

Automating system administration tasks – Part4

 michaelfirsov.wordpress.com/automating-system-administration-tasks-part4

September 15, 2017

Part 3

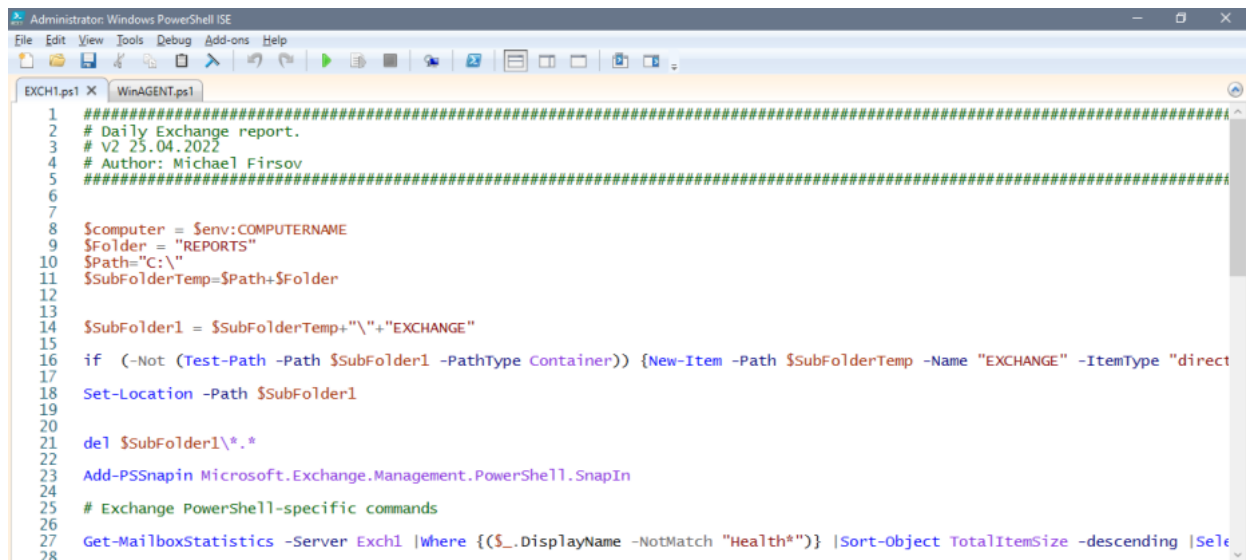
IV Exchange Server

What I want to know about my Exchange server:

1. For each mailbox database: *database size, AvailableNewMailboxSpace, the dates of the LastCopyBackup, LastDifferentialBackup, LastIncrementalBackup and LastFullBackup*
2. For each user: *ItemCount, LastLogonTime, LastLogoffTime, TotalItemSize*
3. What is the overall health of my Exchange Server infrastructure?

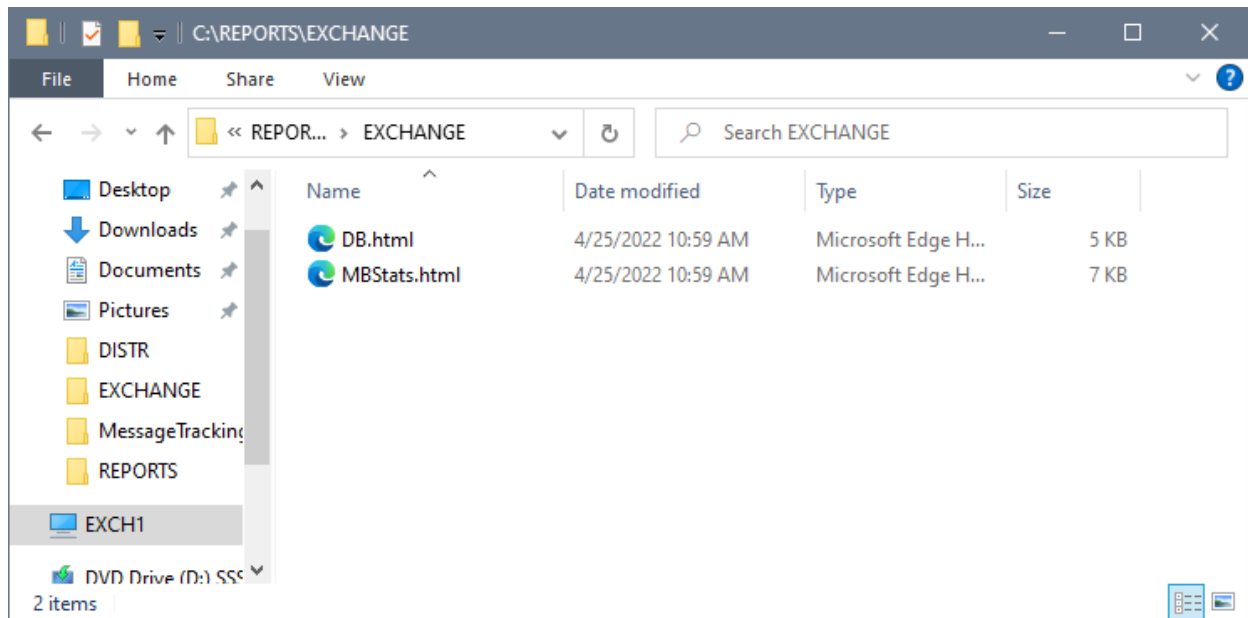
1-2)

The script: EXCH1(please rename the script from .docx into .ps1 and create any needed changes before use)



```
1 #####
2 # Daily Exchange report.
3 # V2 25.04.2022
4 # Author: Michael Firsov
5 #####
6
7
8 $computer = $env:COMPUTERNAME
9 $folder = "REPORTS"
10 $path="C:\"
11 $subFolderTemp=$path+$folder
12
13
14 $subFolder1 = $subFolderTemp+"\EXCHANGE"
15
16 if (-Not (Test-Path -Path $subFolder1 -PathType Container)) {New-Item -Path $subFolderTemp -Name "EXCHANGE" -ItemType "directory"}
17 Set-Location -Path $subFolder1
18
19
20 del $subFolder1\*.htm
21
22 Add-PSSnapin Microsoft.Exchange.Management.PowerShell.SnapIn
23
24 # Exchange PowerShell-specific commands
25
26 Get-MailboxStatistics -Server Exch1 |where {(($_.DisplayName -NotMatch "Health*"))} |Sort-Object TotalItemSize -descending |Select-Object DisplayName, TotalItemSize, LastLogonTime, LastLogoffTime, LastFullBackup, LastDifferentialBackup, LastIncrementalBackup, AvailableNewMailboxSpace, DatabaseSize
```

This script creates two .html files in the **C:\Reports\Exchange** folder and send them to *michael_firsov@testenterprise.net*:



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HTML TABLE					
File C:/REPORTS/EXCHANGE/MBStats.html					
DisplayName	ItemCount	LastLogonTime	LastLogoffTime	TotalItemSize	
Michael Firsov	362	4/20/2022 5:47:27 PM		4.024 MB (4,219,820 bytes)	
Taylor David	460	4/24/2022 8:47:02 PM	4/24/2022 6:07:21 PM	2.925 MB (3,067,416 bytes)	
MB Journal1	350	3/29/2022 4:57:07 PM	3/29/2022 5:02:24 PM	2.258 MB (2,368,174 bytes)	
Enterprise Admin	361	4/20/2022 11:49:13 PM	4/20/2022 11:54:23 PM	1.478 MB (1,550,128 bytes)	
Shannon Emma	383	4/20/2022 5:42:42 PM	4/20/2022 5:52:35 PM	1.379 MB (1,445,632 bytes)	
Building1_Room1	302	3/21/2022 11:50:59 AM		863.3 KB (884,037 bytes)	
Meeting	299	4/15/2022 12:01:22 PM	4/15/2022 12:01:19 PM	839.1 KB (859,231 bytes)	
Recover Mailbox	275	3/11/2022 12:01:51 PM	3/11/2022 11:46:50 PM	778.9 KB (797,563 bytes)	
Shannon Emma	293	2/10/2022 3:41:23 PM		770.6 KB (789,106 bytes)	
Journal Undelivered	263	3/29/2022 4:20:29 PM	3/30/2022 4:23:59 AM	738.3 KB (756,005 bytes)	
Contoso TechSupport	196	4/11/2022 5:59:50 PM		512.7 KB (525,043 bytes)	
Microsoft Exchange	36			482.9 KB (494,521 bytes)	
Eq_Projector1	30			143.4 KB (146,838 bytes)	
Microsoft Exchange Approval Assistant	44			124 KB (126,933 bytes)	
Microsoft Exchange	40			110.8 KB (113,428 bytes)	
Eq_Projector2	36			101.9 KB (104,331 bytes)	
E4E Encryption Store - Active	32			88.71 KB (90,835 bytes)	
SystemMailbox{8f1774c1-1763-4388-af82-4a241646c187}	18			84.25 KB (86,270 bytes)	
Microsoft Exchange	30			79.65 KB (81,565 bytes)	
SystemMailbox{d045bdee-56d1-4636-9748-66842a12b8d4}	27			75.3 KB (77,104 bytes)	
SystemMailbox{899dea9e-40db-48f7-9998-6e9929739e43}	16			43.6 KB (44,643 bytes)	
SystemMailbox{8f1774c1-1763-4388-af82-4a241646c187}	16			43.6 KB (44,643 bytes)	
SystemMailbox{01908563-83df-4246-b7ae-2b6039d14319}	16			43.6 KB (44,643 bytes)	
PublicMB	4	4/20/2022 5:42:39 PM	4/20/2022 5:47:55 PM	35.95 KB (36,808 bytes)	

Name	Server	Recovery	ReplicationType	DB_Size-GB	AvailableNewMailboxSpace	LastCopyBackup	LastDifferentialBackup	LastIncrementalBackup	LastFullBackup	LogFileS
DB01	EXCH1	False	Remote	0	4.438 MB (4,653,056 bytes)				2/9/2022 12:57:39 PM	1024
DB02	EXCH1	False	Remote	0	91.97 MB (96,436,224 bytes)				2/9/2022 12:57:39 PM	1024
DBpublic	EXCH1	False	Remote	0	101.9 MB (106,823,680 bytes)				2/9/2022 12:57:39 PM	1024
DB03	EXCH1	False	Remote	0	96.97 MB (101,679,104 bytes)					1024
RDB2	EXCH1	True	None	0	113.6 MB (119,144,448 bytes)					1024

