

# Service Checker and IP Helper

Expanding possibilities...

for  
Unicenter Software Delivery 4.0 (USD)

Mag. Gottfried Rudorfer  
CA Vienna, Austria

## Introduction

Today's networking environments are quite complex. This complexity applies especially to target computers i.e. desktop computers and notebooks.

In our world many ways do exist to reach servers assigned to serve client computers. The following example illustrates our situation: An employee's notebook might be in the Vienna office during office hours. In the evening the same machine appears again in the intranet but at this time via VPN over DSL. Next week the notebook is located in the London office and in the evening it is operated in the hotel and connected via Modem and VPN to the intranet.

The table below summarises just some of many possible network configurations between target computer and staging server.

Location	Connection	Response	Start USD?
Vienna Office	LAN	< 1 ms	yes
Klosterneuburg Home	DSL / VPN	50 ms	yes
Klosterneuburg Home	DSL	No access	no
London Office	WAN	40 ms	yes / no
London Hotel	Dialup/VPN	100 ms	no

In this case one wants an application that can detect if the computer is near enough to a staging server and if it is start the USD agent. If not stop all services.

Service Checker and IP Helper (SrvChk.exe) uses advanced API technology of the Windows™ operating system to handle this complexity with simple tasks.

Service Checker and IP Helper (SrvChk.exe) uses ICMP ping sweeps to find out if the staging server is reachable and at what average line speed.

Service Checker and IP Helper (SrvChk.exe) allows you to define start actions (actions that are triggered when the server response time is below a predefined value) or stop actions (actions that are triggered when there is no server response or the server response time is too high compared to a predefined value).

Service Checker and IP Helper (SrvChk.exe) logs the results of tests and the actions performed into a log file.

## Concept

SrvChk binds to an event generated by the Windows™ operating system upon changes in the networking environment. This allows SrvChk to run verification tests when there was a change only. No resources will be wasted when there is no change.

After a network change the following steps are performed:

1- The server name is looked up in ASM.CNF (“PEERHOSTS”, “ASMUILSR”).

2- All registry values are looked up in the registry “HKEY\_LOCAL\_MACHINE\SOFTWARE\ComputerAssociates\SrvChk”.

The following registry keys are used:

Name	Type	Description
LogDir	REG_SZ	Defines the directory where the logfiles SrvChk-2.txt and SrvChk-1.txt will be stored. Default: C:\WINNT
PingPacketSize	REG_DWORD	Defines the packets used for ping sweeps. Ping sweep data is filled with random patterns that will not be compressed by dialup stacks. This allows SrvChk more easily to find slow lines. Default: 0x0000400 (1024 Bytes)
PingResponse1 PingResponse2 PingResponse3	REG_DWORD	Defines the minimum average response time for ping sweeps. If the response time is below that value, the start action is performed. Default: 0x14 (20 ms)
PingTimeOut1 PingTimeOut2 PingTimeOut3	REG_DWORD	Defines the max. number of timeouts during ping sweeps. Default: 0x1 (1 time)
Service1 Service2 Service3	REG_SZ	Defines the name of up to three Windows services to be started or stopped by SrvChk. I.e.: Service1=SDService
Command1 Command2 Command3	REG_SZ	Defines optional commands to be executed. You have to specify the full absolute path name to the command here without any arguments.
Argument1 Argument2 Argument3	REG_SZ	Defines the “actual” command as you would type in cmd.exe. I.e. cmd /c C:\srvchk\helloworld.bat
PingDelay	REG_DWORD	Defines how many seconds should be waited before starting with the ping sweeps. Default: 5 seconds
NumberOfPingSweeps	REG_DWORD	Defines the number of ping sweeps to perform. As the first sweep is dropped from the mean calculations, this number represents number of sweeps used for calculating ping sweeps. Add 1 to get the actual number of sweeps performed.

3- Several Ping-Sweeps are performed. According to our experience with ping sweeps it is wise to exclude the first sweep from calculations. Therefore the first sweep is dropped. Currently 7 sweeps are used to create a mean value. The total number of sweeps and the total number of timeouts are counted.

4- All measured values are compared with the registry entries PingTimeOut1 – PingTimeOut3 and PingResponse1 – PingResponse3.

5- Service1 – Service3 are started / stopped according to step 4.

