FTP extensions for IPv6
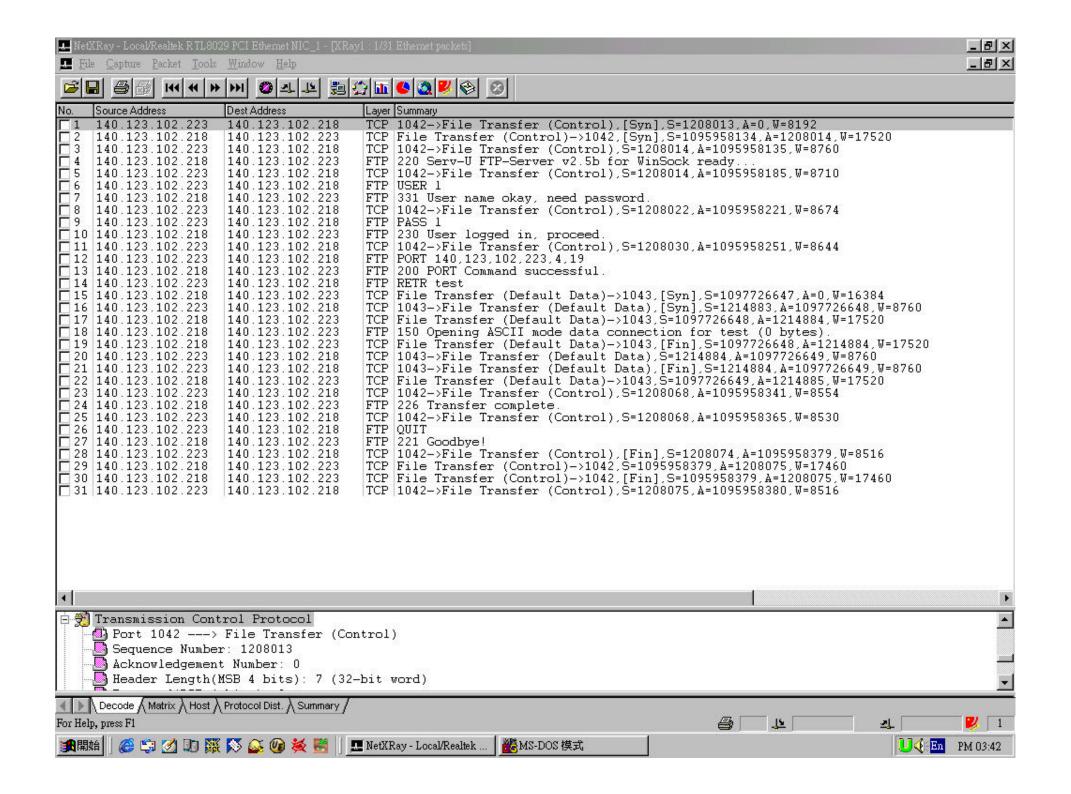
yhmiu

Introduction

- Traditional FTP assumes the underlying network protocol using 32-bit network address
- Improvement
  - Regardless of IPv4 or IPv6, FTP has the ability to negotiate the network protocol

Ftp commands

- Access control commands
  - Such as USER, PASS, CWD, QUIT, ..etc
- Transfer parameter commands
  - Can use these commands to change data transfer parameters default value
  - Such as PORT, PASV, TYPE, ...etc
- Ftp service commands
  - Such as RETR, STOR, ...etc

