

PROTOCOL STANDARD FOR A NetBIOS SERVICE  
ON A TCP/UDP TRANSPORT:  
DETAILED SPECIFICATIONS

ABSTRACT

This RFC defines a proposed standard protocol to support NetBIOS services in a TCP/IP environment. Both local network and internet operation are supported. Various node types are defined to accommodate local and internet topologies and to allow operation with or without the use of IP broadcast.

This RFC gives the detailed specifications of the NetBIOS-over-TCP packets, protocols, and defined constants and variables. A more general overview is found in a companion RFC, "Protocol Standard For a NetBIOS Service on a TCP/UDP Transport: Concepts and Methods".

## TABLE OF CONTENTS

1.	STATUS OF THIS MEMO	4
2.	ACKNOWLEDGEMENTS	4
3.	INTRODUCTION	5
4.	PACKET DESCRIPTIONS	5
4.1	NAME FORMAT	5
4.2	NAME SERVICE PACKETS	7
4.2.1	GENERAL FORMAT OF NAME SERVICE PACKETS	7
4.2.1.1	HEADER	8
4.2.1.2	QUESTION SECTION	10
4.2.1.3	RESOURCE RECORD	11
4.2.2	NAME REGISTRATION REQUEST	13
4.2.3	NAME OVERWRITE REQUEST & DEMAND	14
4.2.4	NAME REFRESH REQUEST	15
4.2.5	POSITIVE NAME REGISTRATION RESPONSE	16
4.2.6	NEGATIVE NAME REGISTRATION RESPONSE	16
4.2.7	END-NODE CHALLENGE REGISTRATION RESPONSE	17
4.2.8	NAME CONFLICT DEMAND	18
4.2.9	NAME RELEASE REQUEST & DEMAND	19
4.2.10	POSITIVE NAME RELEASE RESPONSE	20
4.2.11	NEGATIVE NAME RELEASE RESPONSE	20
4.2.12	NAME QUERY REQUEST	21
4.2.13	POSITIVE NAME QUERY RESPONSE	22
4.2.14	NEGATIVE NAME QUERY RESPONSE	23
4.2.15	REDIRECT NAME QUERY RESPONSE	24
4.2.16	WAIT FOR ACKNOWLEDGEMENT (WACK) RESPONSE	25
4.2.17	NODE STATUS REQUEST	26
4.2.18	NODE STATUS RESPONSE	27
4.3	SESSION SERVICE PACKETS	29
4.3.1	GENERAL FORMAT OF SESSION PACKETS	29
4.3.2	SESSION REQUEST PACKET	30
4.3.3	POSITIVE SESSION RESPONSE PACKET	31
4.3.4	NEGATIVE SESSION RESPONSE PACKET	31
4.3.5	SESSION RETARGET RESPONSE PACKET	31
4.3.6	SESSION MESSAGE PACKET	32
4.3.7	SESSION KEEP ALIVE PACKET	32
4.4	DATAGRAM SERVICE PACKETS	32
4.4.1	NetBIOS DATAGRAM HEADER	32
4.4.2	DIRECT_UNIQUE, DIRECT_GROUP, & BROADCAST DATAGRAM	33
4.4.3	DATAGRAM ERROR PACKET	34
4.4.4	DATAGRAM QUERY REQUEST	34
4.4.5	DATAGRAM POSITIVE AND NEGATIVE QUERY RESPONSE	34
5.	PROTOCOL DESCRIPTIONS	35
5.1	NAME SERVICE PROTOCOLS	35
5.1.1	B-NODE ACTIVITY	35

