Performance Gathering on Storage Systems & HDSioportal service

Setup Guide for HiCHperfpkg

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1. Introduction

In most IT environments performance is vital, especially for SAN Infrastructures. To keep the performance high it is also vital to have actual and past performance numbers to know about changes in the environment and see trends. For environments with HTnM most of these numbers can be accessed there, but not all. Additionally if a strange behavior (on performance or other) occurs, it is always good to have performance export data at hand for a Service Request.

This document shows, how to setup the HiCHperfpkg scripts for G1500/G1000/G800/G600/G400/G200/VSP/HUS-VM/USP-V/USP-VM. This should be done on the SVP or if required on a Windows management server. With this script we have the possibility to collect and store more than the usual 24 hours of minutely performance data. If you are using the hdsioportal service the performance data will be transferred via scp or https to hdsioportal.com.

The performance package (HiCHperfpkg) is part of te Hitachi software suite (HiCH) and developed/maintained by the swiss service development group (Switzerland GSS SME Service Development).

The script uses functionality from the standard performance export tool. This export tool should be used only once per system, so we have to make sure that the performance data isn't exported from different places (on the SVP and/or management servers). Ask the customer and/or the appropriate system engineer if there are other environments that collect already the performance export data. If so, ask about the quantity of exports the customer keeps. We want to store at least 30 days.

To have a successful test run of the script, the performance monitor has to be enabled for least 12 hours. If you a implementing the script at installation time of an enterprise system, make sure you can enable the performance monitor as soon as possible.

2 Performance gathering on an enterprise storage system

It is required for every enterprise storage system to collect the performance data. This section is for the customer engineers to setup this collection correctly.

2.1 Prerequisites

2.1.1 HiCHperfpkg

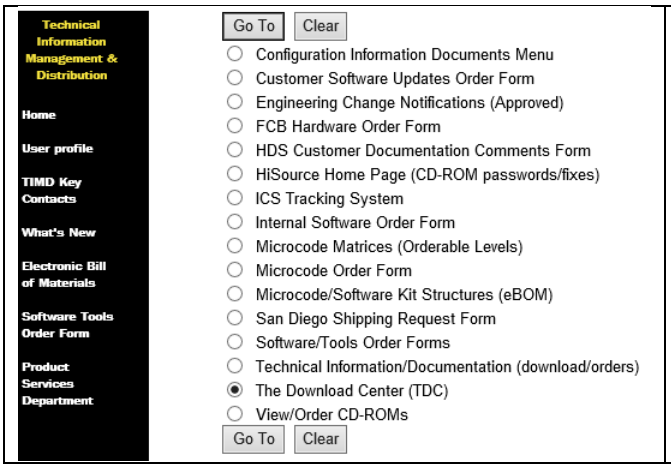
The latest version of the HiCHperfpkg – script is always on the loop. Check regularly if there is a newer version. You can find the script via

a. CH Performance Group (http://loop.hds.com/groups/performance-group-switzerland) or
b. Direct link (http://loop.hds.com/docs/DOC-43277)

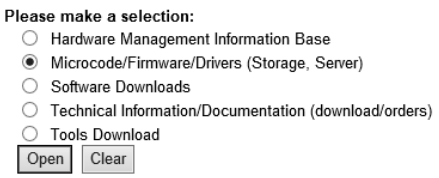
Download the latest compressed file to your notebook. The name of the file should be in the following manner: HiCHperfpkg_v%x%.%y%.zip

2.1.2 Performance Export Tool

The performance export tool is part of the microcode collection (CD 3). If a new microcode is installed to the enterprise system, you have to check if there is the need to update the export tool. The export tool can be downloaded on TISC (Technical Information Service Center - http://usindtisc01.corp.hds.com/techpubs/OrderProcess/index.cfm)



We need to accept the described terms to get further. Select Microcode to get to the next step:



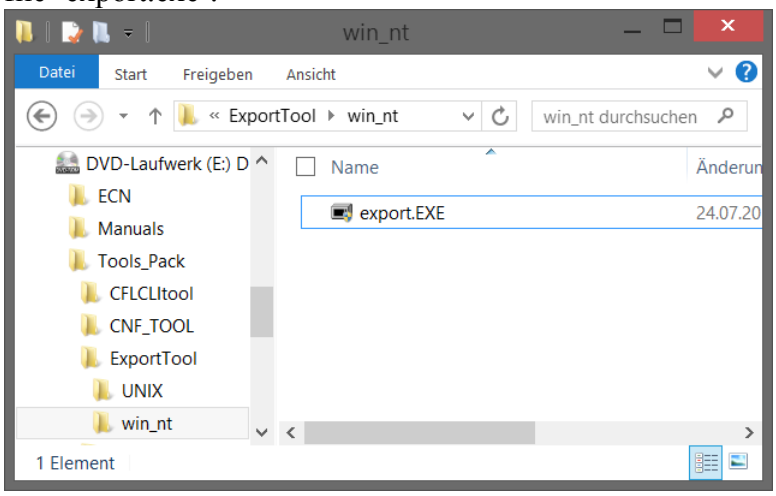
We need to select the appropriate enterprise system. e.g. for a VSP it is DKC710 (HDS VSP). Additional we select 'Available Microcode':

Select the already or to be installed microcode, e.g. for 70-06-02 it is MC-VSP-104. We need the 'R700 Virtual Storage Platform Document & Programs DVD' e.g. for the microcode 70-06-02 it is PK-VSMC103-104:

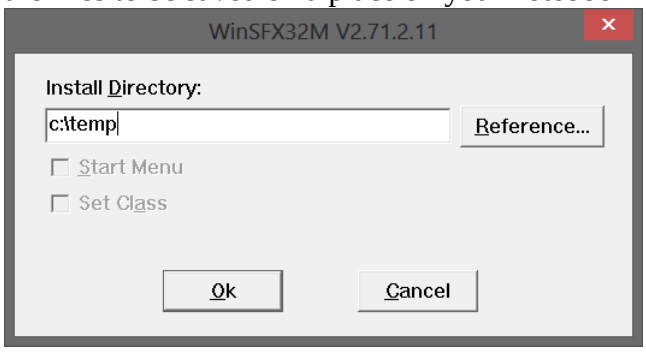
Product Contents:

	Component Number	Component	Version	Remarks
1	PK-VSMC101-104	R700 Virtual Storage Platform Microcode DVD	70-06-02-00/00-M178	DVD
2	PK-VSMC102-100	R700 OSS CD#2 for SVP	70-06-00/00	CD-ROM
3	PK-VSMC103-104	R700 Virtual Storage Platform Document & Programs DVD 70-06-02-00/00-m178	70-06-02-00/00-m178	DVD

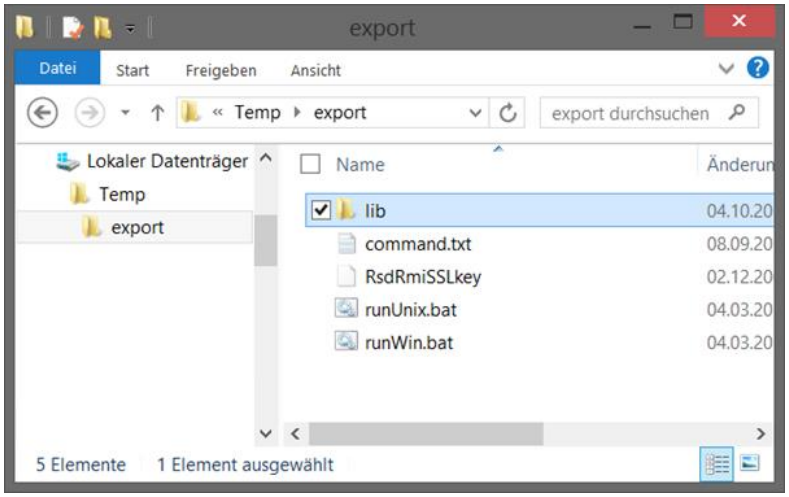
Download the image file to your notebook. Open the iso-file with an adequate tool to get the following folder: 'Tools_Pack\ExportTool\win_nt\'. Within this folder you should find the file 'export.exe'.



Copy this file on your notebook. Extract the content of 'export.exe' by executing the file. Let the files to be saved on a place on your notebook like c:\temp\.



In the extract we should find a folder named 'lib'. This folder will be used in the installation part:



You can ignore any install warning from the ‘export.exe’-file you’ll get.

2.1.3 Java

If you are using a management server you need install the latest java version.
See http://www.java.com/en/download/manual.jsp

2.1.4 Perl

If you are using the SVP of G800/G600/G400/G200 or a management server you need install the latest perl version.
See: http://www.activestate.com/activeperl/downloads
or the loop: http://loop.hds.com/docs/DOC-66011

2.1.5 Management server (hardware) - optional

A management server is only required if the performance data does not get collected on the SVP. Additional to the Memory for the OS (e.g. 1 GB for Windows) + 1 GB RAM per disk subsystem is needed when the collection runs parallel.
Example: If there are 4 systems at the customer, you will need to ask for 5 GB RAM, although 6GB is better)

2.1.6 CCI (RAID manager with raidcom/horcm)

This software is needed if you want to collect detailed raidcom configuration information. Please always install the latest version of CCI into the default path (C:/HORCM). Otherwise you need to disable the raidcom collection in the config file (per default raidcom collection is enabled).

See Tisc:

The Download Center

Back to Download Center menu

Available Software Downloads

Select a Product:

And/Or Program Product Name: Hitachi Command Control Interface (RAID Manager)

And/Or Version:

Search Clear

Take the latest version (or at least the according version as stated on the ECN of the Microcode):

KT-CCIR001-00	Z0TCCIR-140400	01-31-03/07	Hitachi Command Control Interface for RAID Software Distribution Library	ECN DKC810I-M006-4 ECN DKC810I-M006-5	04/21/14

Product Contents:

	Component Number	Update Set ID	Component	Version	Remarks	Filename	MD5
1	CD-00HS042-61	UXCCI-140400	Hitachi HUS VM/VSPG1000/VSP/USP V/VM/USP/NSC/9900V/9900 Command Control Interface Software Distribut	01-31-03/07	CD-ROM	HS042_61.iso	1ce30df8a87a9631e06cfa9cd2ef5a1f

