Entire Net-Work Parameter Statements

To communicate with other nodes, Entire Net-Work requires a definition of its own operating environment, access method information, and peer node characteristics. This is accomplished with the Entire Net-Work parameter statements: NODE, DRIVER, LINK.

The NODE statement specifies the global operating parameters for the Entire Net-Work node (note that all interregion communication information is specified by the ADARUN control statement described in the previous section).

Entire Net-Work control statements must always begin with the NODE statement, followed by one or more DRIVER statements (one for each driver type), and the related LINK statements. DRIVER and LINK statements may be in any order, as long as no LINK statement precedes its related DRIVER statement.

A DRIVER statement must be specified for each line driver. The DRIVER statement indicates the operational parameters for the line driver's access method and default values for the related links.

A LINK statement may be specified for each link to a remote node. The LINK statement specifies the driver-specific parameters to be used for the connection. Each LINK statement must be associated with a previously specified DRIVER statement.

This chapter covers the following topics:

- Statement Format

- XCF NODE Statement

- XCF DRIVER Statement

- XCF LINK Statement

Statement Format

The following rules apply when specifying Entire Net-Work parameter statements:

1. Each Entire Net-Work parameter statement occupies positions 1-72 of at least one line.

2. The statement type (NODE, LINK, or DRIVER) must be specified as the first nonblank item on the statement.

3. The node name, driver name, or link name follows the statement type, separated by at least one blank (space). Specific statement naming conventions are described in the following sections.

4. Keyword parameters may be specified following either the node name on NODE statements or the driver name on DRIVER and LINK statements. Keyword parameters are separated from their arguments by an equal (=) sign, and from other keyword parameters by at least one blank (space) or comma. Refer to the statement descriptions in the following sections for specific parameter information.

5. In the syntax representation of arguments, those shown in lowercase are variables and should be replaced with an appropriate value as described in the text. Uppercase arguments are constants and must be specified as shown. Default values that are in effect if the parameter is not specified are underlined.

6. When the acceptable values for a parameter are Y and N (yes and no), any other value is treated as an N and processing continues without any warning.

7. When the acceptable values for a parameter fall within a range (for example, 1 - 2147483647) and a value outside the range is specified, the value is automatically reset to the maximum value within the range. Processing continues without any warning.

8. When the acceptable values for a parameter fall within a range (e.g., 1 - 2147483647) and a value outside the range is specified, it is automatically reset to the maximum value within the range. Processing continues without any warning.

9. In the discussion of keyword parameters, the underlined characters indicate the minimum abbreviation to identify a keyword.

10. A statement can be continued beginning in any column of the next line by specifying a dash (-) as the last nonblank character in any column of the current line, before column 73.

11. Comment lines begin with an asterisk (*) in position 1 and can be inserted anywhere in the statement sequence.

12. Some keyword parameters (see for example *BUFFERS*) may require a list of subparameters separated by commas; the list must be enclosed in parentheses ( ) unless only the first subparameter is to be entered. Omitted ("defaulted") subparameters must be represented by placeholder commas if subsequent parameters are to be entered. The following are examples of correct subparameter strings:

```
keyword=(value1,value2,value3)
keyword=(value1,,value3)
keyword=(,,value3)
keyword=(,value2)
keyword=(value1)
```

13. Hexadecimal keyword values can be entered by prefixing the value with an "X".

   Example:

```
   LINK . . . TRACESIZ=X1000, . . .
```

XCF NODE Statement

Note:
This section describes the NODE statement and parameters for the XCF line driver. For detailed information see the sections *XCF DRIVER Statement* and *XCF LINK Statement*.

The NODE statement must be the first Entire Net-Work control statement. It defines the node's name and operating characteristics.

Format

The following is the format of the NODE statement:

```
NODE nodename   BUFFERS = (abufsize, ltbufsize, stbufsize , pfxbufsize),-
                CQTIMER = seconds ,-
                DEFINE = {N | Y },-
                DOMAIN = domain-name ,-
                DUMP = storage-area ,-
                LOG = {N | Y },-
                MAXPATH = link-count ,-
                MSGFORM = message-form ,-
                NID0 = {N | Y },-
                NTRACE = n ,-
                REPLYTIM = seconds ,-
                START={Y | N },-
                TIMER = seconds ,-
                TRACE = argument-list ,-
                UCMSG={ N | Y },-
                ULINK={ N | Y }
```

Parameters

The NODE statement parameters along with a description of their function and their accepted values and defaults are described in the following sections.

