

E.4.3.3 Block 3, Configuration parameters.

Configuration parameters defined by Block 3 (TABLE XXXIII) are required to enable computation of TP, RHD, Net_Busy_Detect_Time, and the NAD described in Appendix C. Although not mandatory with any message, it could lead to erroneous network control computations resulting in collisions if the information is not provided in a Join Request message.

TABLE XXXIII. Configuration parameters.

OCTET	FIELD IDENTIFICATION	VALUE
1	<u>Block Number</u> : Identifies specific data block	3
2	<u>Length</u> : Indicates the length of the Parameters block in octets	<u>2230</u>
3-4	<u>Equipment Preamble Time (EPRE)</u> : Network Access Control parameter defined in Appendix C.	<u>0.000</u> – 30.000 msec in 1 msec increments
5-6	<u>Phasing Time</u> : Network Access Control parameter defined in Appendix C.	<u>0.000</u> – 10.000 msec in 1 msec increments
7-8	<u>Equipment Lag Time (ELAG)</u> : Network Access Control parameter defined in Appendix C.	<u>0.000</u> – 65.534 msec in 1 msec increments
9-10	<u>Turnaround Time (TURN)</u> : Network Access Control parameter defined in Appendix C.	<u>0.000</u> – 65.534 msec in 1 msec increments
11-12	<u>Tolerance Time (TOL)</u> : Network Access Control parameter defined in Appendix C.	<u>0.000</u> – 2.500 msec in 1 msec increments
13-14	<u>DTE Processing Time (DTEPROC)</u> : Network Access Control parameter defined in Appendix C.	<u>0.000</u> – 65.534 msec in 1 msec increments
15	<u>DTE Acknowledgment Time (DTEACK)</u> : Network Access Control parameter defined in Appendix C.	<u>0.000</u> – 0.254 msec in 1 msec increments
<u>16</u>	<u>DTE turnaround time (DTETURN)</u> : Network Access Control parameter defined in Appendix C.	<u>0.000</u> – 0.100 sec in 1 msec increments
17-18	<u>Net Busy Sensing Time, B</u> : The parameter “B” (data sensing busy detect), <u>in seconds</u> , used to calculate Net Busy Detect Time (NBDT) defined in Appendix C.	<u>0.000</u> – 65.534 msec in 1 msec increments
19-20	<u>Net Busy Detect Time (Squelch Detect)</u> : The time, <u>in seconds</u> , to detect network busy using the squelch detection function of SINCGARS.	<u>0.000</u> – 65.534 msec in 1 msec increments
21-22	<u>Net Busy Detect Time (Non-Squelch Detect)</u> : The time, <u>in seconds</u> , to detect data network busy using received data rather than squelch detect.	<u>0.000</u> – 65.534 msec in 1 msec increments

23	<u>Mode Of Operation:</u> Identifies the Physical Layer protocol capabilities of a specific station or those being used in the network. Multiple bits may be set.	Bit Map: 0 = System Capabilities 1 = Network Operations 2 = Synchronous Mode (SDM) 3 = Synchronous Mode (EDM) 4 = Asynchronous Mode 5 = Packet Mode 6 = Robust Comm. Protocol
<u>24-25</u>	<u>TEST Time To Live (TTTL).</u> The maximum time to wait, in seconds, to transmit the TEST response frame. A value of 0 indicates that the message shall never timeout.	<u>0.000 – 65.535 seconds in 1 msec increments.</u>
<u>26-27</u>	<u>Join Request Time To Live (JRTTL).</u> The maximum time to wait, in seconds, for transmission of the XNP Join Request Frame. A value of 0 indicates no transmit deadman timeout.	<u>0.000 – 65.535 seconds in 1 msec increments.</u>
<u>28-29</u>	<u>Join Response Timer (JRT).</u> Number of seconds to wait for a Join Accept/Reject from NETCON after the XNP Join Request is successfully transmitted.	<u>1.000 – 65.535 seconds in 1 msec increments.</u>
<u>30</u>	<u>Net Busy Timeout (NBT).</u> Maximum seconds to wait during continuous net busy condition before generating transmit failures. A value of 0 indicates no timeout.	<u>1 – 255 seconds in 1 second increments.</u>

E.4.3.4 Block 4, Type 3 parameters.