Contact: Product Services

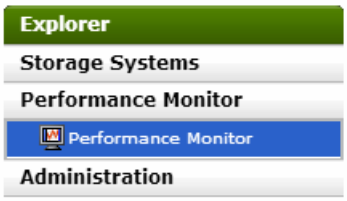
You can run C:\HORCM\etc\pairdsplay –h to see the current installed Version of CCI.

```
C:¥Windows¥system32¥cmd.exe
C:¥HORCM¥etc>pairdisplay -h
Model  : RAID-Manager/WindowsNT
Ver&Rev: 01-28-03/06
Usage  : pairdisplay [options] for HORC
 -h     Help/Usage
 -I[#]  Set to HORCMINST#
 -IH[#] or -ITC[#] Set to HORC mode [and HORCMINST#]
 -IM[#] or -ISI[#] Set to MRCF mode [and HORCMINST#]
 -z     Set to the interactive mode
 -zx    Set to the interactive mode and HORCM monitoring
 -q     Quit(Return to main())
 -xh    Help/Usage for SUB commands
 -x <command> <arg> ... Specify the SUB command
 -g <group>    Specify the group_name
 -d <pair Vol> Specify the pair_volume_name
 -d[g] <drive#(0-N)> [mun#] Specify the Physical drive# without '-g' option
 -d[g] <Seq#> <ldev#> [mun#] Specify the LDEV# in the RAID without '-g' option
 -c            Specify the pair_check
 -l            Specify the local only
 -m <mode>     Specify the display_mode(cas/all) for cascading configuration
 -f[x]         Specify display of the LDEV#(hex)
 -f[c]         Specify display of the COPY rate
 -f[d]         Specify display of the Device file name
 -f[m]         Specify display of the Bitmap table
 -f[e]         Specify display of the extended informations(CTG,JID,..External LUN)
 -f[w]         Specify display of the WWN for a port
 -CLI          Specify display of CLI format
 -FHORC [mun#]   Specify the force operation for cascading HORC/UR_VOL
 -FMRCF [mun#]   Specify the force operation for cascading MRCF_VOL
 -v jnl[t]     Specify display of the journal informations interconnected to the group
 -v ctg        Specify display of CT group informations interconnected to the group
 -v smk        Specify display of the Marker on the volume

C:¥HORCM¥etc>_
```

2.2 Preparation of the environment

2.2.1 Enable Performance Monitoring

You need to configure/check the Performance Monitoring on the enterprise system to get performance data extracted with the export tool. Connect to the StorageNavigator 2 and select at the Explorer the Menu ‘Performance Monitor’:



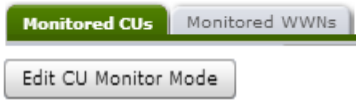
At the Summary we can see if the monitoring is en- or disabled:

If the monitoring is disabled you need to enable it. This can be done with:

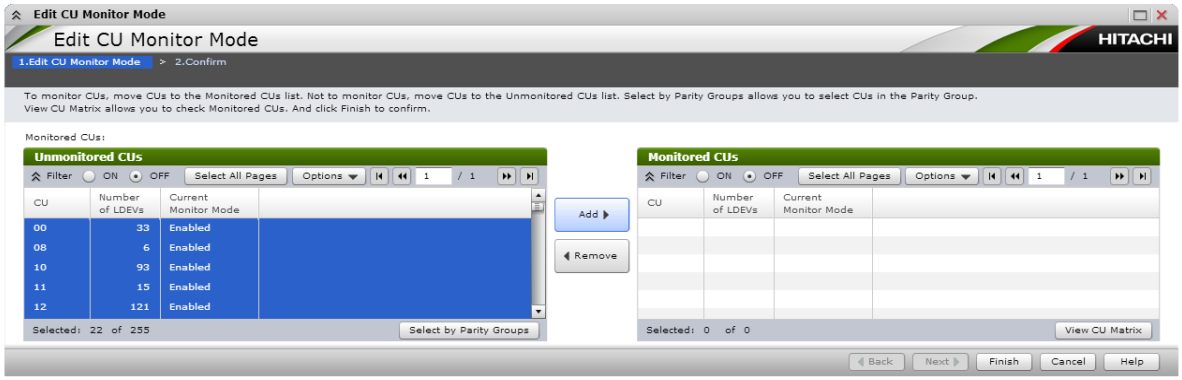
We use 1min sample interval.

If the monitoring is already enabled and set to 1min sample interval, you have to check that the ‘right’ data is selected to monitor.

As minimal Configuration you have to select the CUs. On the ‘Monitored CUs’ Tab use the button ‘Edit CU Monitor Mode’ (<u>not needed for HUS-VM/G800/G600/G400/G200</u>)



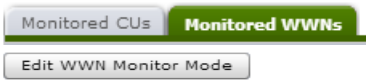
In the Wizard we select all CUs that have LDEVs within and click ‘Add’:



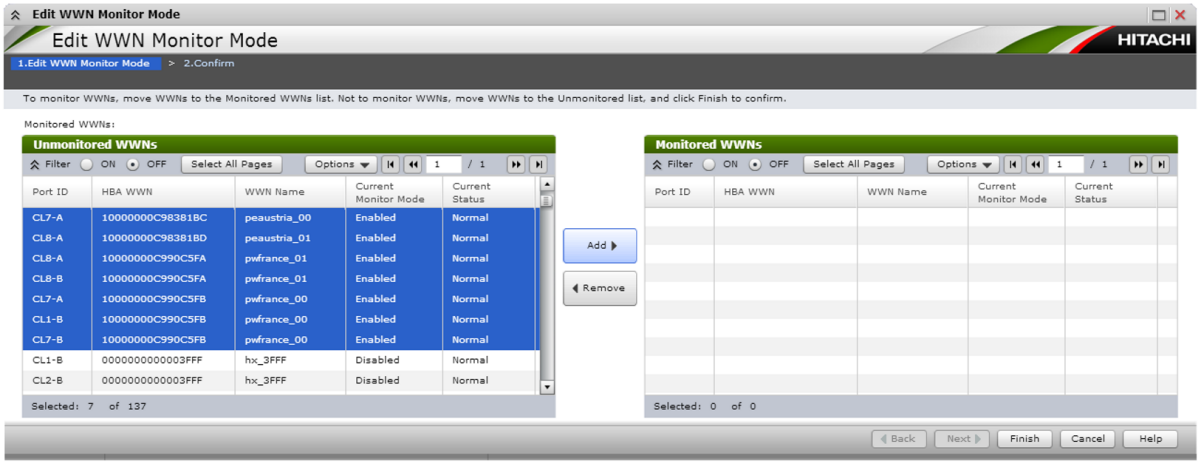
Important: Only 64 CUs can be handled with interval 1 on a VSP / G1000 / G1500.