Note:
The underlined portion of the parameter is the minimum abbreviation.

nodename

A 1-8 character name for this node. The node name must be specified immediately after NODE, separated by at least one blank space. All Entire Net-Work nodes must have unique names. Choose a meaningful name. Entire Net-Work uses the node name when referring to the node for operator messages and when logging.

BUFFERS

Parameter	Specify...	Minimum	Maximum	Default
BUFFERS	the amount of working storage (in bytes) reserved for internal buffer management.	0	2147483647 (see text)	see text

The values required depend on the number and types of line drivers and links, and on the message volume; these values can be adjusted according to usage statistics printed at the end of each Entire Net-Work session, or from issuing the operator command "D S" (display statistics).

Specify decimal values for the operands ranging from 0 to 2147483647 bytes; or, optionally, a value followed by either the multiplier "M" (multiply by 1048576) or "K" (multiply by 1024). If followed by "M", the specified value must range from 0 to 2048; if followed by "K", the value must range from 0 to 2097151. If a subparameter is omitted or zero is specified, no corresponding buffer pool will exist for this node. The requested storage space must be available; if the space is not available, Entire Net-Work ends with error message NET0013.

For OS/390 systems, the buffer pool manager initializes the common buffer pool with a subpool of 256K. Additional subpools can be created dynamically, and all subpools can be expanded or contracted as needed. The only size limitation for the buffer pool is the size of the region or partition. The BUFFERS specification on the NODE statement remains the same, even though the first three values (abufsize, ltbufsize, and stbufsize) are ignored by the new buffer pool manager. The fourth value (pfxbufsize) is used to set the size of the page-fixed buffer pool.

BUFFERS= (*abufsize* , *ltbufsize*, *stbufsize*,{ *pfxbufsize* | 0 })

where

abufsize	is the asynchronous buffer pool size. This required subparameter specifies the storage space to reserve for the asynchronous buffer pool; used whenever asynchronously scheduled routines (exit routines, interrupt handlers) require storage. All requests to this pool are serialized.
ltbufsize	is the long-term buffer pool size. This required subparameter specifies the storage space to reserve for the long-term buffer pool, from which comparatively small buffers are allocated for relatively long-term use (for example, dynamically created control blocks).
stbufsize	is the short-term buffer pool size. This required subparameter specifies the storage space to reserve for the short-term buffer pool, from which comparatively large individual buffers are allocated for short time periods (for example, message and transmission buffers).
pfxbufsize	is the page-fixed buffer pool size. This optional subparameter specifies the bytes to reserve for the page-fixed buffer pool, from which all requests for page-fixed buffers are filled. The use of this pool is similar to that of the short-term buffer pool; that is, relatively large buffers are allocated for short time periods. The default '0' (zero) means that no page-fixed buffer pool is allocated. Because the segment size of the page-fixed buffer pool is identical to the page size of the operating system, more page-fixed storage than short-term storage may be required.

CQTIMER

Parameter	Specify...	Minimum	Maximum	Default
CQTIMER	the time allowed (in seconds) for a user to retrieve command results with a router 16-call.	1	2147483647	60

Specify a practical decimal value, depending on the node system's environment. The maximum value is approximately 68 years: effectively, no timeout will occur. The default is approximately one minute.

The purpose of the CQTIMER= timeout is to prevent an Entire Net-Work request queue element (RQE) and the attached buffer from becoming irretrievable if the user has ended abnormally. This parameter performs the same function as the ADARUN CT parameter.

Note:
This parameter can be changed during Entire Net-Work operation by the SET CQTIMER= command.

DEFINE

Parameter	Specify...	Possible Values	Default
DEFINE	whether the DEFINE operator command can be used to define links during Entire Net-Work operation.	N | Y	N

If "Y" is specified, the DEFINE operator command is accepted and executed; "N" (the default) rejects the DEFINE operator command.