5.1.1.1	B-NODE ADD NAME	35
5.1.1.2	B-NODE ADD_GROUP NAME	37
5.1.1.3	B-NODE FIND_NAME	37
5.1.1.4	B NODE NAME RELEASE	38
5.1.1.5	B-NODE INCOMING PACKET PROCESSING	39
5.1.2	P-NODE ACTIVITY	42
5.1.2.1	P-NODE ADD_NAME	42
5.1.2.2	P-NODE ADD GROUP NAME	45
5.1.2.3	P-NODE FIND NAME	45
5.1.2.4	P-NODE DELETE_NAME	46
5.1.2.5	P-NODE INCOMING PACKET PROCESSING	47
5.1.2.6	P-NODE TIMER INITIATED PROCESSING	49
5.1.3	M-NODE ACTIVITY	50
5.1.3.1	M-NODE ADD NAME	50
5.1.3.2	M-NODE ADD GROUP NAME	54
5.1.3.3	M-NODE FIND NAME	55
5.1.3.4	M-NODE DELETE NAME	56
5.1.3.5	M-NODE INCOMING PACKET PROCESSING	58
5.1.3.6	M-NODE TIMER INITIATED PROCESSING	60
5.1.4	NBNS ACTIVITY	60
5.1.4.1	NBNS INCOMING PACKET PROCESSING	61
5.1.4.2	NBNS TIMER INITIATED PROCESSING	66
5.2	SESSION SERVICE PROTOCOLS	67
5.2.1	SESSION ESTABLISHMENT PROTOCOLS	67
5.2.1.1	USER REQUEST PROCESSING	67
5.2.1.2	RECEIVED PACKET PROCESSING	71
5.2.2	SESSION DATA TRANSFER PROTOCOLS	72
5.2.2.1	USER REQUEST PROCESSING	72
5.2.2.2	RECEIVED PACKET PROCESSING	72
5.2.2.3	PROCESSING INITIATED BY TIMER	73
5.2.3	SESSION TERMINATION PROTOCOLS	73
5.2.3.1	USER REQUEST PROCESSING	73
5.2.3.2	RECEPTION INDICATION PROCESSING	73
5.3	NetBIOS DATAGRAM SERVICE PROTOCOLS	74
5.3.1	B NODE TRANSMISSION OF NetBIOS DATAGRAMS	74
5.3.2	P AND M NODE TRANSMISSION OF NetBIOS DATAGRAMS	76
5.3.3	RECEPTION OF NetBIOS DATAGRAMS BY ALL NODES	78
5.3.4	PROTOCOLS FOR THE NBDD	80
6.	DEFINED CONSTANTS AND VARIABLES	83
	REFERENCES	85

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1. STATUS OF THIS MEMO

This RFC specifies a proposed standard for the DARPA Internet community. Since this topic is new to the Internet community, discussions and suggestions are specifically requested.

Please send written comments to:

Karl Auerbach  
Epilogue Technology Corporation  
P.O. Box 5432  
Redwood City, CA 94063

Please send online comments to:

Avnish Aggarwal  
Internet: mtxinu!excelan!avnish@ucbvax.berkeley.edu  
Usenet: ucbvax!mtxinu!excelan!avnish

Distribution of this memorandum is unlimited.

2. ACKNOWLEDGEMENTS

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The following individuals have contributed to the development of this RFC:

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### 3. INTRODUCTION

This RFC contains the detailed packet formats and protocol specifications for NetBIOS-over-TCP. This RFC is a companion to RFC 1001, "Protocol Standard For a NetBIOS Service on a TCP/UDP Transport: Concepts and Methods" [1].

### 4. PACKET DESCRIPTIONS

Bit and byte ordering are defined by the most recent version of "Assigned Numbers" [2].

#### 4.1. NAME FORMAT

The NetBIOS name representation in all NetBIOS packets (for NAME, SESSION, and DATAGRAM services) is defined in the Domain Name Service RFC 883[3] as "compressed" name messages. This format is called "second-level encoding" in the section entitled "Representation of NetBIOS Names" in the Concepts and Methods document.

For ease of description, the first two paragraphs from page 31, the section titled "Domain name representation and compression", of RFC 883 are replicated here:

Domain names messages are expressed in terms of a sequence of labels. Each label is represented as a one octet length field followed by that number of octets. Since every domain name ends with the null label of the root, a compressed domain name is terminated by a length byte of zero. The high order two bits of the length field must be zero, and the remaining six bits of the length field limit the label to 63 octets or less.

To simplify implementations, the total length of label octets and label length octets that make up a domain name is restricted to 255 octets or less.

The following is the uncompressed representation of the NetBIOS name "FRED ", which is the 4 ASCII characters, F, R, E, D, followed by 12 space characters (0x20). This name has the SCOPE\_ID: "NETBIOS.COM"

EGFCEFEECACACACACACACACACACACACA.NETBIOS.COM

This uncompressed representation of names is called "first-level encoding" in the section entitled "Representation of NetBIOS Names" in the Concepts and Methods document.

The following is a pictographic representation of the compressed representation of the previous uncompressed Domain Name representation.

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