

# ME Cluster™ – Remote Distribution Server

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“Cast Study 1”



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# RDS Supercomputer Cluster

*(Build your supercomputer system in 10 minutes)*

## Subject:

Password Recovery for a ZIP password file (protected by 5 passwords), using 10 PCs.

## Hardware (10 PCs):

CPU: Pentium 566 MHz

Memory: 384 MB RAM

OS: Windows XP

## Other software package from 3rd party:

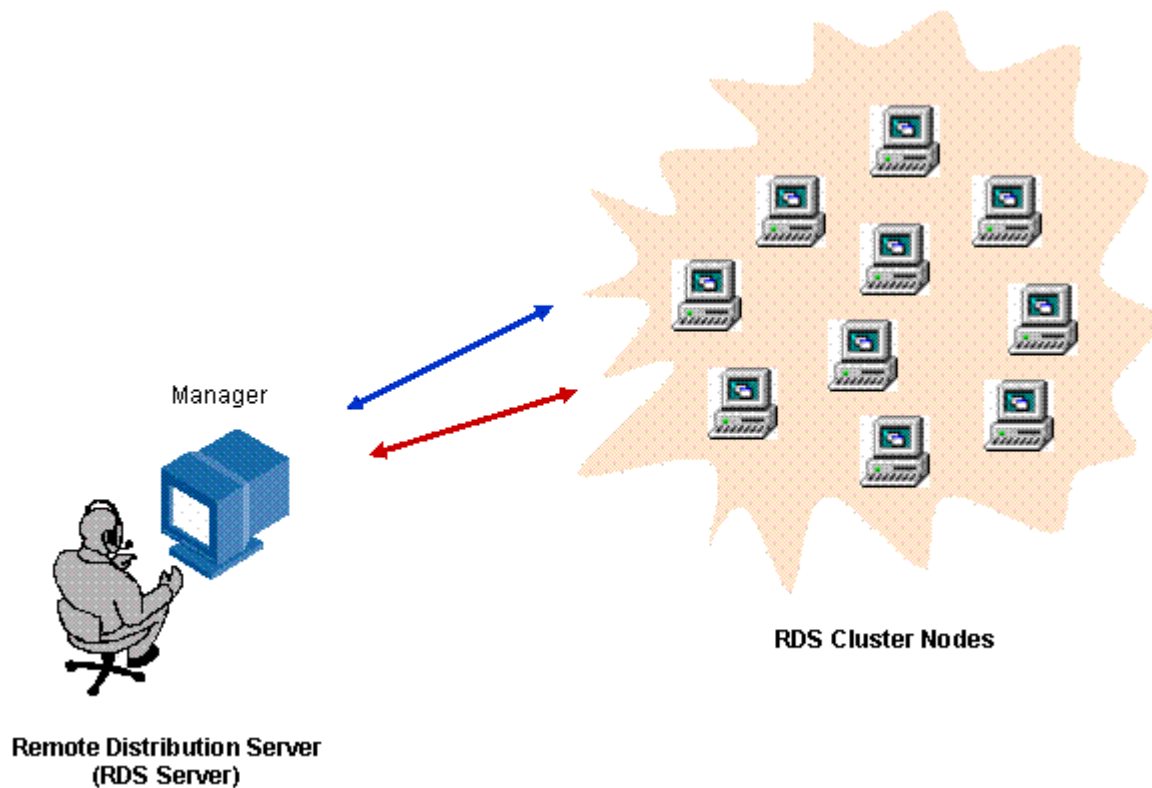
Password Recovery Software, AZPR from ElcomSoft Co.Ltd. (Shareware version, test only).

## TCP/IP:

Manager: 192.168.0.2

Client Nodes: 192.168.0.3, ~ 192.168.0.12

**Figure 1** Plan your system TCP/IP connection for Remote Distribution Server - Supercomputer.



Node: AZPR are trademarks of ElcomSoft Co.Ltd. <http://www.elcomsoft.com/azpr.html>

## **Step 2 – Analysis**

### ***Before using RDS***

One PC to solve a 5-password protected ZIP file:

**Figure 2** Use a single PC to solve a 5-password protected ZIP file



**Figure 3** One PC will use 37 minutes 17 seconds and 658 ms to check all possible password combinations.

Advanced ZIP Password Recovery statistics:	
Passwords to process	7,339,040,224
Work time	37m 17s 658ms
Average speed (passwords per second)	3,279,786

✓ OK

### ***After using RDS***

10 PCs to solve a 5-password protected ZIP file:

**Figure 4** For each PC, it will use 3 minutes 58 seconds, and 904 ms to check.

Advanced ZIP Password Recovery statistics:	
Passwords to process	780,748,960
Work time	3m 58s 904ms
Average speed (passwords per second)	3,268,032

✓ OK

### ***Remote Distribution Server is a powerful tool to build supercomputer system***

ME Cluster – Remote Distribution Server reduces the total cost of network management in the environment and is the effective remote distribution solution for everyone’s applications.