If less than 64 CUs have LDEVs, then take some of the following CUs that had LDEVs which are now empty to include growth.

Additionally you can add Host WWNs on the 'Monitored WWNs' Tab. To add WWNs use the button 'Edit CU Monitor Mode':



In the Wizard select the WWNs and click 'Add':



Important: Only 32 WWNs per port are possible to add.

If more than 32 WWNs are used per Port, take the most important ones. If it is a new system without any hosts attached the list will be empty as no WWNs are logged in at this point of time.

2.2.2 Create new group and users for performance export

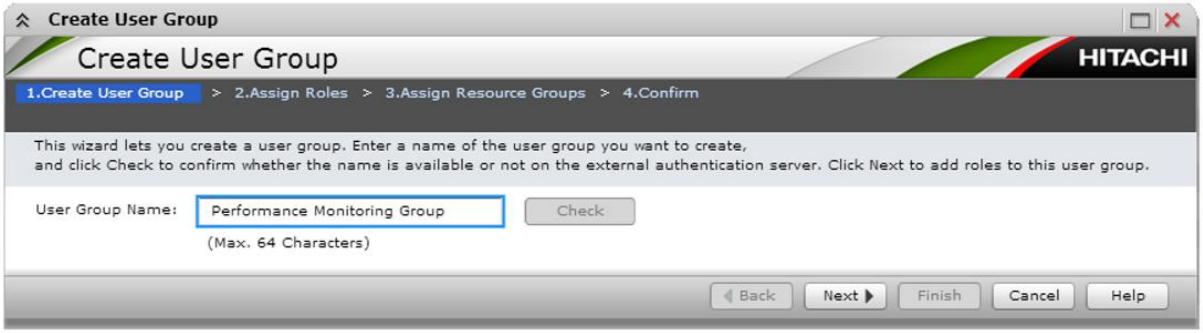
If the Performance Monitor Settings are done you need to create a new User Group and User to collect the Performance Data.

1. Create new group

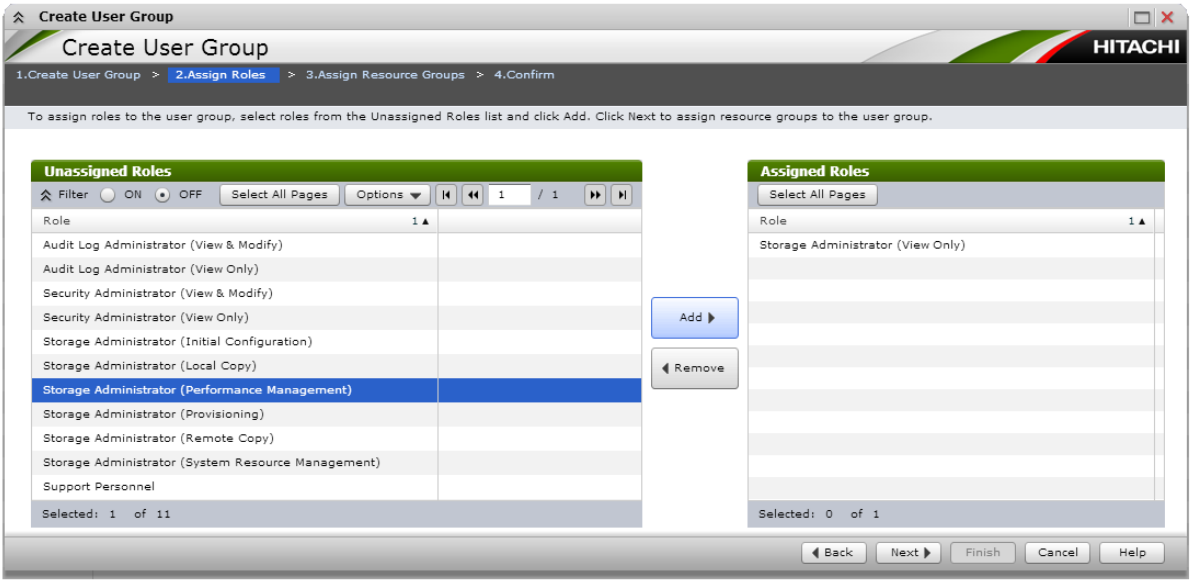
To do this select on the Explorer the Menu 'Administration' and then click on 'User Groups'.

To create a new User Group click on the button 'Create User Group'.