These parameters (TABLE XXXIIXXXIV) are required for data link Type 3 (acknowledged Type 1) operations and are mandatory with the Join Accept message to provide the joining station with sufficient information to use Type 3 in the network. This block is optional with the Parameter Update Request message and the Parameter Update message.

TABLE XXXIIV. Type 3 parameters.

OCTET	FIELD IDENTIFICATION	VALUE
1	<u>Block Number:</u> Identifies specific data block.	4
2	<u>Length:</u> Indicates the length of the Type 3 Parameters block in octets	5
3	<u>Type 3 Retransmissions:</u> The maximum number of times to retransmit an unacknowledged frame.	0 to 5

4-5	<u>Busy State Timer</u> : The time interval following receipt of the URNR command PDU during which the station shall wait for the other station to clear the busy condition.	60 - 600 seconds in 1 second increments
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E.4.3.5 Block 5, Deterministic NAD parameters.

This block (TABLEXXXV) defines parameters needed to allow operation in a network configured for deterministic network access (DAP-NAD or P-NAD) operations. It is mandatory with the Join Accept message if the network being joined is operating with P-NAD or DAP-NAD. It may also be used with the Parameter Update Request message and the Parameter Update message. This block is required in the Parameter Update message if it is being used to announce the network's access procedures are changing to either P-NAD or DAP-NAD.

TABLE XXXV. Deterministic NAD parameters.

OCTET	FIELD IDENTIFICATION	VALUE
1	<u>Block Number</u> : Identifies specific data block	5
2	<u>Length</u> : Indicates the length of the Deterministic NAD Parameters block in octets	7
3	<u>Number Of Stations</u> : Indicates the number of stations participating on the network. Used in NAD calculations.	2 - 95
4	<u>Number Of NAD Priorities</u> : Number of priorities to be considered in P-NAD and DAP-NAD method.	1 - 8
5	<u>Number Of NAD Slots</u> : Indicates the number of NAD slots available for P-NAD and DAP-NAD operations.	1 - 127
6-7	<u>NAD Slot Duration</u> : Duration of the NAD time slot, in seconds , for NAD operations.	0.000 -- 300.000 msec in 1 msec increments

E.4.3.6 Block 6, Probabilistic NAD parameters.

Block 6 (TABLE III) provides network access delay operating parameters for probabilistic networks (R-NAD or H-NAD). It is mandatory with the Join Accept message to provide the joining station with required operating parameters if the network is configured for either R-NAD or H-NAD. It is optional with the Parameter Update Request message and the Parameter Update message. This block is required in the Parameter Update message if it is being used to announce the network's access procedures are changing to either R-NAD or H-NAD.

TABLE III. Probabilistic NAD parameters.

OCTET	FIELD IDENTIFICATION	VALUE
1	<u>Block Number</u> : Identifies specific data block	6
2	<u>Length</u> : Indicates the length of the Probabilistic NAD Parameters block in octets	7
3	<u>Number Of Stations</u> : Indicates the number of stations participating on the network. Used in NAD calculations.	2 - 95 stations on the network
4	<u>Number Of NAD Priorities</u> : Number of priorities to be considered in R-NAD and H-NAD method.	1 - 8
5	<u>Urgent Percent</u> : The percentage of urgent (%U) frames expected in an average 24-hour period. Used in the H-NAD calculation.	0 - 100% This value plus Priority Percent value shall be less than or equal to 100%
6	<u>Priority Percent</u> : The percentage of priority (%P) frames expected in an average 24-hour period. Used in the H-NAD calculation.	0 - 100% This value plus Urgent Percent value shall be less than or equal to 100%
7	<u>Traffic Load</u> : The amount of network traffic expected. Used in the H-NAD calculation.	0 = Normal 1 = Heavy 2 = Light

E.4.3.7 Block 7, RE-NAD parameters.