6- Command1 – Command3 and Argument1 – Argument3 are executed. Please note: When starting the String “start” is added at the end of the argument. When stopping the string “stop” is added at the end of argument.

## Daemons

The kit currently contains one executable called “SrvChk.exe”. It will be installed as a service (see section installation below).

A sample registry file for the service is:

```
Windows Registry Editor Version 5.00

[HKEY_LOCAL_MACHINE\SOFTWARE\Computer Associates\SrvChk]
"LogDir"="C:\\WINNT" ... Defines the directory where to place the logfiles
"PingPacketSize"=dword:00000400 ... Defines the packet size in bytes used for ping sweeps
"PingResponse1"=dword:00000014 ... Defines the max. response time for Service1/Command1
"PingResponse2"=dword:00000014 ... Defines the max. response time for Service2/Command2
"PingResponse3"=dword:00000014 ... Defines the max. response time for Service3/Command3
"PingTimeOut1"=dword:00000001 ... Defines the max. # of timeouts for Service1/Command1
"PingTimeOut2"=dword:00000001 ... Defines the max. # of timeouts for Service2/Command2
"PingTimeOut3"=dword:00000001 ... Defines the max. # of timeouts for Service3/Command3
"Service1"="SDService" ... Defines the name of the Windows service 1 to be started / stopped
"Service2"="" ... Defines the name of the Windows service 2 to be started / stopped
"Service3"="" ... Defines the name of the Windows service 3 to be started / stopped
"Command1"="C:\\Winnt\\system32\\cmd.exe" ... Defines the absolute path to command 1
"Command2"="" ... Defines the absolute path to command 2
"Command3"="" ... Defines the absolute path to command 3
"Argument1"="cmd /c c:\\srvchk\\HelloWorld.bat" ... Defines arguments for command 1
"Argument2"="" ... Defines arguments for command 2
"Argument3"="" ... Defines arguments for command 3
"PingDelay"=dword:00000005 ... Defines the # of seconds to wait before starting ping
"NumberOfPingSweeps"=dword:00000007 ... Defines the # of ping sweeps to perform
```

The Program creates two log files called SrvChk-2.txt and SrvChk-1.txt. When SrvChk-2.txt reaches a certain size it will be renamed to SrvChk-1.txt (any existing SrvChk-1.txt file will be deleted) and a new SrvChk-2.txt file starts. Because of this algorithm no space control for these log files needs to be planned (zero administration).

## Installation

- 1- Unpack the distribution zip to the destination folder i.e. C:\SrvChk .
- 2- Edit the supplied registry file.
- 3- Load the file with regedit /s srvchk.reg
- 4- Install the service with the command SrvChk.exe -install
- 5- Start the service with the command "net start srvchk"
- 6- Look at the Log-File in C:\Winnt\SrvChk-2.txt

```
2003/12/10 20:21:14:573: Network address table change!
2003/12/10 20:21:18:739: Unable to resolve D403
2003/12/10 20:21:18:739: ErrorText Unable to resolve D403
2003/12/10 20:21:18:739: ErrorCode 8
2003/12/10 20:21:18:749: Packets 8
2003/12/10 20:21:18:749: PacketSize 512
2003/12/10 20:21:18:749: TotalCount 7
2003/12/10 20:21:18:749: TimeoutCount 7
2003/12/10 20:21:18:749: MinTime 99999.00
2003/12/10 20:21:18:749: MaxTime -99999.00
2003/12/10 20:21:18:749: AvgTime 99999.00
2003/12/10 20:21:18:749: Timeout 2.00
2003/12/10 20:21:18:749: SumTime 0.00
2003/12/10 20:21:18:749: BytesPerSecond 0.00
2003/12/10 20:21:18:749: Stopping service SDService ...
2003/12/10 20:21:18:749: Service Unicenter Software Delivery is already stopped
2003/12/10 20:21:18:759: Done with stopping service SDService
2003/12/10 20:21:18:759: Executing command C:\Winnt\system32\cmd.exe CommandLine: cmd /c
c:\srvchk\HelloWorld.bat stop
```

Test your installation: On the system where SrvChk.exe is started as a service, unplug the network cable. What does change in your Log-File?

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A-3400 Maria-Gugging, Austria

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Author: 2003-12-09: Gottfried Rudorfer, Computer Associates Vienna, Austria.