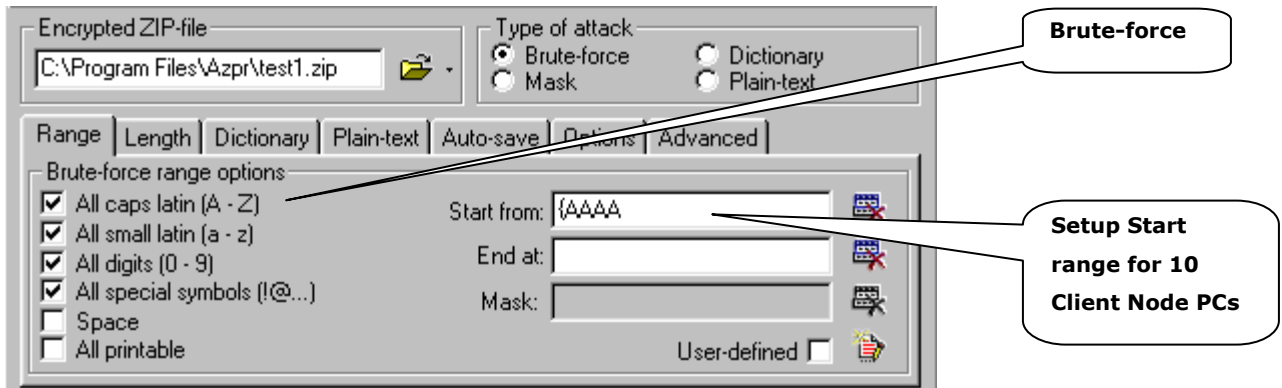
### Zip file:

Prepare a tested ZIP file "Test1.zip" and set 5-passwords to any number you like.

### Manager Parameter Setup

- Design parameter script and use AZPR Command Line to start AZPR at Client Node.
- Set AZPR attack type by Brute-force.

Figure 5 Setup of AZPR.



AZPR with command-line parameters. The syntax is: AZPR [switches] [zip-filename]

/a:b|m|d|p attack type (brute-force, mask, dictionary, plaintext) brute-force

/c:csdepa character set (caps, small, digits, special, space, all) caps

/sf:pass start from password

/min:N minimum password length 5

/max:N maximum password length 5

/smartexit[:filename] When the attack is completed, write all statistics, including the password (if found) to the given file, and close the program.

Examples: azpr.exe /a:b /c:csde /min:5 /max:5 /sf:AAAAA /smartexit:Result1.txt test1.zip

the AZPR program verifies the passwords according to the following character order:

- CAPITAL letters: 'A'..'Z'

- the space

- small letters: 'a'..'z')

- digits: '0'..'9'

- special characters: !@#\$\$%^&\*() +=<>.,/?[]{}~:;'"\

To distribute the parameter script command for 10 PCs, we split the whole password range onto 10 parts.

**Password Start Range :**

Client Node Name	TCP/IP	Password Start Range
Computer #1	192.168.0.3	AAAAA, AAAAB, AAAAC,....J\\\\ etc.
Computer #2	192.168.0.4	KAAAA, KAAAB, KAAAC,... S\\\\ etc.
Computer #3	192.168.0.5	TAAAA, ... etc.
Computer #4	192.168.0.6	dAAAA, ... etc.
Computer #5	192.168.0.7	mAAAA, ... etc.
Computer #6	192.168.0.8	vAAAA, ... etc.
Computer #7	192.168.0.9	5AAAA, ... etc.
Computer #8	192.168.0.10	%AAAA, ... etc.
Computer #9	192.168.0.11	<AAAA, ... etc.
Computer #10	192.168.0.12	{AAAA, ... etc.