LastDifferentialBackup	LastIncrementalBackup	LastFullBackup	LogFileSize	LogFilePrefix	LogFolderPath	LogCheckpointDepth	IssueWarningQuota	Mounted
		2/9/2022 12:57:39 PM	1024	E00	C:\EXCHANGE\DBLOGS\DB01	4 GB (4,294,967,296 bytes)	True	
		2/9/2022 12:57:39 PM	1024	E01	C:\EXCHANGE\Mailbox\DB02	1.9 GB (2,040,110,080 bytes)	True	
		2/9/2022 12:57:39 PM	1024	E02	C:\EXCHANGE\Mailbox\DBpublic	1.9 GB (2,040,110,080 bytes)	True	
			1024	E04	C:\EXCHANGE\Mailbox\DB03	1.9 GB (2,040,110,080 bytes)	True	
			1024	E03	C:\RDB2	1.899 GB (2,039,480,320 bytes)	True	

Should the error occur while sending the reports it will be logged in the C:\REPORTS\EXCH1-Error.log:

```

EXCH1-Error.log - Notepad
File Edit Format View Help
04/25/2022 10:31:24 - Failed to send the Exchange report - the error was Unable to connect to the remote server
04/25/2022 10:48:08 - Failed to send the Exchange report - the error was Syntax error, command unrecognized. The server response was: 5
04/25/2022 10:56:20 - Failed to send the Exchange report - the error was Unable to read data from the transport connection: net_io_conn
Ln 1, Col 1 100% Windows (CRLF) UTF-16 LE

```

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As my goal is to receive these reports automatically every morning (and/or at some other times), I need to create a **Task Scheduler** task which will run the script at a certain time on a daily basis.

EXCH1 Properties (Local Computer)

General Triggers Actions Conditions Settings History

When you create a task, you can specify the conditions that will trigger the task.

Trigger	Details	Status
Daily	At 12:00 PM every day	Enabled
Daily	At 3:00 PM every day	Enabled
Daily	At 6:00 PM every day	Enabled
Daily	At 8:00 AM every day	Enabled

New... Edit... Delete

OK Cancel

EXCH1 Properties (Local Computer)

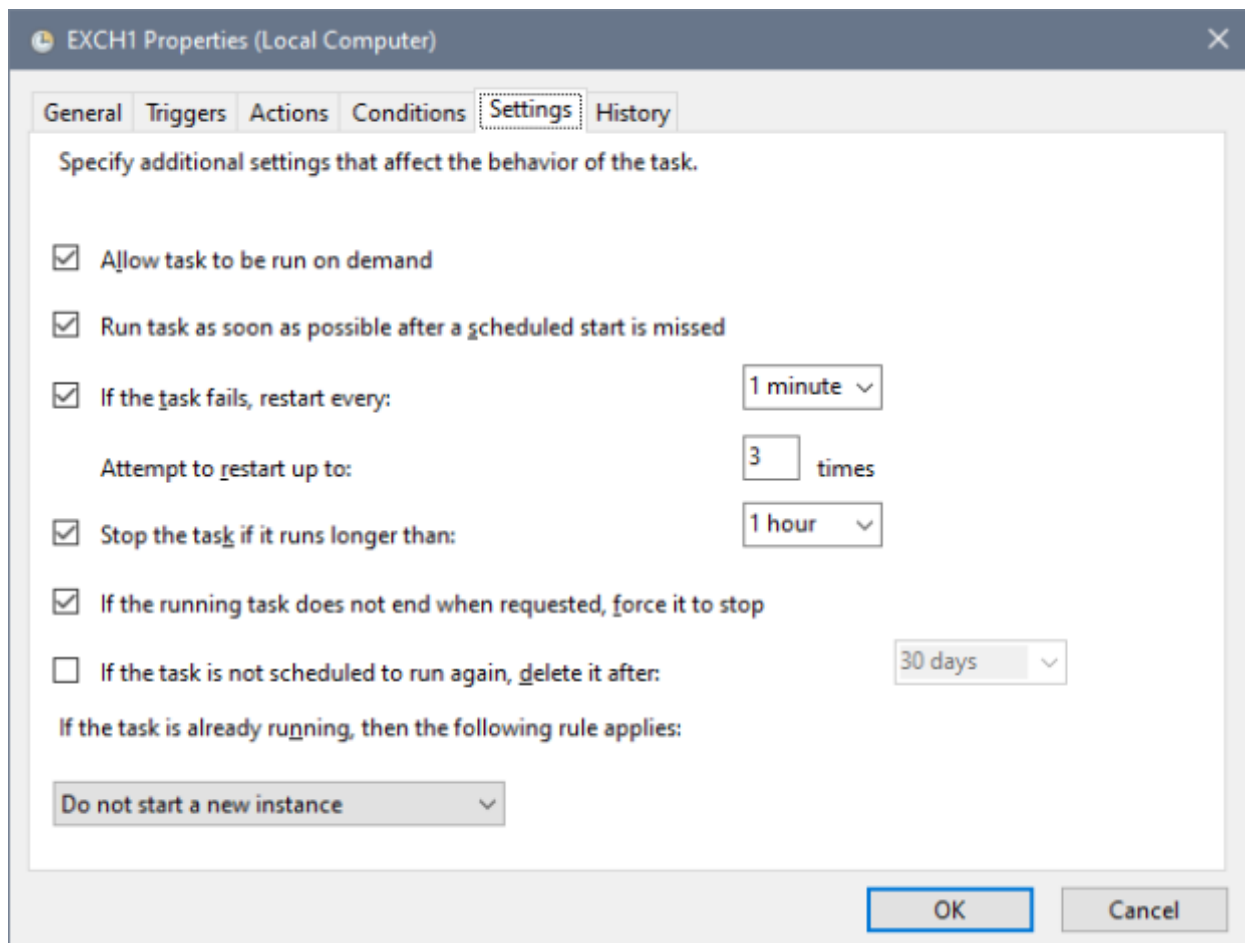
General Triggers Actions Conditions Settings History

When you create a task, you must specify the action that will occur when your task starts.

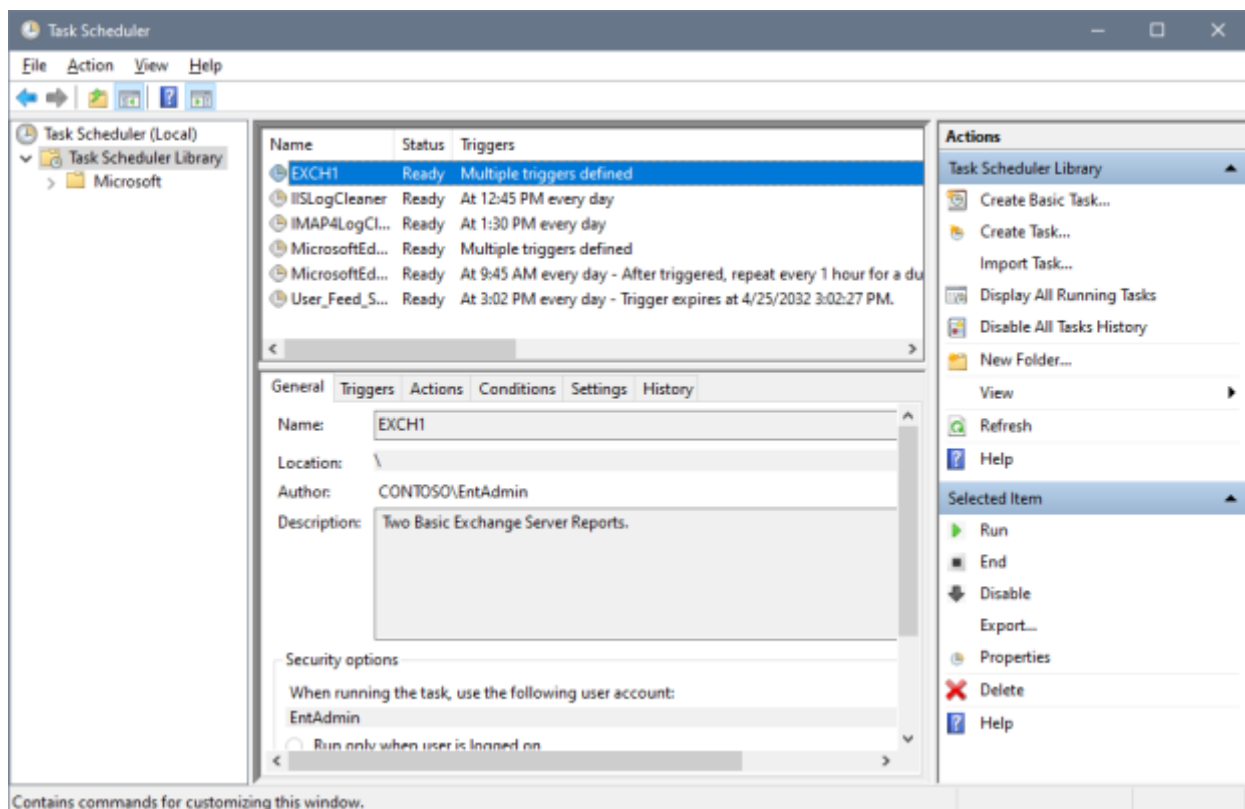
Action	Details
Start a program	powershell.exe C:\DISTR\Exch1.ps1

New... Edit... Delete

OK Cancel



The scheduled task **Exchange** has been created to run the Exch1.ps1 Exch1 script four times a day:

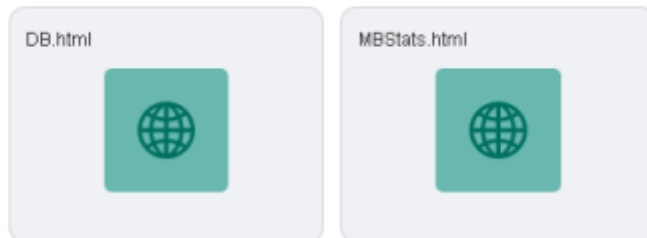


Upon completion of the Exchange task I receive the following email message:

...with the two reports attached:

TestENTERPRISE: Daily EXCHANGE Server Report

•  sysadmin@hram1891.ru Сегодня, 10:56
Кому: вам

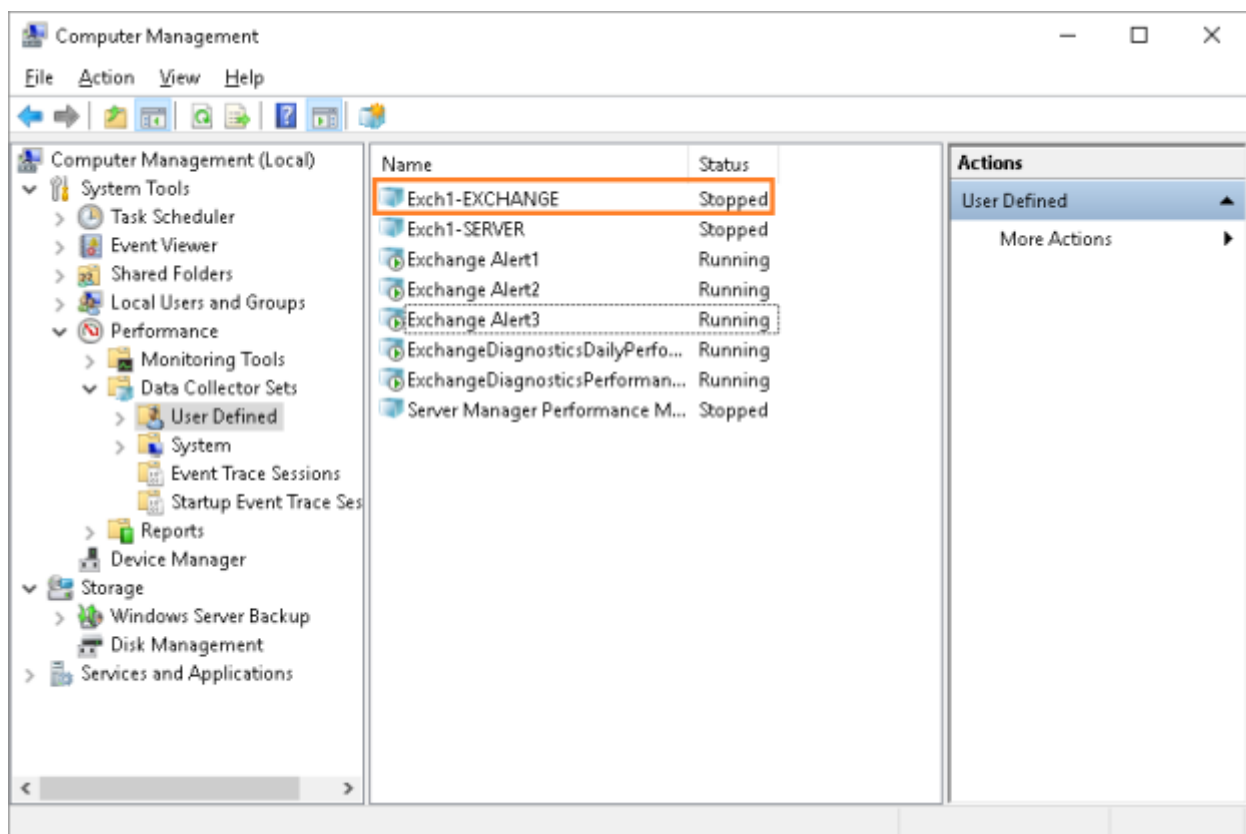


2 файла Скачать одним архивом (11 КБ) Сохранить в Облако

Daily EXCHANGE Server Report - two files attached.

3) Monitoring

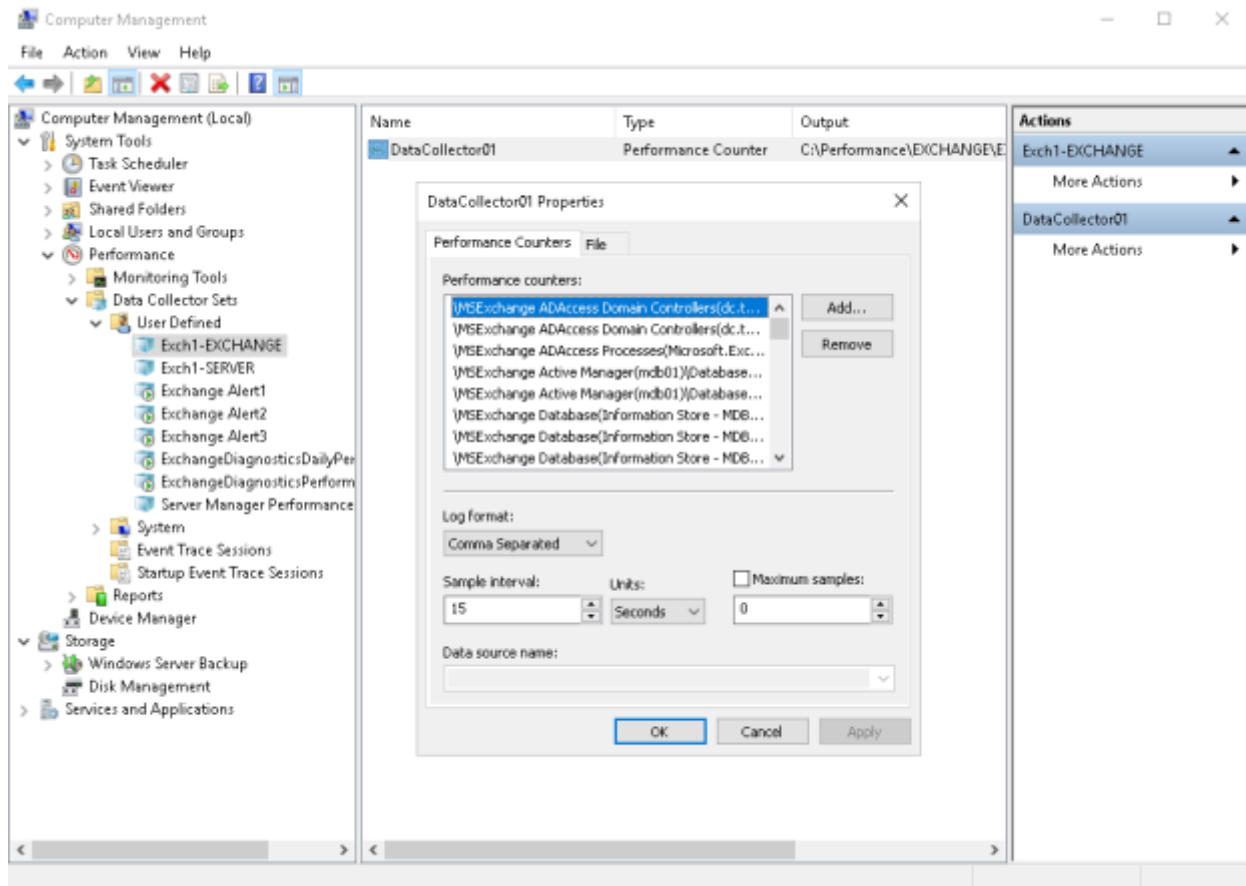
To estimate the overall health of the Exchange infrastructure I use (exactly as I do for the OS itself and SQL) certain data collector sets run once per a day and several Exchange-related alerts that run continuously. Let's have a look at them now:



Exch1-SERVER data collector set ([Exch1-SERVER-xml](#)) is the set for the general OS-related counters while Exch1-EXCHANGE data collector set ([Exch1-EXCHANGE-xml](#)) focuses on the performance counters specific to Exchange (you can download the data

collector templates, rename them to *something.xml* and import into your Performance Monitor):

3-1) Data Collector Sets:



DataCollector01 Properties

Performance Counters File

Log file name:
DataCollector01

File name format:
 >

☐ Prefix file with computer name

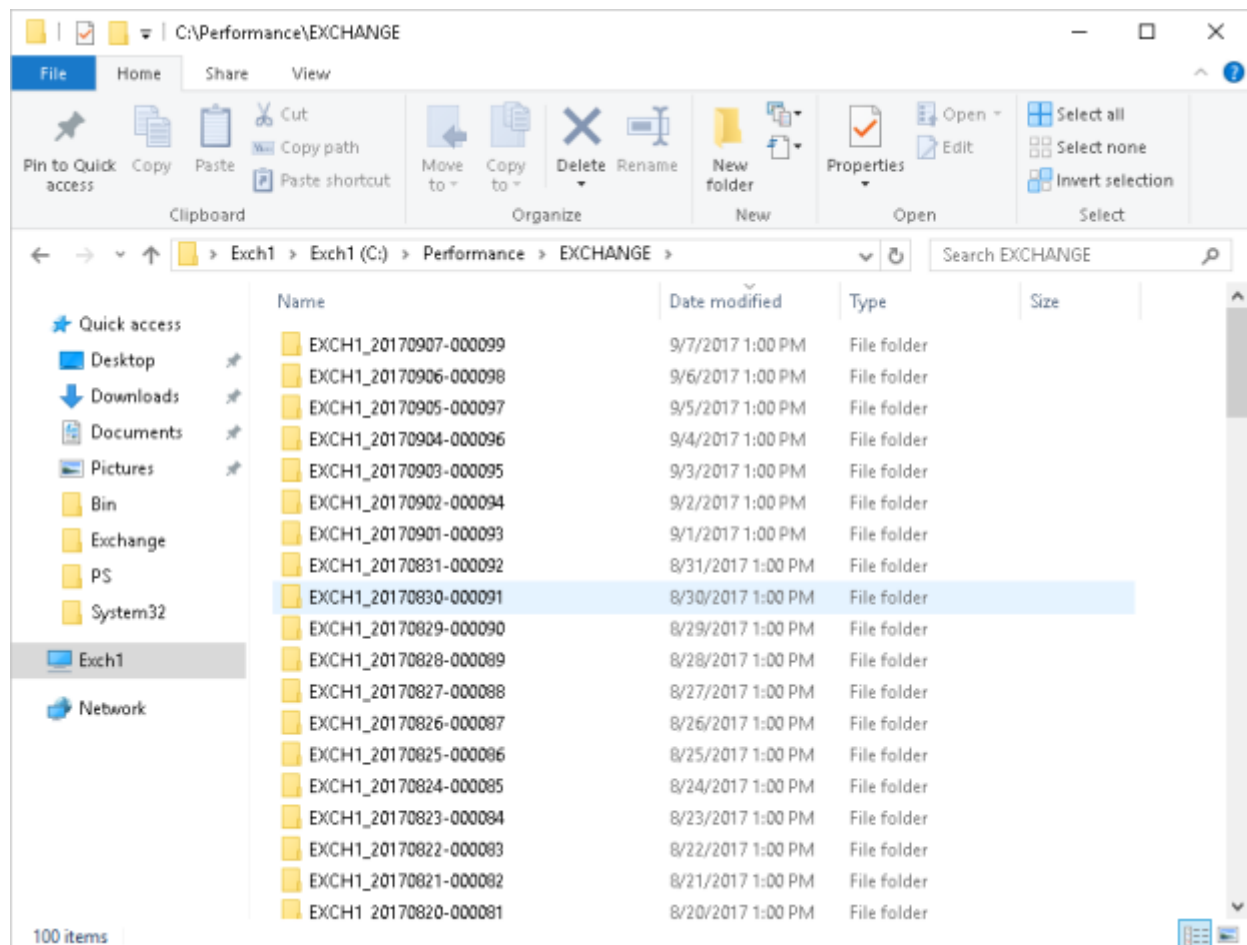
Log mode

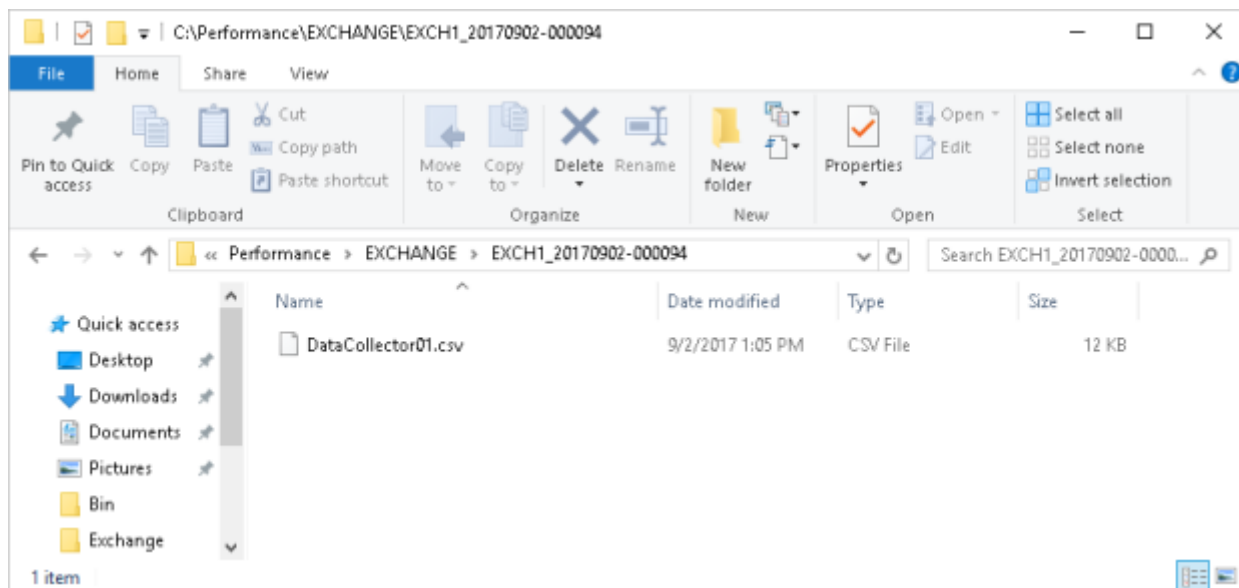
☐ Overwrite
☐ Append
☐ Circular (requires a non-zero maximum file size)

Example file name:
 C:\Performance\EXCHANGE\EXCH1_20170907-00...\DataCollector01.csv

OK Cancel Apply

This folder will contain the resulting reports:





If you can afford yourself to devote some time during your working day to the reading of these data collector reports, you will be able to notice any changes in your Exchange infrastructure as soon as possible:

	A	B	C	D	E
1	(PDH-CSV 4.0) (Russia TZ 2 Standard Time)(-180)cess Domain Controllers(dc.testentertin Controllers(dc.sses(Microsoft.Exchange Manager(mdb01)\Dat\EXCH1\MSExchange A				
2	08/14/2017 13:00:00.742				1
3	08/14/2017 13:00:15.744	5	2.99999999999999	0	1
4	08/14/2017 13:00:30.737	2.5	1.79166666666666	3	1
5	08/14/2017 13:00:45.744	3.66666666666666	1.08333333333333	0	1
6	08/14/2017 13:01:00.737	3	4.70588235294117	0	1
7	08/14/2017 13:01:15.745	2	0.909090909090909	0	1
8	08/14/2017 13:01:30.748	2.66666666666666	5.45454545454545	3.5	1
9	08/14/2017 13:01:45.738	2.75	952380952380952	0	1
10	08/14/2017 13:02:00.745	2.5	1.11111111111111	0	1
11	08/14/2017 13:02:15.738	2.79999999999999	6.42857142857142	0	1
12	08/14/2017 13:02:30.745	5.1052631578947372	602409638554217	2	1
13	08/14/2017 13:02:45.737	3.16666666666666	4.78260869565217	0	1
14	08/14/2017 13:03:00.745	5.48000000000000	1.58730158730158	0	1
15	08/14/2017 13:03:15.742	2.5	3.5	0	1
16	08/14/2017 13:03:30.734	3	6.77419354838709	3	1
17	08/14/2017 13:03:45.742	3.25	1.76470588235293	0	1
18	08/14/2017 13:04:00.748	10.2222222222222	7.40740740740740	0	1
19	08/14/2017 13:04:15.741	3.53333333333333	7.59259259259259	0	1
20	08/14/2017 13:04:30.746	2.79999999999999	2.27272727272727	3	1
21	08/14/2017 13:04:45.744	3.45454545454545	1.29032258064516	0	1
22	08/14/2017 13:05:00.737	3.25	3.375	0	1

Here's the list of counters in txt format: [ExchangeCOUNTERS](#)

3-2) Alerts:

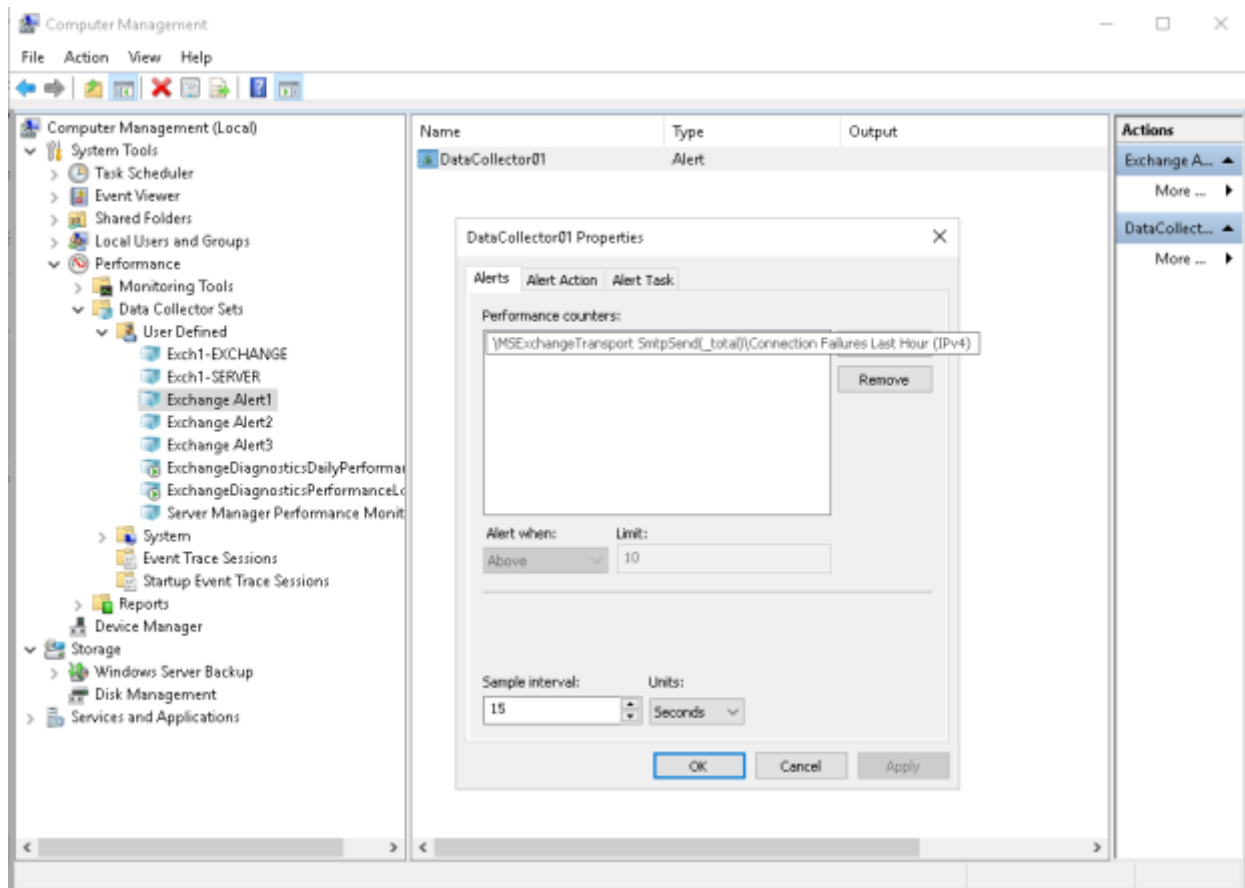
On this test Exch1 server I've created the following Exchange-related alerts (rename the template files to .xml after downloading):

ExchangeAlert1 – [ExchangeAlert1](#)