File Capture Packet Tools Window Help

No.	Source Address	Dest Address	Layer	Summary
1	140.123.102.223	140.123.102.218	TCP	1042->File Transfer (Control),[Syn],S=1208013,A=0,W=8192
2	140.123.102.218	140.123.102.223	TCP	File Transfer (Control)->1042,[Syn],S=1095958134,A=1208014,W=17520
3	140.123.102.223	140.123.102.218	TCP	1042->File Transfer (Control),S=1208014,A=1095958135,W=8760
4	140.123.102.218	140.123.102.223	FTP	220 Serv-U FTP-Server v2.5b for WinSock ready...
5	140.123.102.223	140.123.102.218	TCP	1042->File Transfer (Control),S=1208014,A=1095958185,W=8710
6	140.123.102.223	140.123.102.218	FTP	USER 1
7	140.123.102.218	140.123.102.223	FTP	331 User name okay, need password.
8	140.123.102.223	140.123.102.218	TCP	1042->File Transfer (Control),S=1208022,A=1095958221,W=8674
9	140.123.102.223	140.123.102.218	FTP	PASS 1
10	140.123.102.218	140.123.102.223	FTP	230 User logged in, proceed.
11	140.123.102.223	140.123.102.218	TCP	1042->File Transfer (Control),S=1208030,A=1095958251,W=8644
12	140.123.102.223	140.123.102.218	FTP	PORT 140,123,102,223,4,19
13	140.123.102.218	140.123.102.223	FTP	200 PORT Command successful.
14	140.123.102.223	140.123.102.218	FTP	RETR test
15	140.123.102.218	140.123.102.223	TCP	File Transfer (Default Data)->1043,[Syn],S=1097726647,A=0,W=16384
16	140.123.102.223	140.123.102.218	TCP	1043->File Transfer (Default Data),[Syn],S=1214883,A=1097726648,W=8760
17	140.123.102.218	140.123.102.223	TCP	File Transfer (Default Data)->1043,S=1097726648,A=1214884,W=17520
18	140.123.102.218	140.123.102.223	FTP	150 Opening ASCII mode data connection for test (0 bytes).
19	140.123.102.218	140.123.102.223	TCP	File Transfer (Default Data)->1043,[Fin],S=1097726648,A=1214884,W=17520
20	140.123.102.223	140.123.102.218	TCP	1043->File Transfer (Default Data),S=1214884,A=1097726649,W=8760
21	140.123.102.223	140.123.102.218	TCP	1043->File Transfer (Default Data),[Fin],S=1214884,A=1097726649,W=8760
22	140.123.102.218	140.123.102.223	TCP	File Transfer (Default Data)->1043,S=1097726649,A=1214885,W=17520
23	140.123.102.223	140.123.102.218	TCP	1042->File Transfer (Control),S=1208068,A=1095958341,W=8554
24	140.123.102.218	140.123.102.223	FTP	226 Transfer complete.
25	140.123.102.223	140.123.102.218	TCP	1042->File Transfer (Control),S=1208068,A=1095958365,W=8530
26	140.123.102.223	140.123.102.218	FTP	QUIT
27	140.123.102.218	140.123.102.223	FTP	221 Goodbye!
28	140.123.102.223	140.123.102.218	TCP	1042->File Transfer (Control),[Fin],S=1208074,A=1095958379,W=8516
29	140.123.102.218	140.123.102.223	TCP	File Transfer (Control)->1042,S=1095958379,A=1208075,W=17460
30	140.123.102.218	140.123.102.223	TCP	File Transfer (Control)->1042,[Fin],S=1095958379,A=1208075,W=17460
31	140.123.102.223	140.123.102.218	TCP	1042->File Transfer (Control),S=1208075,A=1095958380,W=8516

Transmission Control Protocol
- Port 1042 ---> File Transfer (Control)
- Sequence Number: 1208013
- Acknowledgement Number: 0
- Header Length(MSB 4 bits): 7 (32-bit word)

Decode Matrix Host Protocol Dist. Summary

For Help, press F1

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The commands that should be modified

- address commands
  - PORT
  - PASV
- Traditional FTP commands PORT and PASV are replaced with EPRT and EPSV

The EPRT command (1)

EPRT<space><d><net-prt><d><net-addr><d><tcp-port><d>

The EPRT command (2)

AF Number	Protocol
1	IPv4
2	IPv6

The EPRT command (3)

Example

- EPRT |1|132.235.1.2|6275|
- EPRT |2|1080::8:800:200C:417A|5282|

The EPSV command

- Request that a server listen on a data port and wait for a connection
- EPSV<space><d><net-prt><d><net-addr><d><tcp-port><d>

  EPRT

  net-prt   net-addr   ,