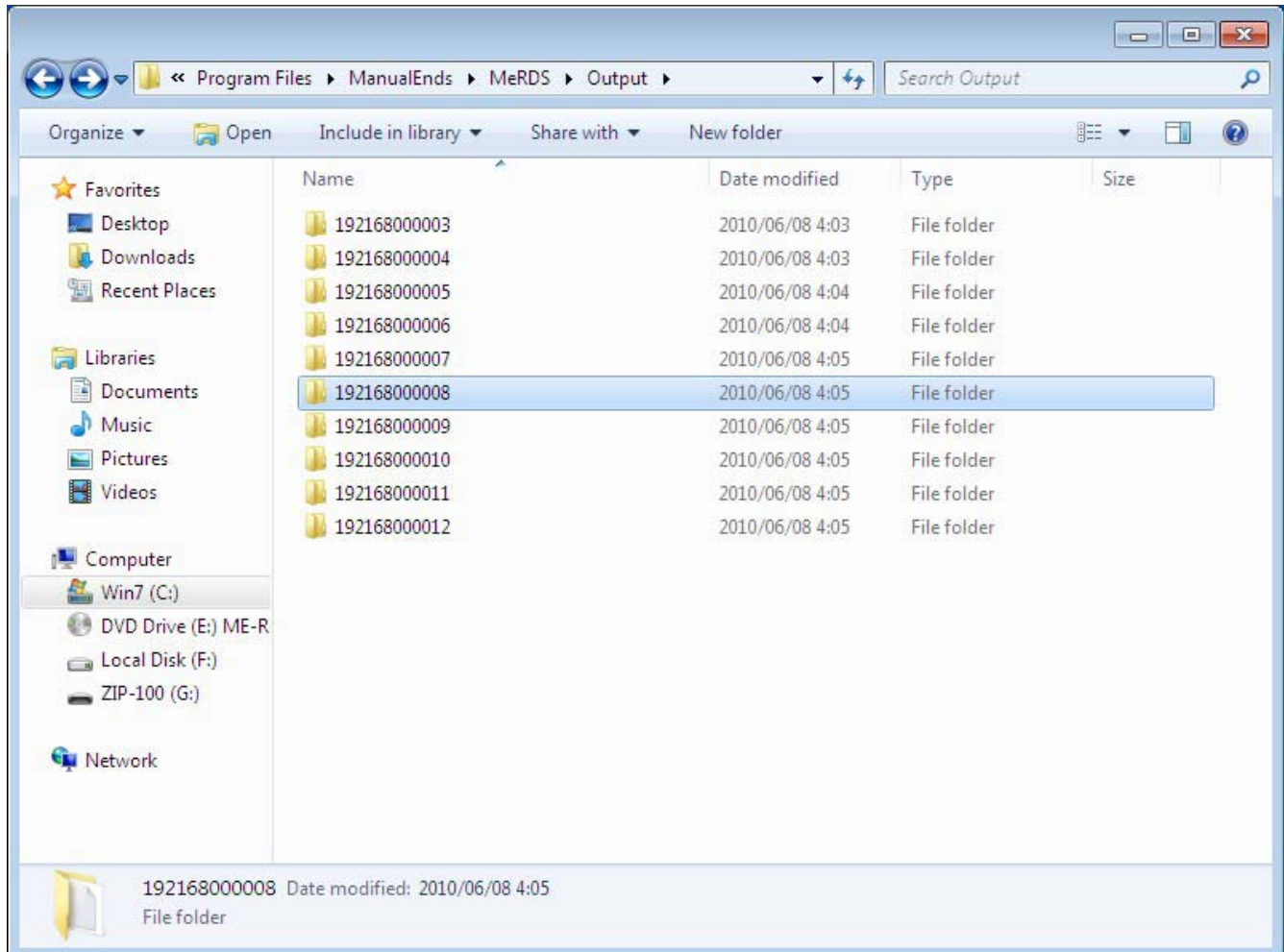
**Command Line :**

Client Node Name	Command Line
Computer #1	azpr.exe /a:b /c:csde /min:5 /max:5 /sf:AAAAA /smartexit:Result1.txt test1.zip
Computer #2	azpr.exe /a:b /c:csde /min:5 /max:5 /sf:KAAAA /smartexit:Result2.txt test1.zip
Computer #3	azpr.exe /a:b /c:csde /min:5 /max:5 /sf:TAAAA /smartexit:Result3.txt test1.zip
Computer #4	azpr.exe /a:b /c:csde /min:5 /max:5 /sf:dAAAA /smartexit:Result4.txt test1.zip
Computer #5	azpr.exe /a:b /c:csde /min:5 /max:5 /sf:mAAAA /smartexit:Result5.txt test1.zip
