figure shows the Entire System Server in a multi-system environment:



The following steps are necessary to define an Entire System Server node:

1. Assign a unique DBID (a three-digit number) to the node. (The node DBID must not conflict with any other DBID.)
2. In order to direct an Entire System Server request from a Natural program to a specific node, specify `NODE=nnn` in the appropriate FIND statement. For example, the following statement is executed in node **151**:

```
FIND VTOC WITH VOLSER = 'DISK01' AND NODE = 151
```

If `NODE` is not specified, the DBID as specified in the DDM is used.

Note:

A Natural program can access multiple nodes. (For example, the program COPYFILE in the online tutorial reads a file from one node, and writes it to another).

Entire System Server in Single-User Mode

Like Adabas, the Entire System Server can also run in single-user mode (for example, under TSO or TIAM or batch). All calls to the default Entire System Server node defined in the DDM are processed in the same address space, using CALL (instead of the Adabas SVC). This reduces CPU consumption and improves response time. Therefore, single-user mode is only available for single-user address-spaces like TSO, batch and TIAM.

All Entire System Server calls directed to the default target node (as defined in the NATPARAM module in the NTDB parameter) are resolved locally. However, the Entire System Server calls to other targets are still handled in the normal way (that is, using the Adabas SVC).

In order to allow single user operation, Natural must be linked as described in the section Installing the Entire System Server Interface in the Natural Installation Guide for Mainframes.

The following considerations apply when running in single-user mode. The first time a command is issued to the Entire System Server, its startup parameters are read from the dataset with the link name PARMs (BS2000/OSD) of the startup JCL. Default values will be used for those parameters which are not defined. It is not necessary to LOGON/LOGOFF to the Entire System Server.

BS2000/OSD

Single-user mode is not possible under UTM. If you wish the Entire System Server to behave in the same way with Natural/TIAM as with Natural/UTM, you must not use single-user mode with Natural/TIAM either. Otherwise, calls directed to the default target node (for example: 148) would be handled locally for Natural/TIAM, but using Adabas SVC for Natural/UTM.