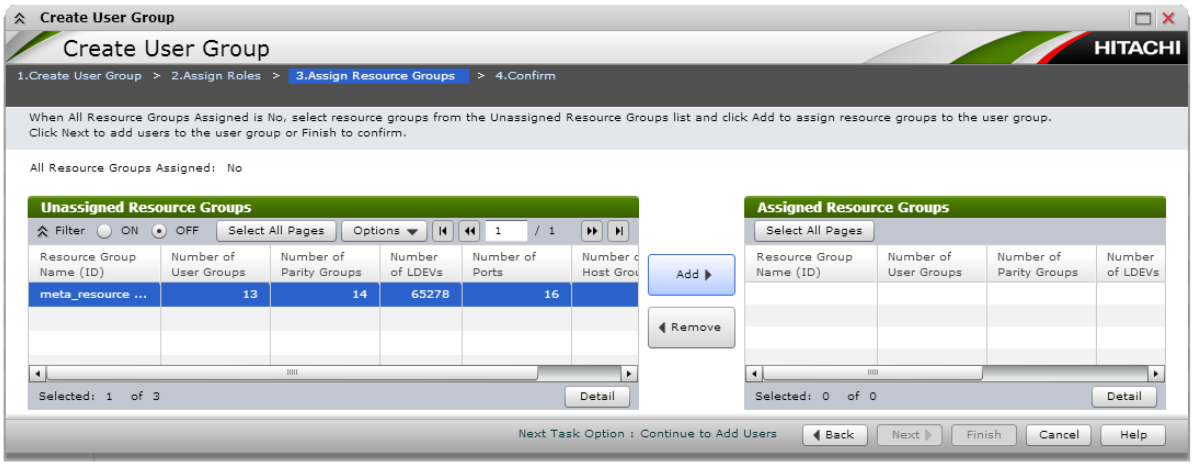
This will start the create User Group Wizard. Enter the name 'Performance Monitoring Group' and click 'Next':



Add the Role 'Storage Administrator (Performance Management)' to the user group. Select to role and click 'Add' then click 'Next':

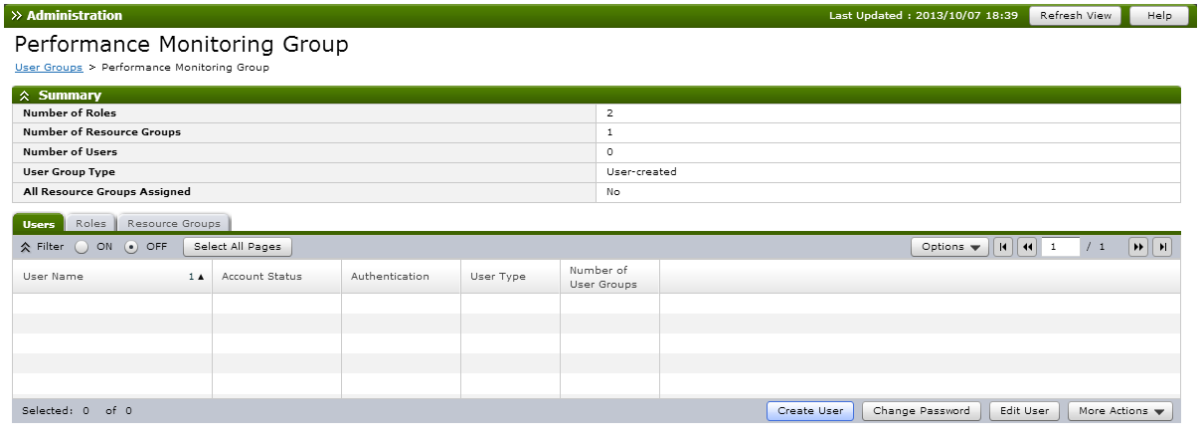


In the next Step you have to add a resource group. Add the default resource group ‘meta_resource (0)’ and all other if available (e.g. for G1000). Then click ‘Finish’:



2. Create new users

With the new created group you can create a new user within. Select the new group and click on ‘Create User’:

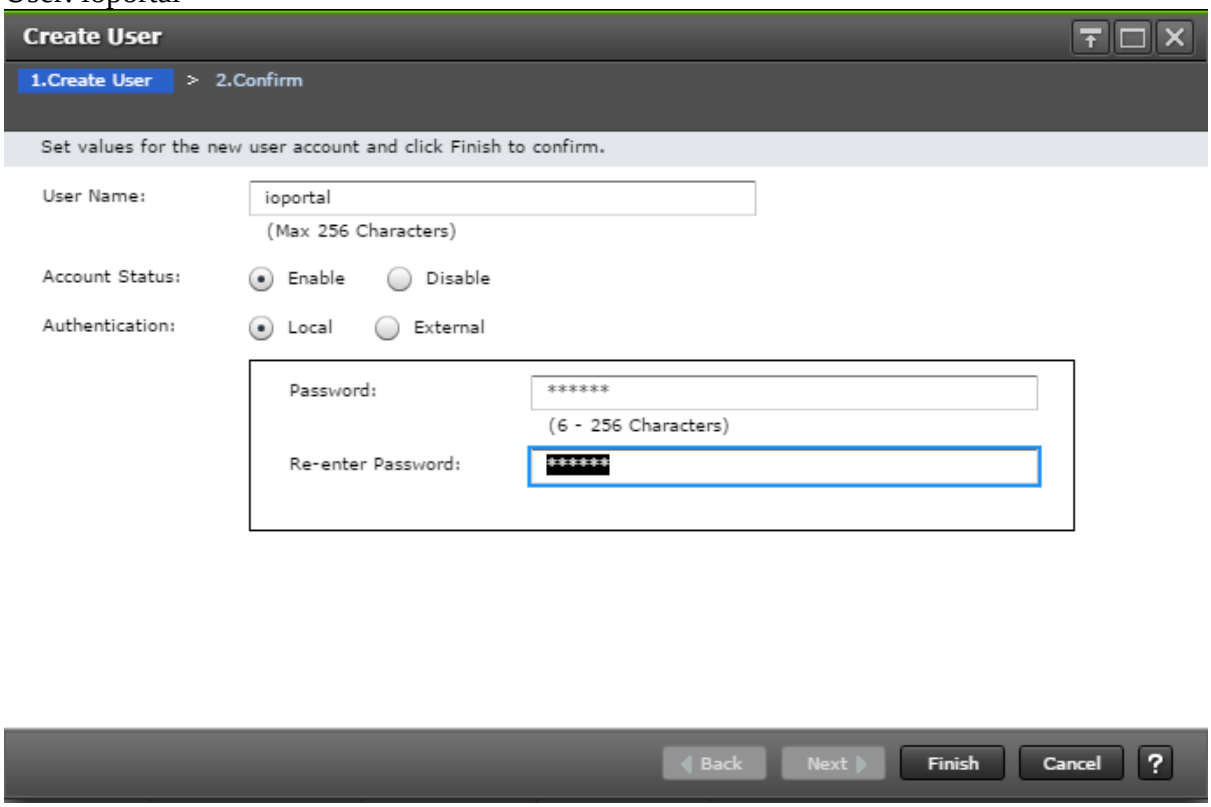


A new wizard for the creation of the user starts.