Computer #6	azpr.exe /a:b /c:csde /min:5 /max:5 /sf:vAAAA /smartexit:Result6.txt test1.zip
Computer #7	azpr.exe /a:b /c:csde /min:5 /max:5 /sf:5AAAA /smartexit:Result7.txt test1.zip
Computer #8	azpr.exe /a:b /c:csde /min:5 /max:5 /sf:%AAAA /smartexit:Result8.txt test1.zip
Computer #9	azpr.exe /a:b /c:csde /min:5 /max:5 /sf:<AAAA /smartexit:Result9.txt test1.zip
Computer #10	azpr.exe /a:b /c:csde /min:5 /max:5 /sf:{AAAA /smartexit:Result10.txt test1.zip

## Output Results

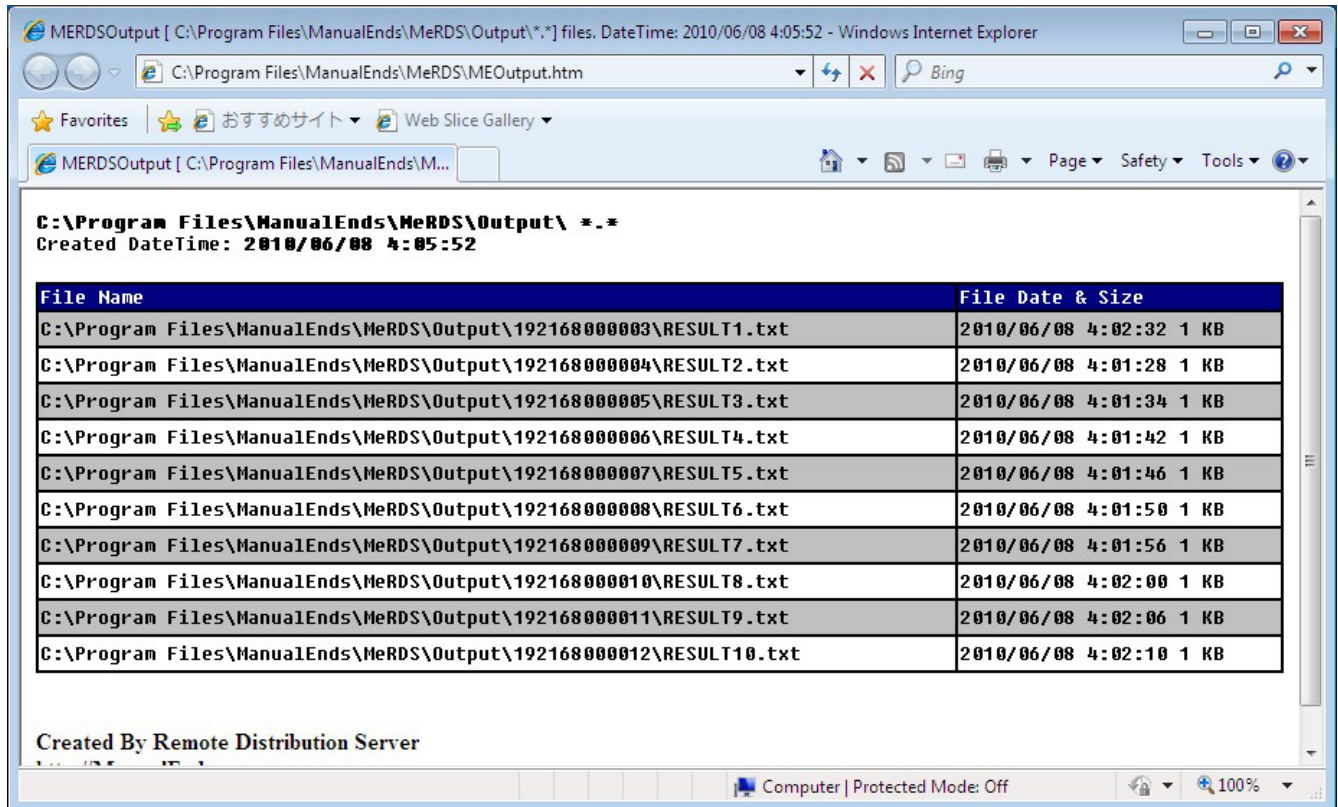
Output Results will save to your MeRDS path of subdirectory (**/Output/**) with the Client Node TCP/IP digit number.