DOMAIN

Parameter	Specify...	Possible Values	Default
DOMAIN	a domain name	1-6 character name	blank (no domain name)

This parameter allows you to subdivide the network into multiple domains. Using domains simplifies network management and limits administrative message traffic.

DUMP

Parameter	Specify...	Possible Values	Default
DUMP	the areas of storage to be printed after an abnormal termination of Entire Net-Work.	see text	ALL

The information is printed to the NETPRNT file if it is open. Otherwise, it is printed to the DDPRINT file. The DUMP parameter can be used to reduce the amount of output generated during an ABEND, especially on large Entire Net-Work systems. This parameter cannot be abbreviated.

DUMP= { ALL | NONE | BLOCKS | TRACETAB | BUFFERS | LINKAREA | FORMAT }

where

ALL	All storage areas are dumped. This is the default value.
NONE	No storage areas are dumped.
BLOCKS	The major control blocks are dumped.
TRACETAB	The internal trace table is dumped.
BUFFERS	All internal buffer areas are dumped.
LINKAREA	All storage areas related to a driver and link are dumped.
FORMAT	The driver and link trace tables are formatted.

In general, the default value of ALL should be used so that all diagnostic information is available to Software AG support.

Multiple values can be specified, separated by commas and surrounded by parentheses:

```
DUMP = (BLOCKS, TRACETAB, FORMAT)
```

If values conflict, the last value specified is used. 'NONE' is used in the following example:

```
DUMP = (BLOCKS, TRACETAB, NONE)
```

Note:
This parameter can be changed during Entire Net-Work operation by the SET DUMP command.

LOG

Parameter	Specify...	Possible Values	Default
LOG	whether control flow is recorded and/or selected data areas are logged to the printer dataset.	see text	NO

Normally, logging should not be used because of the extra system resources required. The LOG function is intended primarily as a diagnostic tool: use it only with the assistance of your Software AG technical support representative.

LOG is a test parameter for recording control flow and for logging selected data areas. The information is written to the NETPRNT file if it is open. Otherwise, it is written to the DDPRINT file. It can have the following values:

LOG= { ON | OFF | YES | NO | FULL | SHORT }

where

OFF, NO	No logging occurs during this Entire Net-Work node's session.
ON, YES, and FULL	Log both the node's checkpoint records and data areas.
SHORT	Log the checkpoint records only.

Note:
This parameter can be changed during Entire Net-Work operation by the SET LOG= command.

MAXPATH

Parameter	Specify...	Minimum	Maximum	Default
MAXPATH	the maximum path length (in links) that a message can travel in the network.	1	32767	4

The default (4) results in a stack large enough for four enroute node IDs.

The Entire Net-Work communicator uses this optional value to build a list of two-byte entries for tracking each message. This list, called a 'node stack', is included in the message header. As the message passes through nodes on the way to its target, each node's ID is added to the stack.

If the specified MAXPATH value results in a node stack that is larger than needed, messages will be unnecessarily long. If the MAXPATH value is too small, Entire Net-Work automatically copies the message, increasing the node stack size; this causes unnecessary processor overhead.

Note:
This parameter can be changed during Entire Net-Work operation by the SET MAXPATH= command.

MSGFORM

Parameter	Specify...	Possible Values	Default
MSGFORM	the format of console messages and DDPRINT output.	1	2	3	4	2

where the valid values are

1	is compatible with the message format used by Entire Net-Work Version 5.2. For example: `NET0090 BUFFER USAGE STATISTICS`
2	provides a severity letter (I for information, W for warning, or E for error) with the message number. For example: `NET0090I: BUFFER USAGE STATISTICS`
3	provides the message number followed by the node name of the issuing Entire Net-Work node, padded with blanks to a length of 8. For example: `NET0090I NODE2  : BUFFER USAGE STATISTICS`
4	provides the message number followed by the node name, not padded, of the issuing Entire Net-Work node. For example: `NET0090I NODE2: BUFFER USAGE STATISTICS`

Notes:

1. Individual line drivers may not recognize this parameter.
2. Values between 5 and 255 will be accepted, but they have no meaning and are not valid.
3. This parameter can be changed during Entire Net-Work operation by the SET MSGFORM= command.

