

Entire Net-Work (NETWRK) Initialization Parameters

The ADARUN parameters for Entire Net-Work specify all interregion communication information for the node. They are specified with ADARUN PROGRAM=NETWRK.

Software AG recommends that you use your existing values (or the default settings) of the ADARUN parameters for each Entire Net-Work node, and then tune the values after analyzing the performance of the node. See the *Performance and Tuning* documentation for information about expected differences.

The following table summarizes the Entire Net-Work ADARUN parameters:

Parameter	Use	Minimum	Maximum	Default
CT	Command timeout limit (sec.)	1	16777215	60
FORCE	Overwrite target ID entry	-	-	NO
LU	User buffer size	4000	65535	65535
NAB	Number of attached buffers	3	49150	16
NC	Number of request queue elements	20	32767	200
PROGRAM	Program to be executed	NETWRK	NETWRK	(none)
SVC	SVC number	200	255	249
TARGETID	Entire Net-Work target ID	1*	65535	1

* Software AG strongly recommends that you restrict Entire Net-Work target IDs in a sysplex cluster environment to values in the range 65482 through 65535 to avoid interference with the target IDs used for other cluster requirements.

Following is an example of an ADARUN statement for Entire Net-Work:

```
ADARUN  PROG=NETWRK , TARGETID=3333 , NAB=20 , NC=50 , LU=65535 , SVC=251
```

For this node, Entire Net-Work

- runs with a target ID of 3333;
- allocates an attached buffer pool for 20 interregion communication buffers;
- processes as many as 50 requests simultaneously;

- uses the SVC 251; and
 - ensures adequate buffer size for Adabas compatibility by setting the value of the LU parameter to 65535.
 - Guidelines
 - CT - Command Timeout Limit
 - FORCE - Overwrite ID Table Entry
 - LU - Length of Intermediate User Buffer
 - NAB - Number of Attached Buffers
 - NC - Number of Request Queue Elements
 - SVC - Interregion Communication Number
 - TARGETID - Entire Net-Work Target Identification
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Guidelines

Use the following guidelines when specifying ADARUN session parameters:

- Ensure that the correct program to be executed is specified (PROG=NETWRK).
- Ensure that the correct target ID is specified (TARGETID parameter).
- Determine which settings for the following parameters are applicable for the session:

FORCE	(override active target ID)
SVC	(Adabas SVC number)

CT - Command Timeout Limit

Parameter	Specify...	Minimum	Maximum	Default
CT	the time allowed for a user program to obtain results from Entire Net-Work.	1	16777215	60

The maximum number of seconds (more precisely, units of 1.048576 seconds) that can elapse from the time an Entire Net-Work request is completed until the results are retrieved by the user through the interregion communication ("16-call"/operating system-dependent).

This parameter is used to prevent a request queue element (RQE) and the attached buffer from being held indefinitely if a user with an outstanding Entire Net-Work request terminates abnormally.

Possible causes for a command timeout are

- non-dispatchable or swapped-out user address space;
- user canceled;
- low user priority in a high-activity system.

If the CT limit is exceeded, the RQE and the attached buffer are released and message NETM93 is printed. If the user attempts to access the RQE after the timeout has occurred, response code 254 is returned.

Example:

Execute an Entire Net-Work task; set the maximum permitted time to obtain the result of a command using interregion communication to approximately 30 seconds.

```
ADARUN PROG=NETWRK,CT=30
```

FORCE - Overwrite ID Table Entry

Parameter	Specify...	Possible Values	Default
FORCE	whether to overwrite the target ID table entry.	YES NO	NO

By default (FORCE=NO), error NETM98 occurs if the TARGETID parameter (see *TARGETID*) specifies a target ID that is already in the target ID table:

```
NETM98 targetid TARGET INITIALIZATION ERROR: DUP ID (LOCAL)
```

FORCE=NO prevents the table entry from being overwritten. FORCE=YES allows the existing target ID table entry to be overwritten by the value specified for the TARGETID= parameter.

When a target terminates, its ID table entry is normally removed from the ID table. However, if an Entire Net-Work task has terminated abnormally without the recovery mechanism receiving control, its entry can remain in the ID table. FORCE=YES permits an Entire Net-Work target to be restarted even though its ID is already present in the ID table.

In addition to Entire Net-Work, other Software AG products such as Adabas or Entire System Server (formerly Natural Process) may have entries in the ID table.

Because FORCE=YES replaces *any* entry that matches the specified TARGETID value, you must ensure that the ID table does not contain that same value for any target that is active.

**Warning:**

If you were to mistakenly override the ID table entry of an active target, it could severely disrupt the operation of the affected service system.

For this reason, all target and database IDs must be unique, and FORCE should be issued *only* after you determine that no other target with the ID specified by TARGETID is active.

Example:

Execute an Entire Net-Work task.

If the ID table contains an entry for target ID 3333, overwrite it; that is, allow the new task to use ID table entry 3333. Disconnect any existing task with an ID of 3333 from all user access.

```
ADARUN PROG=NETWRK, FORCE=YES, TARGETID=3333
```

If FORCE=NO (the default), Entire Net-Work does not permit the use of target ID 3333 if the ID table already contains an entry for that ID. The message NETM98 is issued, indicating that a target using the ID 3333 is already active.

LU - Length of Intermediate User Buffer

Parameter	Specify...	Minimum	Maximum	Default
LU	the size of the intermediate user buffer.	4000	65535	65535

The size specified must be large enough to accommodate all Adabas control information (108 bytes), all user buffers (format, record, search, value, ISN) that may be required for any given Adabas command, and any user information passed from Adabas link routines to nucleus user exits.

If the PREFETCH option or a utility that needs large record/ISN buffers is to be used during the session, the setting of LU must be large enough to contain the buffers needed.