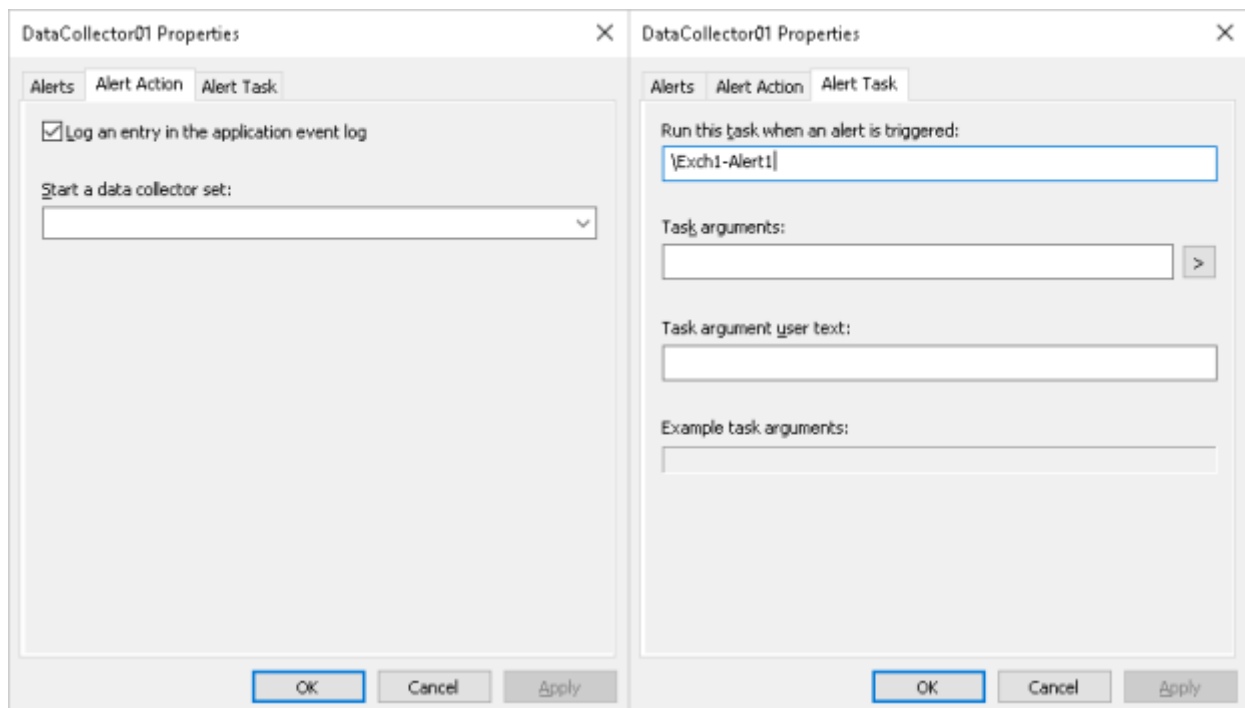
ExchangeAlert2 – [ExchangeAlert2](#)

ExchangeAlert3 – [ExchangeAlert3](#)

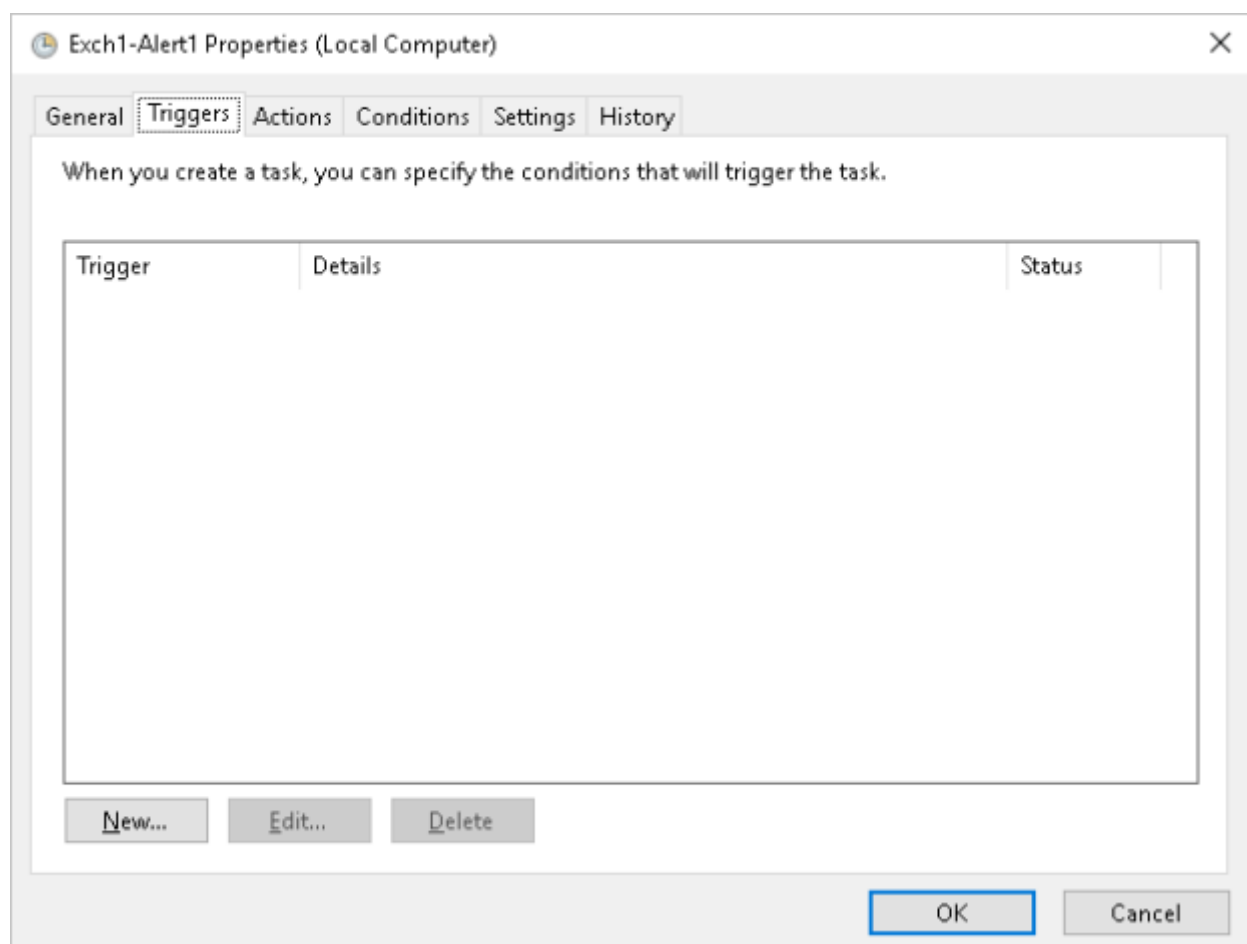
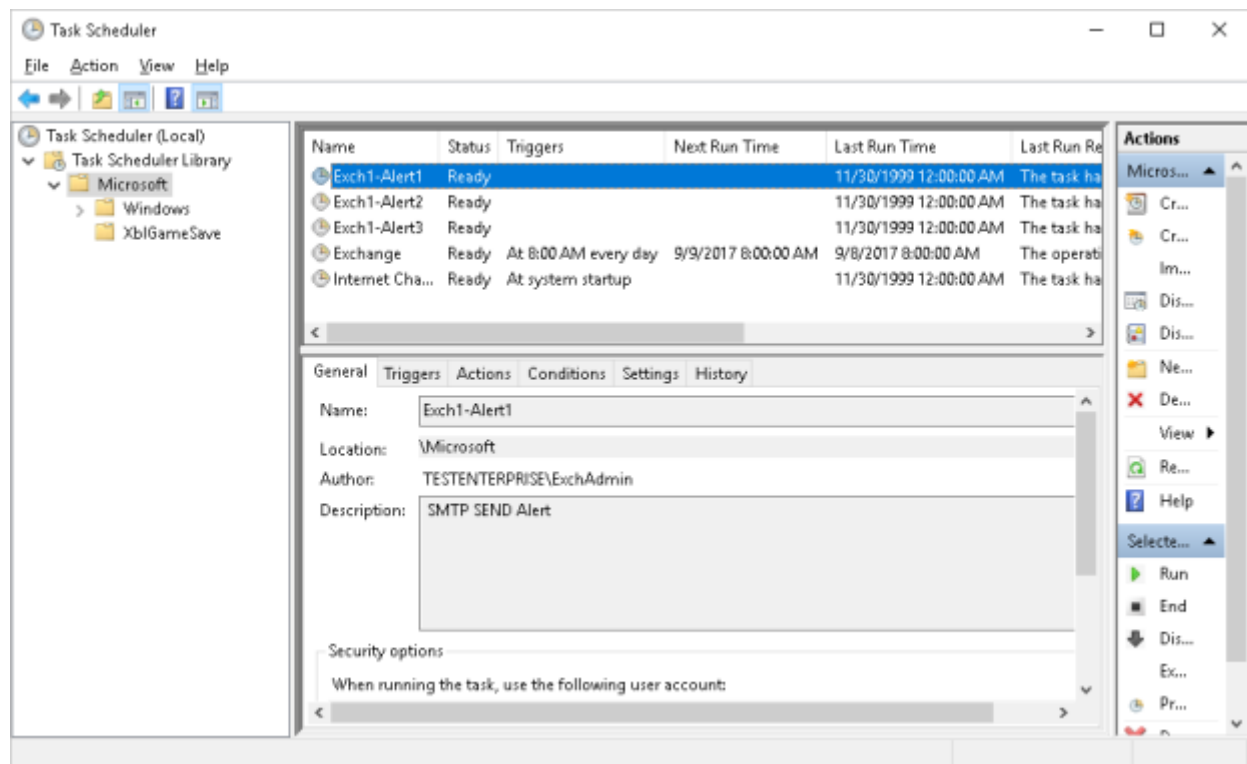
Let's look at the first alert more closely:

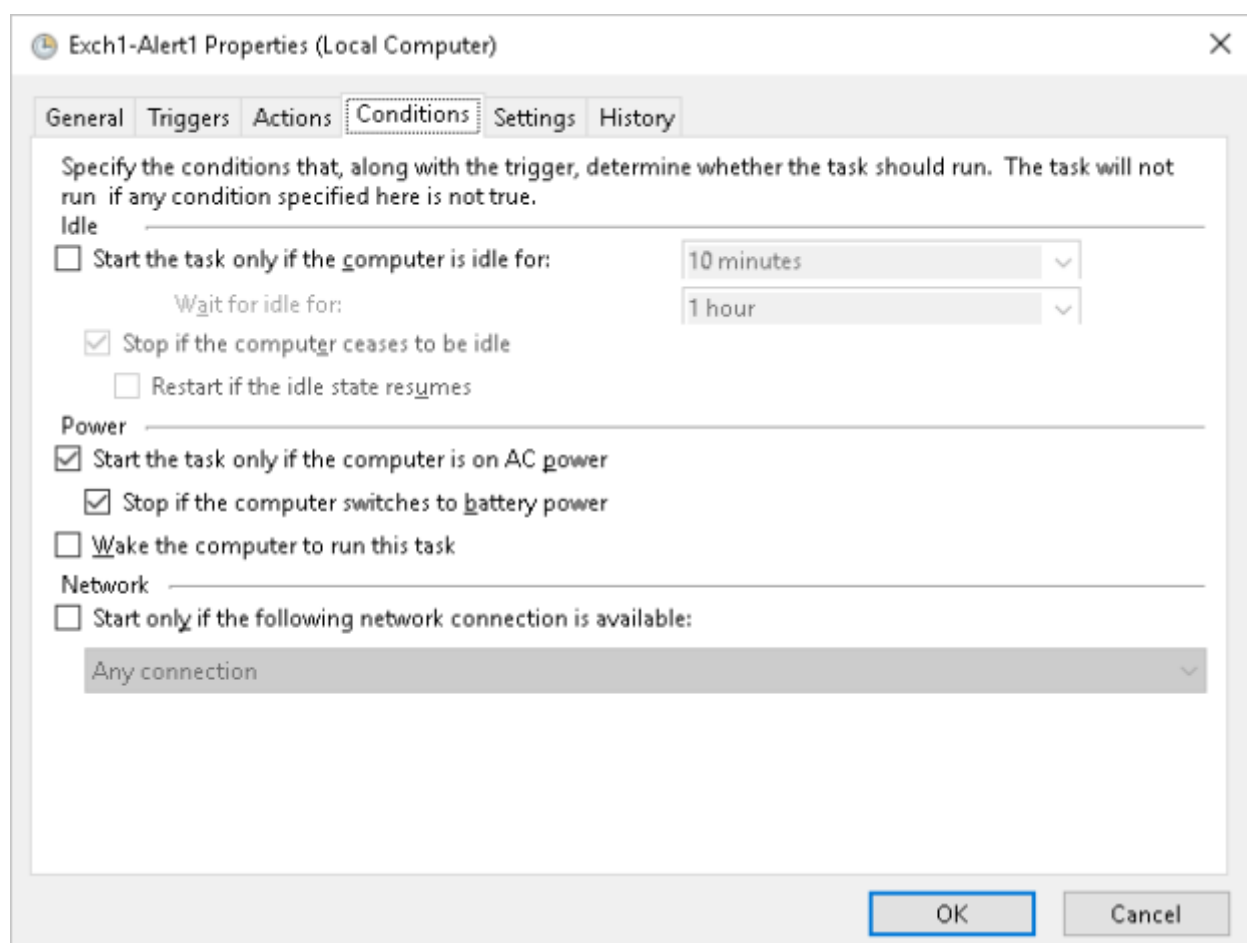
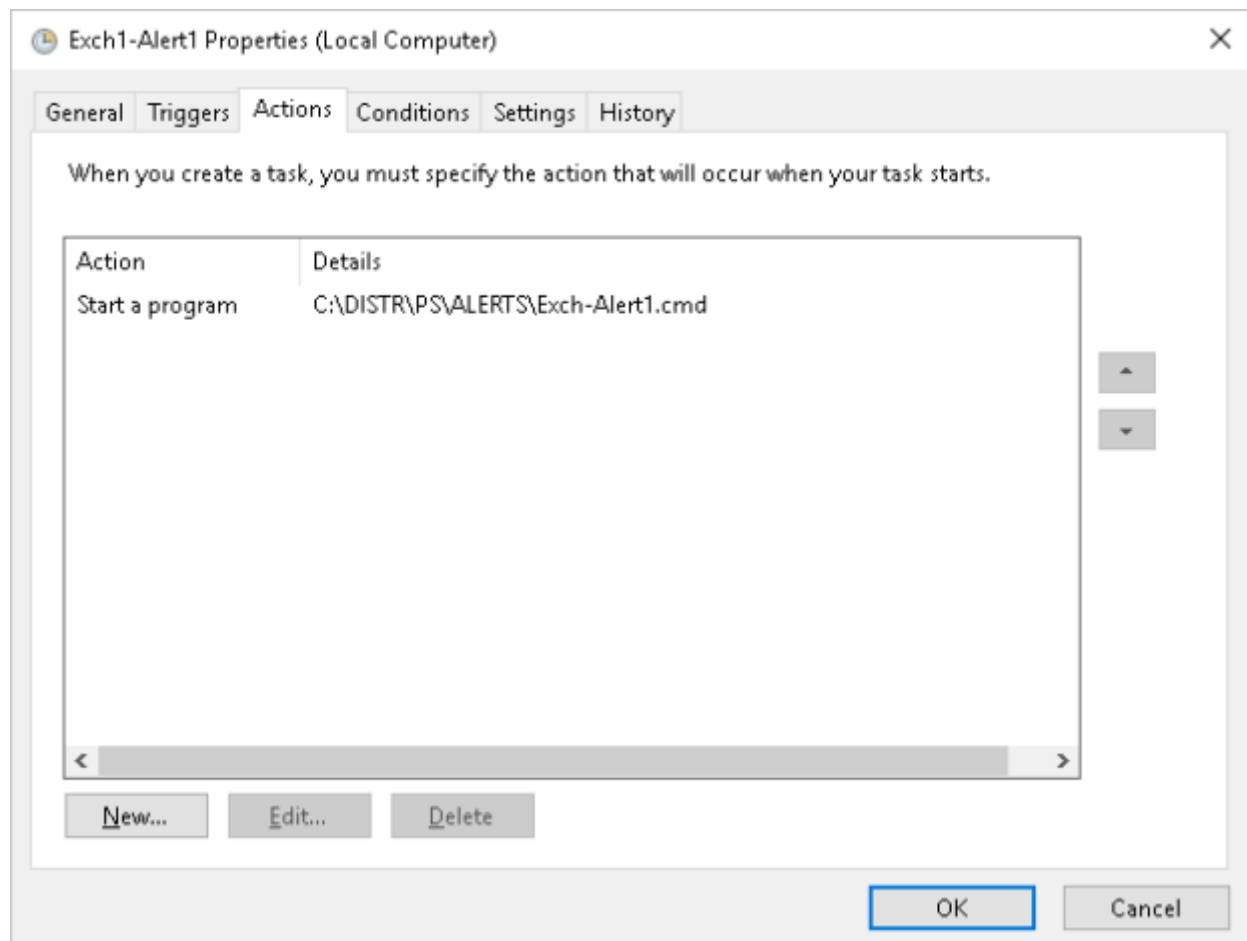


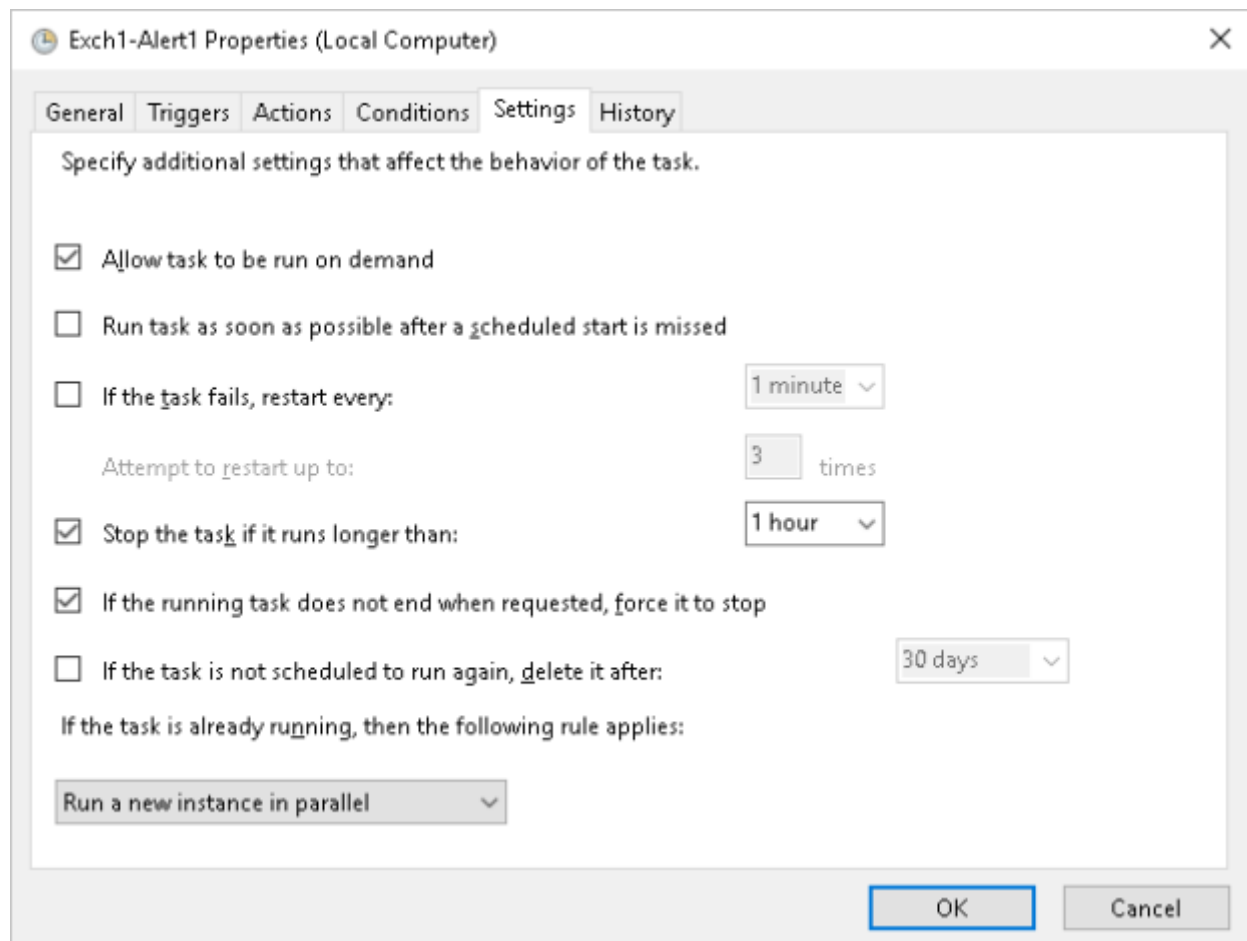
When *SmtpSend()Connection Failures Last Hour* counter will exceed **10**, the corresponding Exch1-Alert1 task will be triggered:



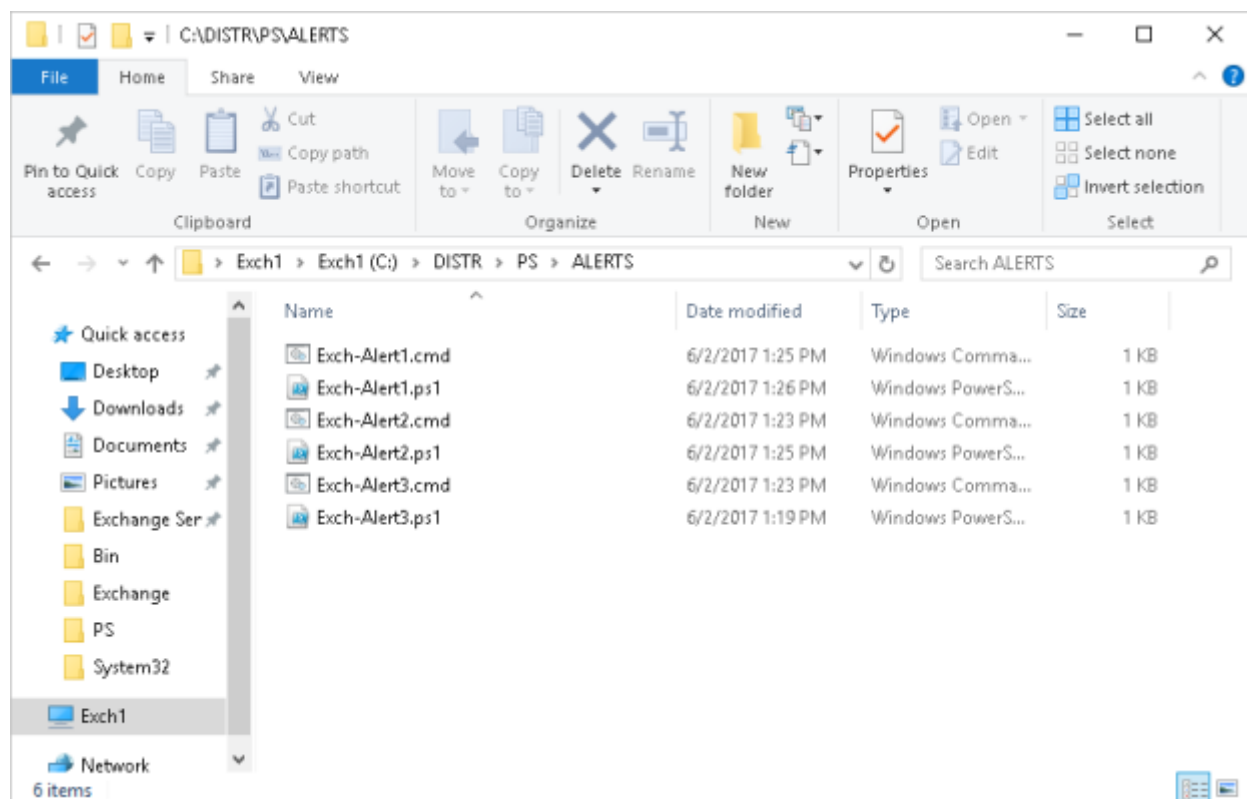
Task Scheduler:



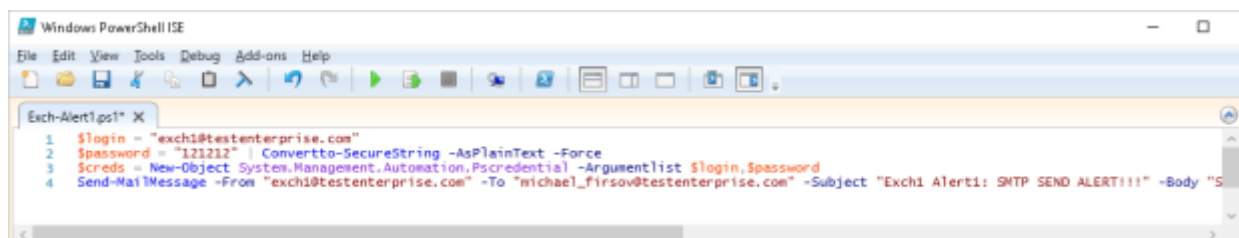
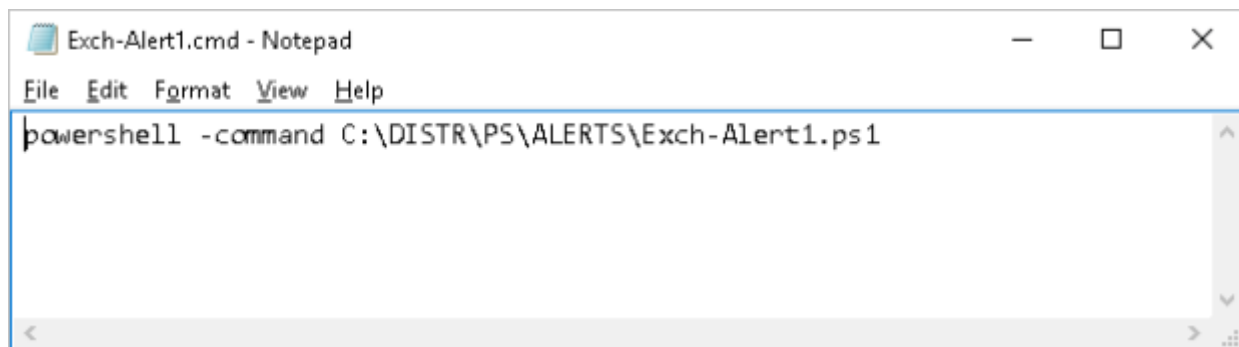




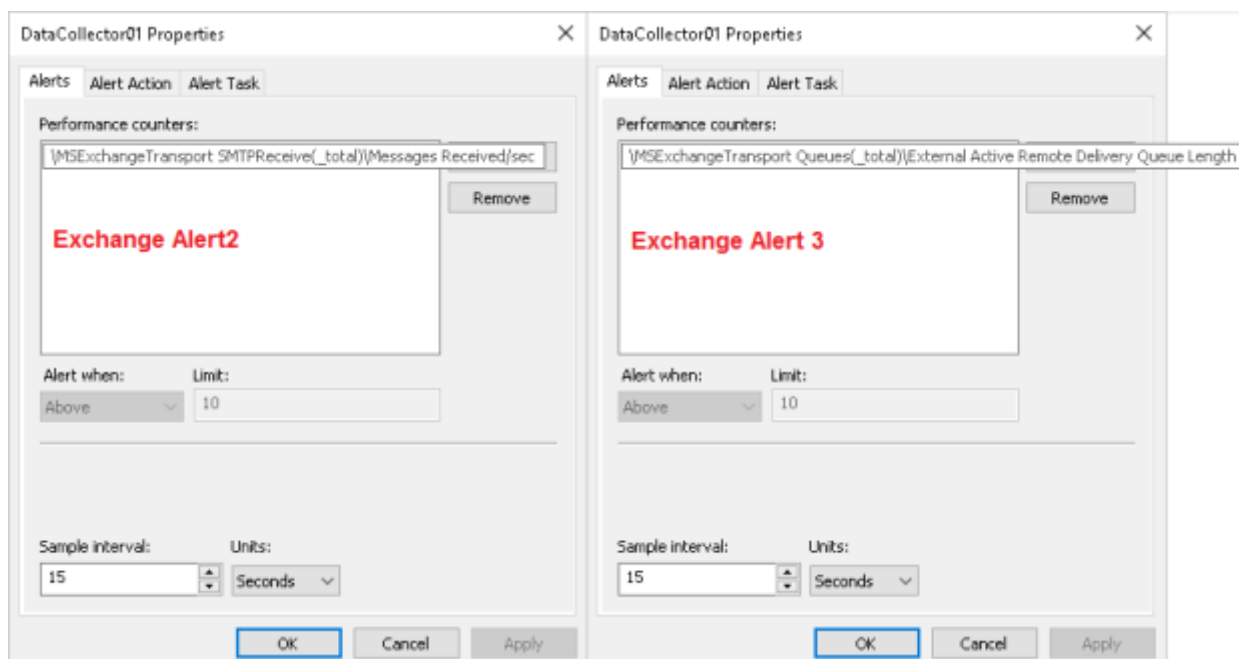
The scripts:

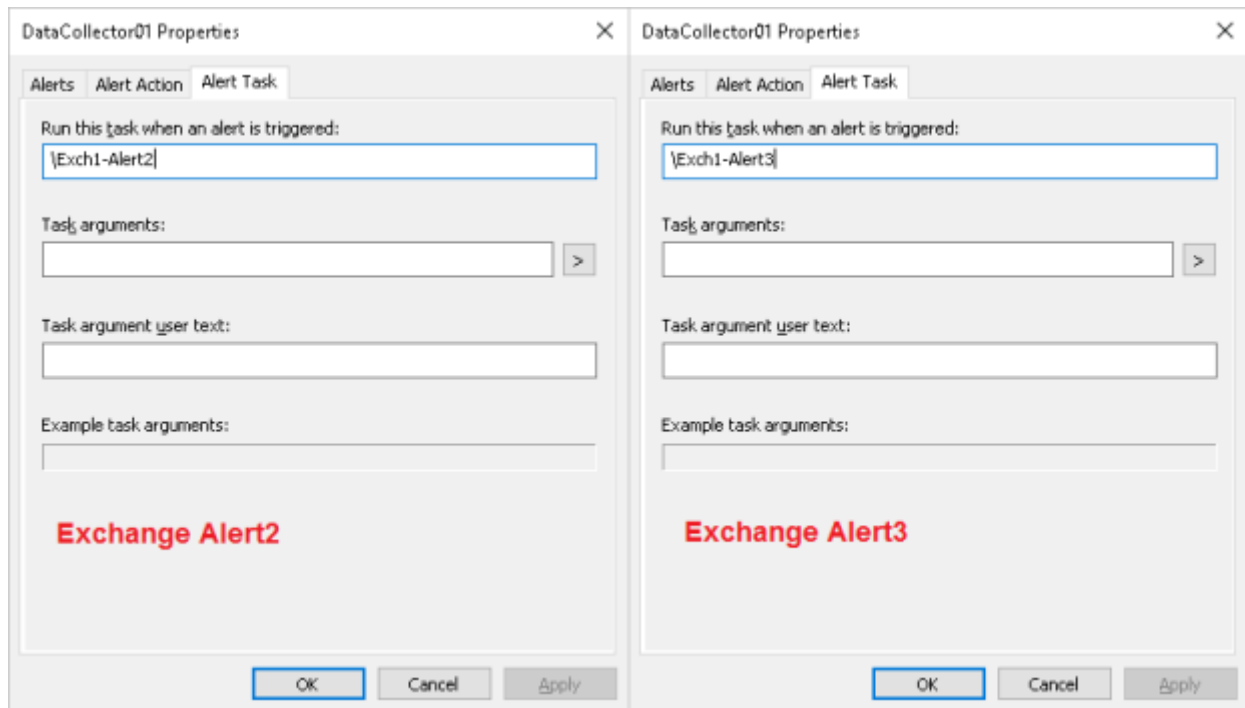


Exch-Alert1-cmd

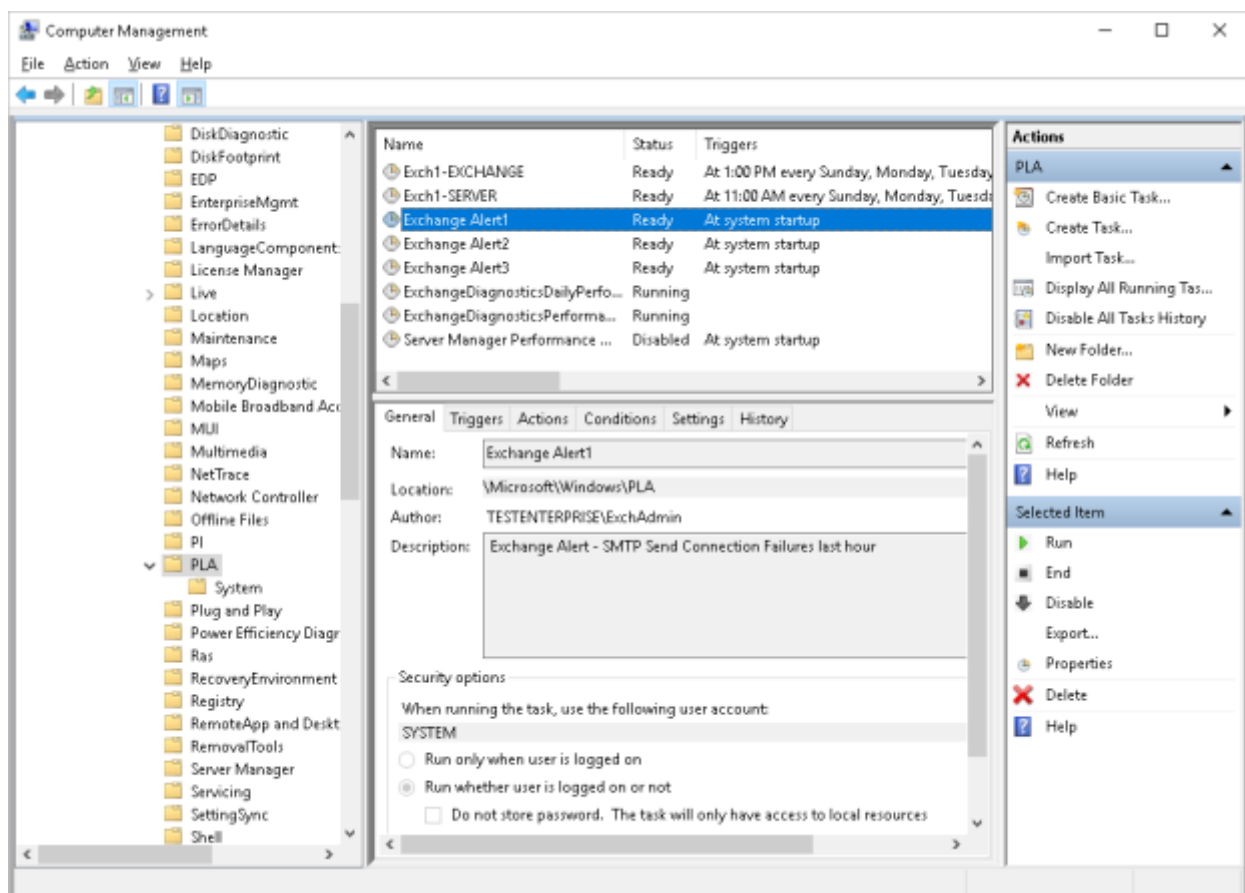


The other two `.ps1` scripts differ from the first one in only the **-Subject** and **-Body** fields: they have been changed to reflect the name of the counters being monitored:





Again, to make these alerts persist over server reboots I configure the same-titled scheduled tasks in the *Microsoft\PLA* section of the Task Scheduler (please note that these alerts will run after server reboots only if they were running before server reboot!):



Exchange Alert1 Properties (Local Computer) X

General Triggers Actions Conditions Settings History

When you create a task, you can specify the conditions that will trigger the task.

Trigger	Details	Status
At startup	At system startup	Enabled

New... Edit... Delete

OK Cancel

Exchange Alert1 Properties (Local Computer) X

General Triggers Actions Conditions Settings History

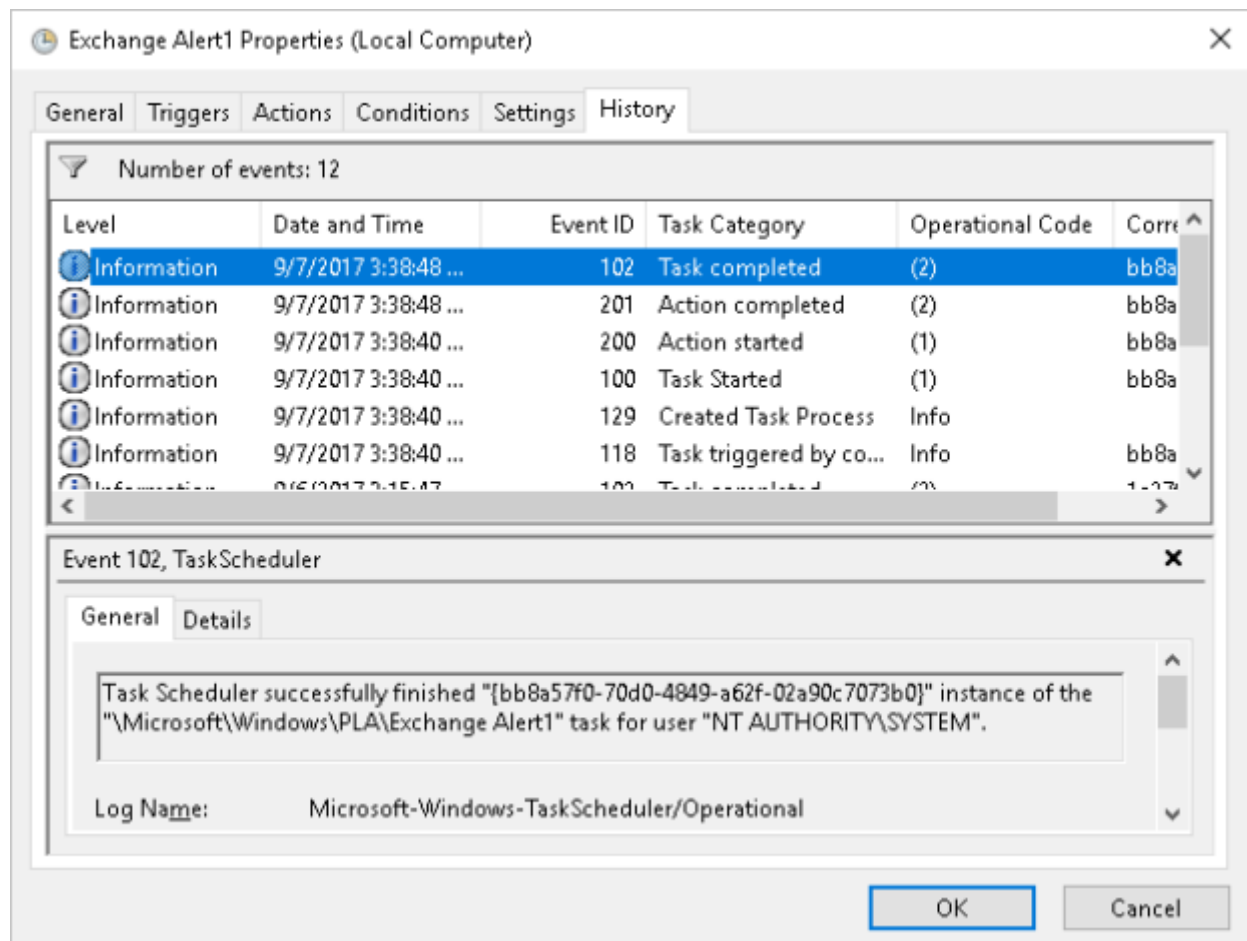
When you create a task, you must specify the action that will occur when your task starts.

Action	Details
Start a program	C:\Windows\system32\rundll32.exe C:\Windows\system32\pla.dll,PlaHost

< >

New... Edit... Delete

OK Cancel



The email message:



All other tasks (both the “main” tasks in the *Task Scheduler\Microsoft* and their *PLA* versions) have exactly the same settings (except the scripts names, of course).

This article does not contain the question (and the corresponding answer) “**Have my Exchange backup completed succesfully?**” because I’m using Windows Backup for taking server backups and all Exchange-related data get backed up along with other OS data.

Part5