NID0

Parameter	Specify...	Possible Values	Default
NID0	whether to force a node ID of 0 (zero) for all unsolicited connections.	N | Y	N

If NID0=Y is specified, all nodes that attempt to connect and are not explicitly defined are assigned a node ID of 0. No Adabas servers on those nodes are broadcast through the network.

NTRACE

Parameter	Specify...	Minimum	Maximum	Default
NTRACE	the number of 32-byte entries to be allocated for the internal trace table.	0	2147483647	0

Specify a practical decimal value, depending on the node's system configuration. The maximum may be limited by the system. If the default (0) is used, no trace table is allocated for this node and no tracing takes place, whether TRACE= or TRON= is specified or not.

REPLYTIM

Parameter	Specify...	Minimum	Maximum	Default
REPLYTIM	the time allowed (in seconds) for a user request to complete.	1	2147483647	60

A request is considered complete when the originating node receives a reply.

Specify a practical decimal value, depending on the node system's operation. The maximum value is approximately 68 years: effectively, no timeout will occur. The default is approximately one minute.

In the event that a message is "stranded" (that is, a reply cannot be returned to the originating node), REPLYTIM= specifies a time after which a response code 224 is returned to the user.

Note:
This parameter can be changed during Entire Net-Work operation by the SET REPLYTIM= command.

START

Parameter	Specify...	Possible Values	Default
START	whether Entire Net-Work starts normal operations automatically.	N | Y	Y

The values for START are interpreted as follows:

Y	Entire Net-Work automatically starts all line drivers and initiates connections for all links that have the parameter ACQUIRE=Y specified.
N	Entire Net-Work initializes line drivers but does not start them; nor does it connect any links. Line drivers can be started individually by using the START operator command.

TIMER

Parameter	Specify...	Minimum	Maximum	Default
TIMER	the interval (in seconds) between handling of time-dependent requests.	1	2147483647	30

Each time the specified interval expires, Entire Net-Work scans its tables for any time-dependent action that needs to be taken. The TIMER= value determines the precision of *all* time-dependent Entire Net-Work services.

Specify a practical decimal value depending on the node operation. The maximum value is approximately 68 years: effectively, no timing supervision will occur, even if other timing parameters, such as REPLYTIM, CQTIMER, or ADARUN CT are set.

There is an interaction between TIMER= and other timing parameters. If the TIMER interval is greater than the individual CQTIMER= and REPLYTIM= intervals, the specified action may not be started until the TIMER= interval has expired.

TRACE | TROFF | TRON

Parameter	Specify...	Possible Values	Default
TRACE | TROFF | TRON	trace control parameters for performing program traces.	trace (see text)	none

Tracing should not be active during normal operation. Tracing is intended as a diagnostic tool; it is recommended that you use tracing only with the assistance of your Software AG technical support representative.

TRACE= and TRON= are synonyms to either start or resume tracing of the specified events. TROFF= stops tracing. If this parameter is not specified, no tracing will occur.

Note that the NTRACE parameter must specify a nonzero value in order to permit tracing.

```
{TRACE |  TROFF |  TRON } = { trace  | (trace , ...)}
```

One or more trace values can be specified. If more than one value is specified, the values must be enclosed in parentheses and separated by commas:

```
(trace,trace,... )
```

The value 'trace' can be one or more of the following:

MAIN	mainline trace
BPM	buffer pool manager trace
TQM	transmission queue manager trace
RQM	receive queue manager trace
XCF	XCF line driver trace

An XCF line driver trace can be requested for installed line drivers on the local node only.

Note:
Values set by this parameter can be changed during Entire Net-Work operation by the SET TRACE=, TROFF=, or TRON=... commands.

UCMSG

Parameter	Specify...	Possible Values	Default
UCMSG	whether messages are issued in uppercase (Y) or mixed case (N).	N | Y	N

Notes:

1. Individual line drivers may not recognize this parameter.
2. This parameter can be changed during Entire Net-Work operation by the SET UCMSG command.

ULINK

Parameter	Specify...	Possible Values	Default
ULINK	whether multiple links are allowed between two Entire Net-Work nodes.	N | Y	N

The values for ULINK are interpreted as follows:

N	(the default) multiple links between two Entire Net-Work nodes are allowed.
Y	Entire Net-Work ensures that each connection to an adjacent node is unique; incoming connection requests from adjacent nodes that are already known as active are rejected.