**Figure 6** The Output Folders.



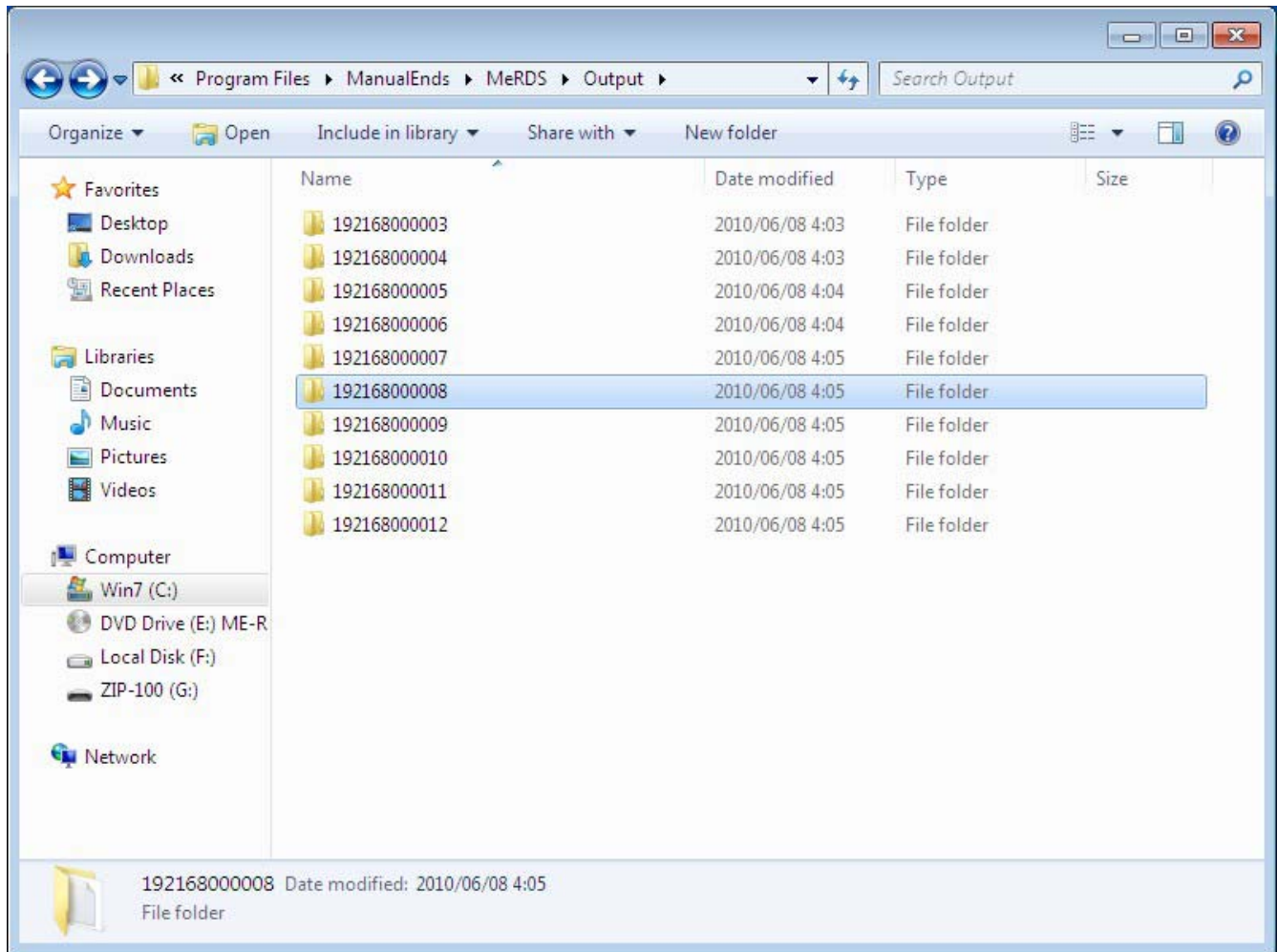
Client Node TCP/IP 192.168.0.3 : /Output/192168000003/  
Client Node TCP/IP 192.168.0.4 : /Output/192168000004/  
Client Node TCP/IP 192.168.0.5 : /Output/192168000005/  
Client Node TCP/IP 192.168.0.6 : /Output/192168000006/  
Client Node TCP/IP 192.168.0.7 : /Output/192168000007/  
Client Node TCP/IP 192.168.0.8 : /Output/192168000008/  
Client Node TCP/IP 192.168.0.9 : /Output/192168000009/  
Client Node TCP/IP 192.168.0.10 : /Output/192168000010/  
Client Node TCP/IP 192.168.0.11 : /Output/192168000011/  
Client Node TCP/IP 192.168.0.12 : /Output/192168000012/  
Client Node TCP/IP 192.168.0.13 : /Output/192168000013/