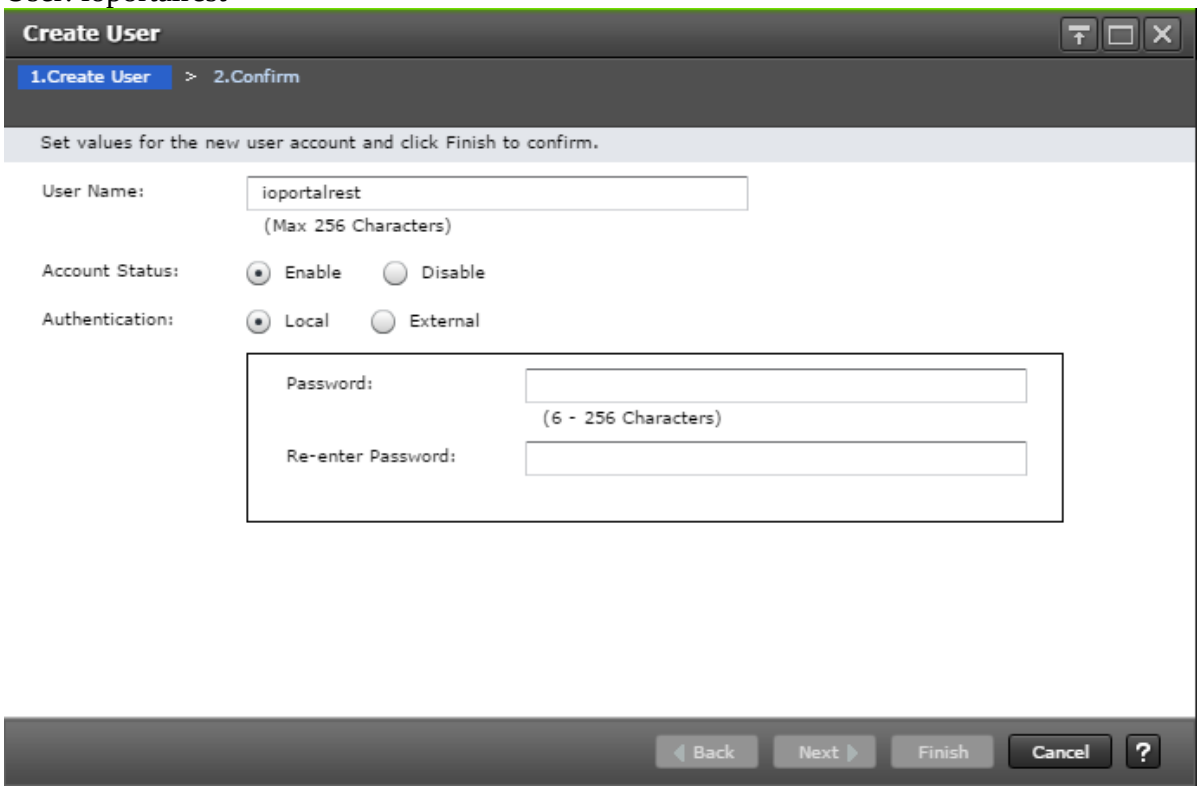
2 new users must be created - “ioportal” and “ioportalrest”. If you do not have 2 different users the collections will cause errors.

The password is created like ‘ioportal%companyname%’ e.g. for HDS it is ‘ioportalhds’. There must be at least 6 characters (A-Z,a-z,0-9,-,_)for the password. Make sure that the authentication is set to local. To create the user click on ‘Finish’:

User: ioportal



User: ioportalrest



Important: The password should be in lower case.

2.3 Installation

The HiCHperfpkg consists of these scripts:

- ppsetup
  This script is doing the setup interactively (on the SVP) for HiCHperfpkg. It creates the config files, command txt files, bat files and schedules the task.

- ppcollect
  This script is responsible to gather the performance data from the enterprise storage system and store it into a zip/tar.gz-file

- pptransfer [This is only needed if ioportal service is in place]
  This script is responsible to transfer the collected data from ppcollect via https or scp to the defined target (*.hdsioportal.com)

- ppmonitor
  This script is responsible to check the collected data from ppcollect and sends an email if it does not get collected accordingly

- pp_<SN>.bat or pp_log.bat
  This script is the wrapper script. This batch script first starts ppcollect script and afterwards pptransfer.

- extractVMIOstats
  This script is responsible to gather the performance data from a vcenter server. (This is optional and currently in a test phase).