In networks with many PCs, two PCs may be assigned the same node name and ID by mistake. If both PCs are simultaneously connected to Entire Net-Work, they are perceived as one Entire Net-Work node that is connected by two different links. As a result, one of the PCs may receive a reply to a call that originated on the other PC.

To avoid this type of situation, specify ULINK=YES. When the second PC tries to connect, it is rejected. The integrity of the network is maintained and the duplicate node name and ID can be identified.

Note:
This parameter can be changed during Entire Net-Work operation by the SET ULINK command.

XCF DRIVER Statement

The Entire Net-Work DRIVER control statement defines the line driver type (that is, XCF) to be loaded. Only one DRIVER statement may be specified for a given line driver type.

DRIVER statement parameters are read from a sequential file during system startup, and can be modified after startup using the ALTER operator command. Some parameters can be modified when the line driver is open or closed; others can be modified only when the line driver is closed. See the operator commands ALTER and CLOSE in the section *XCF Line Driver Commands* in the *Operator Commands* documentation. The open/closed requirement for each parameter is included in its description.

The XCF DRIVER statement and its parameters are used to activate and define the characteristics of the local sysplex node. The access method name 'XCF' or 'XCFD' instructs Entire Net-Work to load the line driver module NETXCF, which must exist in the libraries defined for the related job step.

Note:
The software accepts both XCF and XCFD as the access method name. However, the name used in the DRIVER statement must also be used for the LINK statements.

Format

The XCF DRIVER statement has the following format:

```
DRIVER XCFD  ACCEPTUI = { Y | N },-
             GROUP =group-name,-
             LARGEMSG = {message-size|8192 },-
             PSTATS = { Y | N },-
             RSTATS = {Y  | N },-
             SMALLMSG = {message-size|  1024 },-
             STATINT = { statistics-interval  |  3600 },-
             TRACESIZ = {internal-trace-buffer-size |8192 }
```

where 'XCFD' is the four-character access method name for the XCF driver type:

Driver	Module Name	Access Method
XCFD	NETXCF	parallel sysplex cross-system coupling facility

Parameters

Note:
The underlined portion of the parameter is the minimum abbreviation.

ACCEPTUI

Parameter	Specify...	Possible Values	Default
ACCEPTUI	whether this node will connect to other nodes in the XCF group that are not defined by a LINK statement.	N | Y	Y

The ACCEPTUI parameter can be modified when the driver is open or closed.

GROUP

Parameter	Specify...	Possible Values	Default
GROUP	the Entire Net-Work group name.	group-name	WCPXCFV5

All Entire Net-Work nodes in the SYSPLEX must use the same unique XCF group name. The group name must be the same on all Entire Net-Work nodes; it must also be different from the name of any other product or system using XCF. Results are unpredictable if Entire Net-Work nodes are assigned to the same group as other types of systems such as DB2 or CICS. The GROUP parameter specifies the Entire Net-Work group name, which may be defined in the COUPLExx member in SYS1.PARMLIB (see step *Modify COUPLExx and the CFRM Policy* in the *Installation* documentation). The GROUP parameter can be modified only when the driver is closed.

LARGEMSG

Parameter	Specify...	Default
LARGEMSG	the minimum size (in bytes) of a large message for statistics reporting.	8192 (8K)

Any data messages larger than this size are counted as large messages. Any data messages smaller than this size are counted as medium or small messages, depending on the value specified by the SMALLMSG parameter described below.

For example, using the default values for SMALLMSG and LARGEMSG:

- Data messages between 1 and 1024 bytes long are reported as small messages.

- Data messages between 1025 and 8192 bytes long are reported as medium messages.

- Data messages larger than 8192 bytes long are reported as large messages.

PSTATS

Parameter	Specify...	Possible Values	Default
PSTATS	whether statistics are printed automatically at regular intervals.	N | Y	N

This parameter is only used to set the default for all links.

RSTATS

Parameter	Specify...	Possible Values	Default
RSTATS	whether statistics are reset automatically at regular intervals.	N | Y	Y

This parameter is only used to set the default for all links.

SMALLMSG

Parameter	Specify...	Default
SMALLMSG	the maximum size (in bytes) of a small message for statistics reporting.	1024

Any data messages smaller than or equal this size are counted as small messages. Any data messages larger than this size are counted as medium or large messages, depending on the value specified by the LARGEMSG parameter described above.