These parameters (TABLE XXXIVII) are required for stations in a network operating with RE-NAD. It is mandatory with the Join Accept message to provide joining stations with network access parameters if the network being joined is configured for RE-NAD. It is optional with the Parameter Update Request message and the Parameter Update message. This block is required in the Parameter Update message if it is being used to announce the network's access procedures are changing to RE-NAD.

TABLE XXXIVI. RE-NAD parameters.

OCTET	FIELD IDENTIFICATION	VALUE
1	<u>Block Number</u> : Identifies specific data block.	7
2	<u>Length</u> : Indicates the length of the RE-NAD Parameters block in octets	14
3-4	<u>Maximum Voice Factor</u> : Upper bound on voice factor <u>in seconds</u>	0.300 – 10.000 msec in 1 msec increments
5-6	<u>Minimum Voice Factor</u> : Lower bound on voice factor <u>in seconds</u>	0.300 – 10.000 msec in 1 msec increments
7-8	<u>Voice Factor Increment</u> : Scheduler fast attack increment <u>in seconds</u> .	0.000 – 10.000 msec in 1 msec increments
9-10	<u>Voice Factor Decrement</u> : Scheduler slow decay increment <u>in seconds</u> .	0.000 – 10.000 msec in 1 msec increments
11-12	<u>Maximum Scheduler Interval</u> : Upper bound on scheduler interval <u>in seconds</u>	1.000 – 5.000 msec in 1 msec increments
13-14	<u>Minimum Scheduler Interval</u> : Lower bound on scheduler interval <u>in seconds</u>	1.000 – 3.000 msec in 1 msec increments

E.4.3.8 Block 8, Wait time.

This block (TABLE XXXVI) is used with the Join Accept message and Parameter Update message to specify a delay. When used with the Join Accept message, it indicates how long the Joining station should wait after sending a Hello message before it can assume its entry to the network is accepted. When used with the Parameter Update message, it indicates when new operating parameters become effective.

TABLE XXXV. Wait time.

OCTET	FIELD IDENTIFICATION	VALUE
1	<u>Block Number</u> : Identifies specific data block	8
2	<u>Length</u> : Indicates the length of the Wait Time block in octets	3
3	<u>Wait Time</u> : Delay period <u>in seconds</u> .	1 - 255 seconds in 1 second increments

E.4.3.9 Block 9, Type 2 parameters.

This block (TABLE XXXVI) identifies individual or network operating parameters for stations capable of optional Type 2 operations. It may be used with the Join Accept message, Parameter Update Request message and Parameter Update message.

E.4.3.10 Block 10, Type 4 parameters.

Type 4 parameters (TABLEXXXIX) are required for stations in a network which are capable of Type 4 operations. It may be used with the Join Accept message, Parameter Update Request message and Parameter Update message.

E.4.3.11 Block 11, NAD ranking.

This block (TABLE VII) provides ranking of a station in a deterministic network access configured network. It is mandatory if the network is configured for either P-NAD or DAP-NAD. It may be used with the Join Accept message or the Parameter Update message. In the Parameter Update message, it may be repeated to identify ranking of each station in the network. In this case, this block will appear once for each station on the network and will be preceded by block 1 to identify the station to which the ranking applies.

E.4.3.12 Block 12, Intranet parameters.

The Intranet parameters (TABLE VIIIXXXI) shall be provided to joining stations to provide information for Intranet relaying within the local network. This block shall be included with the Join Accept and Parameter Update messages.

E.4.3.13 Block 13, Error.

Block 13 (**Error! Reference source not found.**) is encoded in Block/Byte number pairs indicating the starting byte number of the field containing the error. Block 13 may be included with the Join Reject message to indicate the reasons that a Join Request is being rejected.

E.4.3.14 Block 14, Address designation parameters.

Block 14 provides for the exchange of addressing information between the NCS and the other stations participating in the network. This message may be used as a request by a station or by the NCS to notify any station of their link or IP address in the network. This block may also be utilized by the NCS to provide a block of link or IP addresses to a backup NCS.

TABLE XXXVII. Type 2 parameters.