2.3.1 How To Install

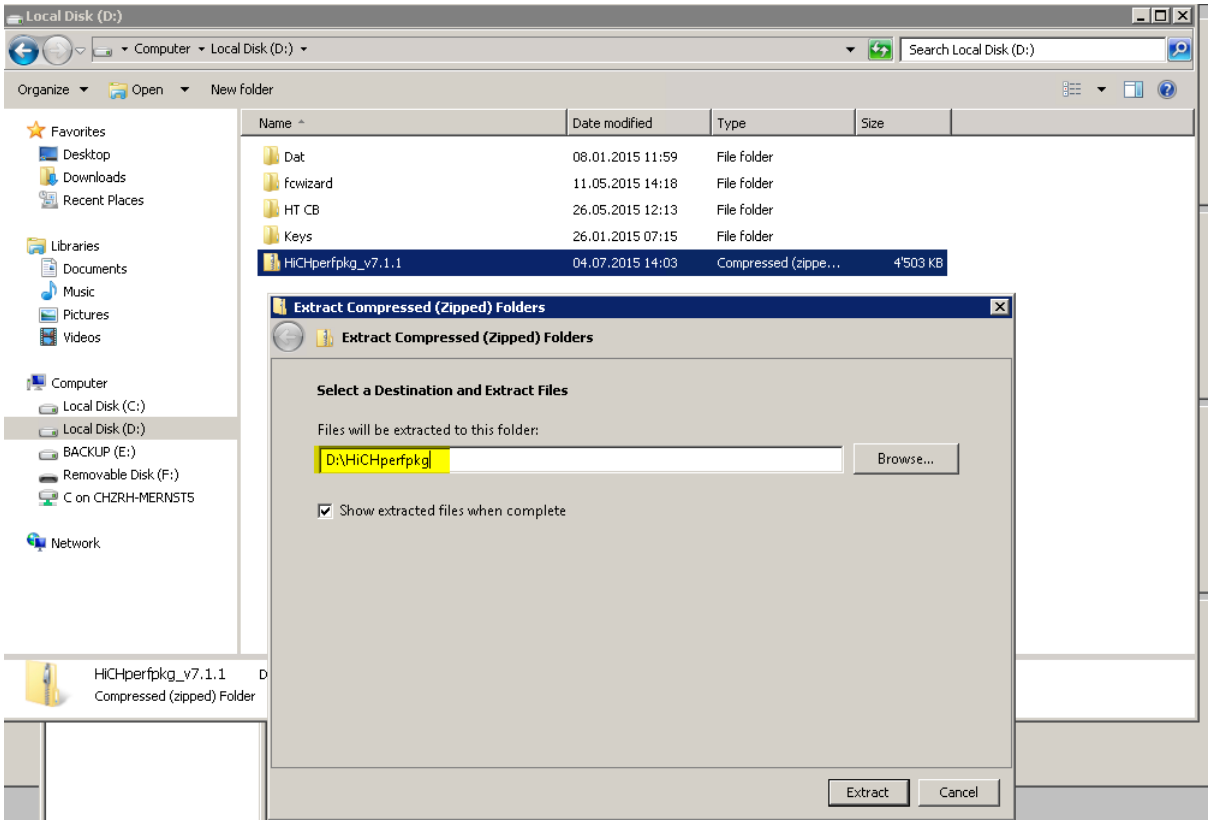
1. Preperation of the environment (see steps above)
   [HiCHperfpkg, Export tool libs, Java, Perl, CCI, Performance Monitoring, Performance User, CU setting, etc.]