STATINT

Parameter	Specify...	Minimum	Maximum	Default
STATINT	the amount of time, in seconds, before statistics are automatically reported or reset.	0	2147483647	3600

This parameter is only used to set the default for all links.

TRACESIZ

Parameter	Specify...	Default
TRACESIZ	the size (in bytes) of the internal trace buffer.	8192 (8K)

The TRACESIZ parameter can be modified when the driver is open or closed.

XCF LINK Statement

The LINK statement is currently not required for the XCF DRIVER statement. During the initialization process, the XCF line driver requests a list of all other members in its XCF group and then, if the DRIVER statement parameter ACCEPTUI=Y is set, logically connects to each member.

Although the LINK statement is optional, it can be added for documentation or security purposes.

Note:
If two or more Entire Net-Work nodes are active in the sysplex within the same group, the Entire Net-Work operator command D L (display links) can be used to display the list of dynamically added links and parameter-defined links.

Each link to another node can be defined with a LINK statement. Each link uses the XCF communications access method as defined on an XCF DRIVER statement. LINK statements specify the XCF driver by name, and follow the XCF DRIVER statement in the Entire Net-Work statement order.

Note:
The software accepts both XCF and XCFD as driver names. However, the name used in the DRIVER statement must also be used for the LINK statements.

The LINK statement parameters are read from a sequential file during system startup, and can be modified after startup using the ALTER operator command. Some parameters can be modified when the link is open or closed; others can be modified only when the link is closed. See the operator commands ALTER and CLOSE in the section *XCF Line Driver Commands* in the *Operator Commands* documentation. The open/closed requirement for each parameter is included in its description.

Format

The XCF LINK statement has the following format:

```
LINK linkname XCFD  PSTATS = { Y | N },-
                    RSTATS = { Y | N },-
                    SAF  = { Y | L | N },-
                    STATINT = statistics-interval,-
                    WEIGHT = {n | 256 }
```

where 'XCFD' is the four-character name of the XCF line driver. The XCF DRIVER statement must precede the LINK statement.

Parameters

Note:
The underlined portion of the parameter is the minimum abbreviation.

linkname

This required parameter specifies the name by which this link is to be known; it is a one- to eight-character name identifying the link and must be unique on the node. It is positional and must be specified immediately after the LINK keyword and immediately before the driver name (XCFD).

Note:
If more than 8 characters are entered for linkname, only the first 8 characters are used. The connection is issued correctly and no error message is generated.

PSTATS

Parameter	Specify...	Possible Values	Default
PSTATS	whether statistics are printed automatically at regular intervals.t	N | Y	see text

The default value is the value of the PSTATS parameter on the DRIVER statement (see *XCF DRIVER Statement* parameter *PSTATS*).

RSTATS

Parameter	Specify...	Possible Values	Default
RSTATS	whether statistics are reset automatically at regular intervals.	N | Y	see text

The default value is the value of the PSTATS parameter on the DRIVER statement (see *XCF DRIVER Statement* parameter *RSTATS*).

SAF

Parameter	Specify...	Possible Values	Default
SAF	whether Entire Net-Work will call the SAF Interface for all incoming requests on this link.	N | L | Y	N

Failure to load the Interface is considered a security violation and Entire Net-Work will shut down. If SAF=L, the calls are traced and the output directed to DDPRINT. An error code is transmitted to the user if access to SAF is denied. The SAF parameter can be modified when the link is open or closed.

STATINT

Parameter	Specify...	Minimum	Maximum	Default
STATINT	the elapsed time (in seconds) before statistics are automatically reported or reset.	0	2147483647	see text

The default value is the value of the STATINT parameter on the DRIVER statement (*XCF DRIVER Statement* parameter *STATINT*).

WEIGHT

Parameter	Specify...	Minimum	Maximum	Default
WEIGHT	the weight of this link with respect to other links going to the same node.	1	999999	256

If a given target can be reached by more than one path (chain of connected links), the path with the lowest weight is used. Slow or expensive links should be given a higher value than fast or inexpensive links. The WEIGHT parameter can be modified only when the link is closed.