Figure 7 Web browser monitor result.

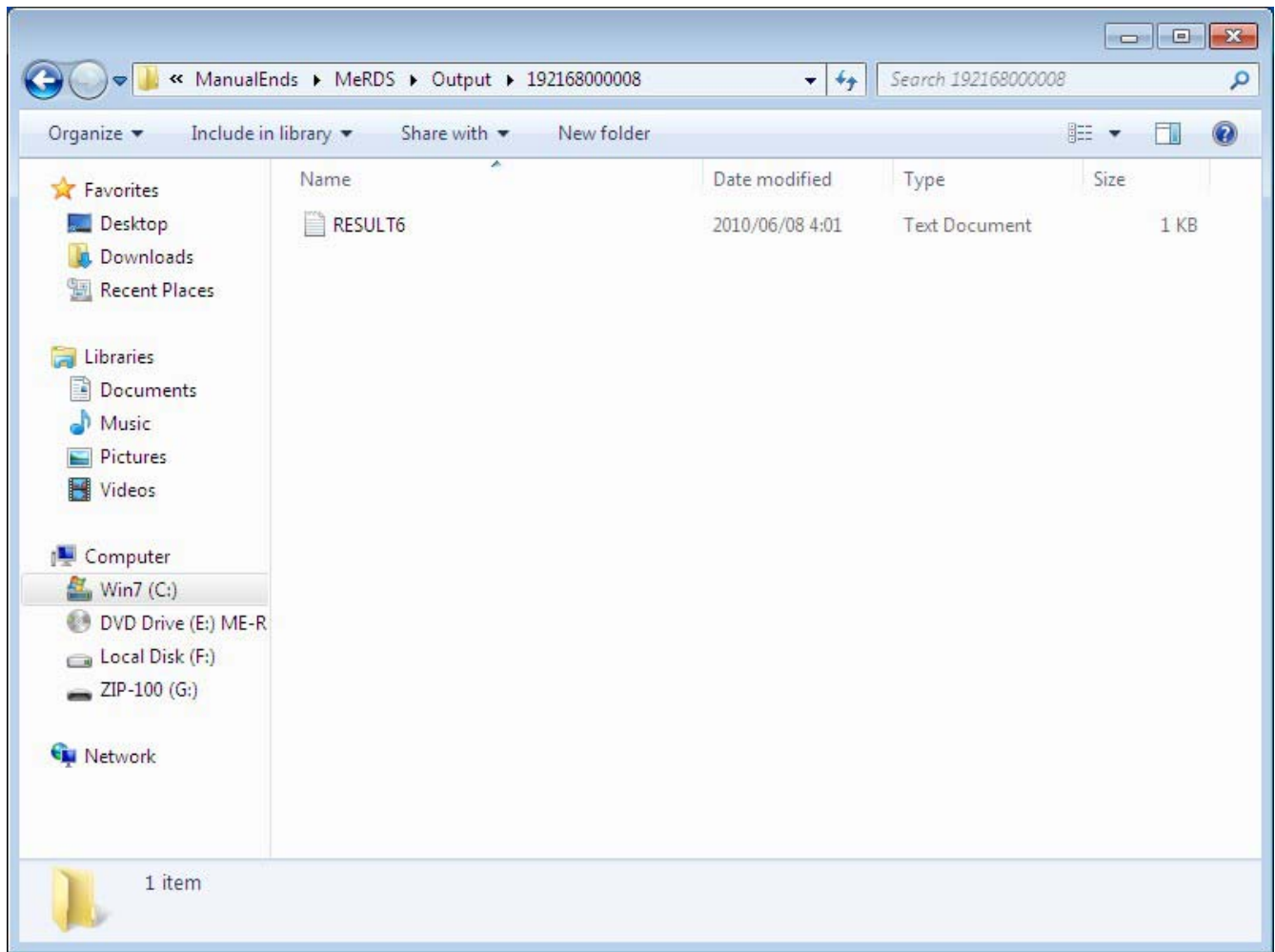


## Final Result

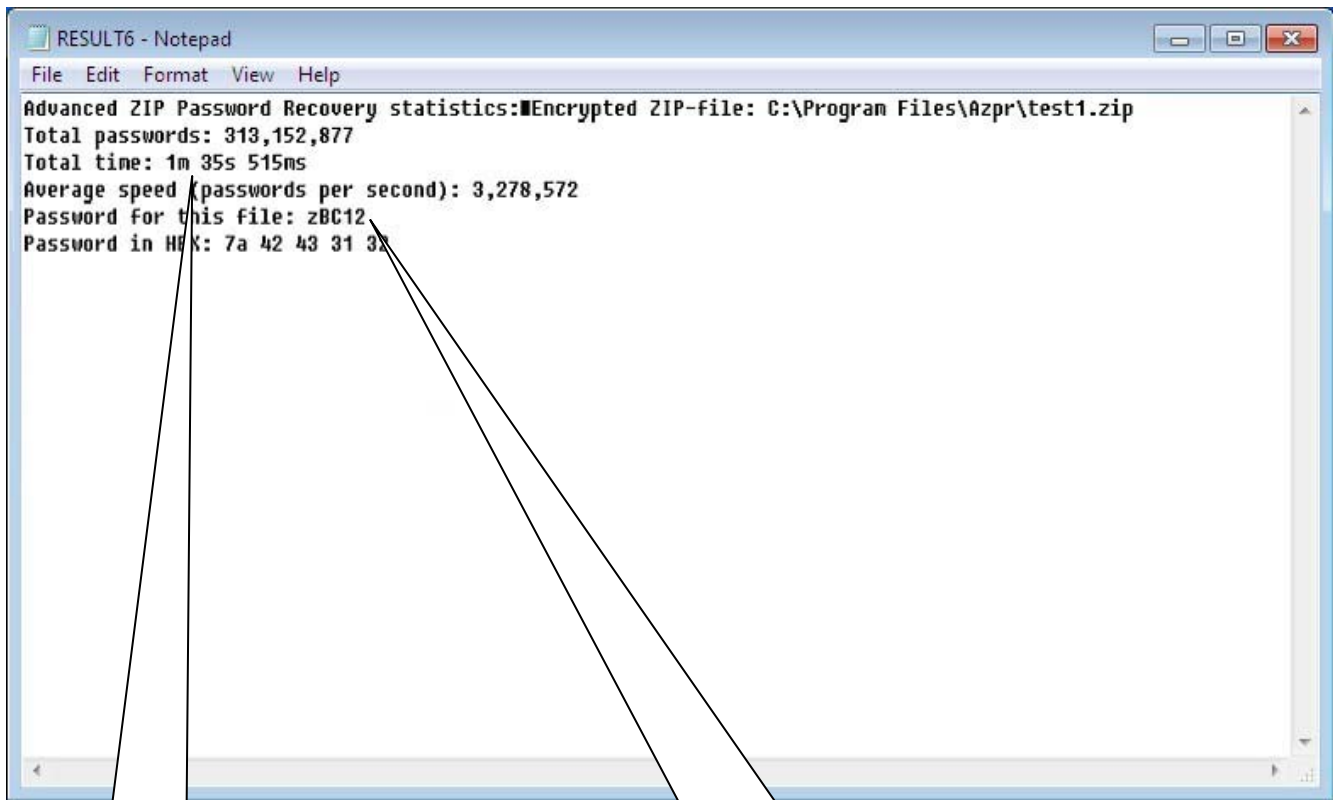
**Figure 8** The Output Folder of Computer #6, TCP/IP 192.168.0.8.



**Figure 9** The Computer #6, TCP/IP 192.168.0.8 Folder Result file.



**Figure 10** The Output Result file of Computer #6, TCP/IP 192.168.0.8.



**Span of time, 1 minute,  
35 seconds, 515 ms**

**Find the password : zBC12**