OCTET	FIELD IDENTIFICATION	VALUE
1	<u>Block Number</u> : Identifies specific data block.	9
2	<u>Length</u> : Indicates the length of the Type 2 Parameters block in octets	12
3-4	<u>ACK Timer</u> : The amount of time, <u>in seconds</u> , before Waiting Acknowledgment procedures are initiated.	10 - 1800 seconds in 1 second increments
5	<u>P-Bit Timer</u> : The amount of time, <u>in seconds</u> , before Waiting Acknowledgment procedures are initiated when P-bit was set to 1.	10 - 60 seconds in 1 second increments
6-7	<u>Reject Timer</u> : The amount of time, <u>in seconds</u> , before re-sending the REJ or SREJ if no response is received.	20 - 3600 seconds in 1 second increments
8	<u>Maximum number of retransmissions, N2</u> : The maximum number of times an I frame may be re-transmitted.	0 - 5
9	<u>K Window</u> : The maximum number of outstanding I PDUs allowed on a connection.	1 - 127
10	<u>K2 Threshold</u> : The maximum number of unacknowledged I PDUs on a connection before an acknowledgment is requested.	1 - 127
11	<u>K3 Threshold</u> : The maximum number of unacknowledged I PDUs on a connection before an acknowledgment shall be sent.	1 - 127
12	<u>Response Delay Timer percent</u> : The amount of time, as a percent of the ACK Timer, that a station waits after an I PDU with its P-bit set to 0 is received before sending an acknowledgment.	0 - 99% = Delay in 1% increments

TABLE XXXIX. Type 4 parameters.

OCTET	FIELD IDENTIFICATION	VALUE
1	<u>Block Number</u> : Identifies specific data block	10
2	<u>Length</u> : Indicates the length of the Type 4 Parameters block in octets	7
3-4	<u>ACK Timer</u> : The amount of time, <u>in seconds</u> , before a DIA is retransmitted.	5.0 — 120.0 tenths of seconds
5	<u>K Window</u> : The maximum number of outstanding DIA frames allowed for a station.	5 - 20
6	<u>Maximum number of retransmissions attempts</u> : The maximum number of times a DIA frame may be re-transmitted.	0 - 5
7	<u>Type 4 ACK List Length</u> : The number of DIA frames remembered in the list used to detect and discard duplicates.	0 = No duplicate detection 1 - 255 = Number of frames remembered

TABLE VII. NAD ranking.

OCTET	FIELD IDENTIFICATION	VALUE
1	<u>Block Number</u> : Identifies specific data block	11
2	<u>Length</u> : Indicates the length of the NAD Ranking Parameters block in octets	3
3	<u>Subscriber Rank</u> : Identifies the ranking of this station relative to other stations on the network. Used in P-NAD and DAP-NAD calculations to determine the actual order of network access.	1 - 127 with 1 being highest

TABLE VIIIXXXI. Intranet parameters.

OCTET	FIELD IDENTIFICATION	VALUE
1	<u>Block Number</u> : Identifies specific data block	12
2	<u>Length</u> : Indicates the length of the Intranet Parameters block in octets	11
3	<u>Min Update Per</u> : Topology updates should not be transmitted more often than once every <u>Min_Update_Per</u> .	0 = No Updates 1 - 255 = minutes in 1 minute increments

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4	<u>Topology Update Precedence</u> : The precedence of Topology Update messages.	0 = Routine 1 = Priority 2 = Immediate 3 = Flash 4 = Flash Override 5 = CRITIC/ECP 6 = Internet Control 7 = Network Control 8 - 255 = Undefined
5	<u>Relayer Status</u> : Indicates if the station is a relay or non-relayer.	0 = No Relay 1 = Relay
6-7	<u>ACK Timer (fixed factor)</u> : The base time to wait, <u>in seconds</u> , before retransmitting an unacknowledged Intranet message.	0 - 600 in seconds
8-9	<u>ACK Timer (proportional factor)</u> : The amount of time, <u>in seconds</u> , to add to the fixed factor for each hop to the furthest destination of an Intranet message.	0 - 600 in seconds