An error occurs if the LU parameter specifies a value greater than the byte count implied by the NAB (number of attached buffers) parameter. The NAB default of 16 allocates more than 64 kilobytes.

Example:

Start an Entire Net-Work session using an Adabas intermediate user buffer area of 20,000 bytes.

```
ADARUN PROG=NETWRK, LU=20000
```

NAB - Number of Attached Buffers

Parameter	Specify...	Minimum	Maximum	Default
<u>NAB</u>	the number of attached buffers to be used.	3	49150	16

NAB is an optional parameter that defines the number of attached buffers to be used during the Entire Net-Work session. Entire Net-Work allocates an attached buffer pool whose size equals the NAB value multiplied by 4112.

An attached buffer is an internal buffer used for interregion communication. Entire Net-Work requires the use of attached buffers in all environments.

Note:

A value of less than 16 prevents some Adabas utility functions from being performed remotely.

Example:

Execute an Entire Net-Work session; use 50 attached buffers.

```
ADARUN PROG=NETWRK,NAB=50
```

NC - Number of Request Queue Elements

Parameter	Specify...	Minimum	Maximum	Default
NC	the number of elements allowed in the Entire Net-Work request queue.	20	32767	200

NC is an optional parameter that specifies the maximum number of user requests that can be processed simultaneously by this Entire Net-Work communicator. Any user requests originating on this node that cause the NC value to be exceeded receive response code 151.

Each user request originating from this node is assigned a request queue element (RQE), which exists for the duration of the request. The RQE is released when the user has either received the results of this request from Entire Net-Work, or has been timed out. Each RQE requires 192 bytes.

Example:

Execute an Entire Net-Work session; set the request queue to contain as many as 500 elements at one time.

```
ADARUN PROG=NETWRK,NC=500
```

SVC - Interregion Communication Number

Parameter	Specify...	Possible Values	Default
SVC	the number of the SVC to be used.	200-255	249

The number of the SVC to be used for the Entire Net-Work session. The SVC number is specified as an integer. The SVC is used to perform various internal functions, especially the processing of interregion communication.

SVC is an optional parameter that defines the interregion communications supervisor call (SVC) to be used for this session.

The SVC number specified must correspond to that which has been installed as the Software AG communications SVC at the user installation. The same SVC may be used for Adabas, Adabas Cluster Services, Entire Net-Work, and all other Software AG products using interregion communication.

Example:

Execute an Entire Net-Work session using SVC 205.

```
ADARUN PROG=NETWRK,SVC=205
```

TARGETID - Entire Net-Work Target Identification

Parameter	Specify...	Minimum	Maximum	Default
TARGETID	the ID for an Entire Net-Work node.	1*	65535	1

* Software AG strongly recommends that you restrict Entire Net-Work target IDs in a sysplex cluster environment to values in the range 65482 through 65535 to avoid interference with the target IDs used for other cluster requirements.

The TARGETID parameter value must uniquely identify a particular Entire Net-Work node. Each target (node) ID must be unique, and can be any valid decimal value ranging from 1 (the default) to 65535. If the default is used for one node, it cannot be used for any other node and thus, this parameter must be specified for all other nodes.

In a sysplex cluster environment, all NUCIDs, Adabas database IDs (DBIDs), internally assigned operating system image IDs, target IDs used by Entire Net-Work, Natural global buffer pool IDs, etc., must be unique throughout all Entire Net-Work nodes. In particular, the Entire Net-Work target ID *must not* coincide with any database ID used in the network. An exception to this rule allows databases to be specified as "local" targets as explained in *Special Exception (Local)*.

Example:

Execute an Entire Net-Work session using target ID 65485.

```
ADARUN PROG=NETWRK, TARGETID=65485
```

This section covers the following topics:

- Uniqueness Required (Global)
- Special Exception (Local)

Uniqueness Required (Global)

Entire Net-Work normally enforces unique target IDs throughout the network, that is, across all connected nodes. A target is not permitted to start if another target with the same ID is active anywhere in the network. The ADAM98 message (target initialization error) will result.

When a link is established between two previously unconnected partial networks, it is possible that the same target ID is used in both parts simultaneously. Because target IDs must be unique within the network, this is considered an error situation.

Entire Net-Work cannot determine which of the targets should be deactivated. Therefore the link between the two parts of the network is not established and explanatory messages (NET0108 and NET0106) are written to the operator consoles of both nodes trying to connect.

It is the responsibility of the installation to terminate one of the conflicting targets. The link can then be connected from either side by using the CONNECT link operator command.

Special Exception (Local)

The Adabas ADARUN parameter LOCAL permits the use of duplicate target IDs under special circumstances. A target ID can be used on all nodes in the network simultaneously if *all* targets with that ID are declared LOCAL=YES (see the *Adabas Operations* documentation for the appropriate ADARUN parameter). In this case, any one of the targets with that ID can be accessed *only* by users running on the same node.

Entire Net-Work does not transport requests to LOCAL targets. Response code 148 is generated if a user program calls a target declared LOCAL from a remote node.

A target ID cannot be used simultaneously for both a local target and a global target. The reason for this restriction is illustrated in the following example.

Imagine that a (global) database, DBID 35, is active on node PROD, and user programs from all nodes in the network are issuing calls to it. If a local database, also with DBID 35, starts on node TEST, it immediately draws all calls that originate on node TEST to the local database DBID 35. Users on other nodes are not affected, but all users on node TEST are switched in mid-transaction from the global database DBID 35 to the local database DBID 35, a different and probably totally unrelated database. This error situation cannot be permitted.

Entire Net-Work enforces this rule and thus prevents the confusion that would result if a local target ID coincided with a global target ID by broadcasting information about local targets to all nodes the same way it does for global targets.