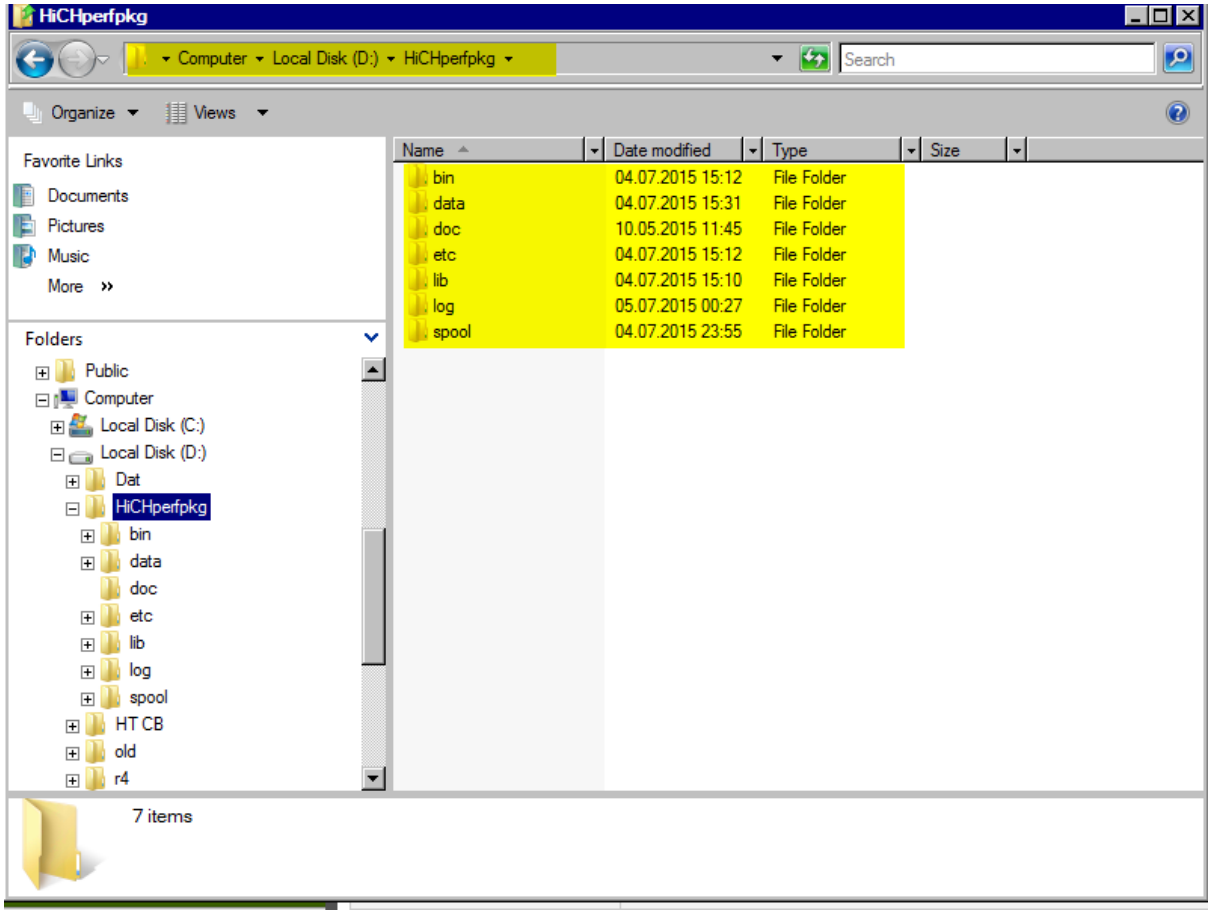
2. Copy & unpack HiCHperfpkg

   a. on SVP of G1500/G1000/VSP/HUS-VM/USP-V to d:\

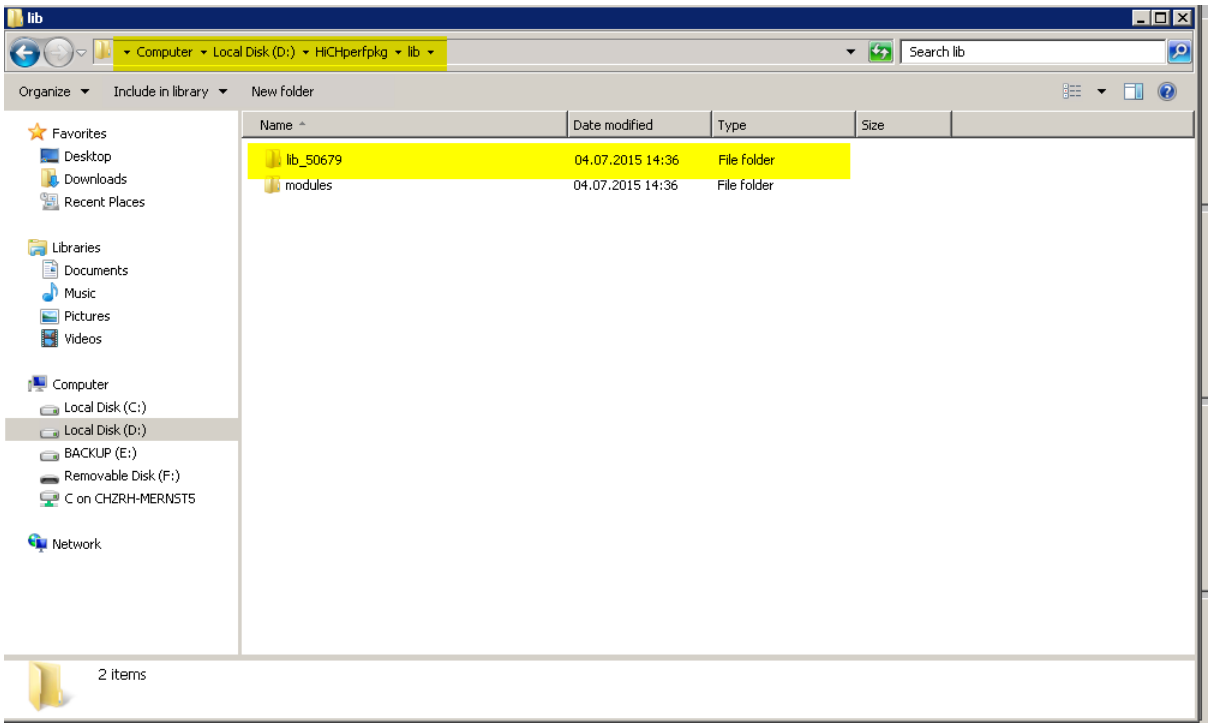
   b. on SVP of G800/G600/G400/G200 to c:\

When you decompress the HiCHperfpkg_vX.Y.Z.zip-file it should like this:




HiCHperfpkg
Computer ▸ Local Disk (D:) ▸ HiCHperfpkg
Search
Organize
Views
Favorite Links
Documents
Pictures
Music
More »
Folders
Public
Computer
Local Disk (C:)
Local Disk (D:)
Dat
HiCHperfpkg
bin
data
doc
etc
lib
log
spool
HT CB
old
r4
Name
Date modified
Type
Size
bin 04.07.2015 15:12 File Folder
data 04.07.2015 15:31 File Folder
doc 10.05.2015 11:45 File Folder
etc 04.07.2015 15:12 File Folder
lib 04.07.2015 15:10 File Folder
log 05.07.2015 00:27 File Folder
spool 04.07.2015 23:55 File Folder
7 items

3. Copy export tool library to D:/HiCHperfpkg/lib/lib_<SN> directory



Important:

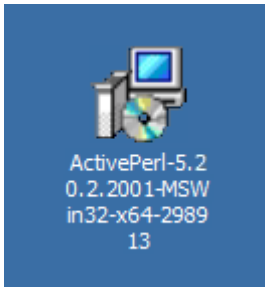
With G1000 micro code version 3 (Version 80-03-01/00 and higher) the behavior of export tool changed. There is only 1 file ("JSanExportLoader.jar") left. The other files can be deleted in the lib_SN folder.

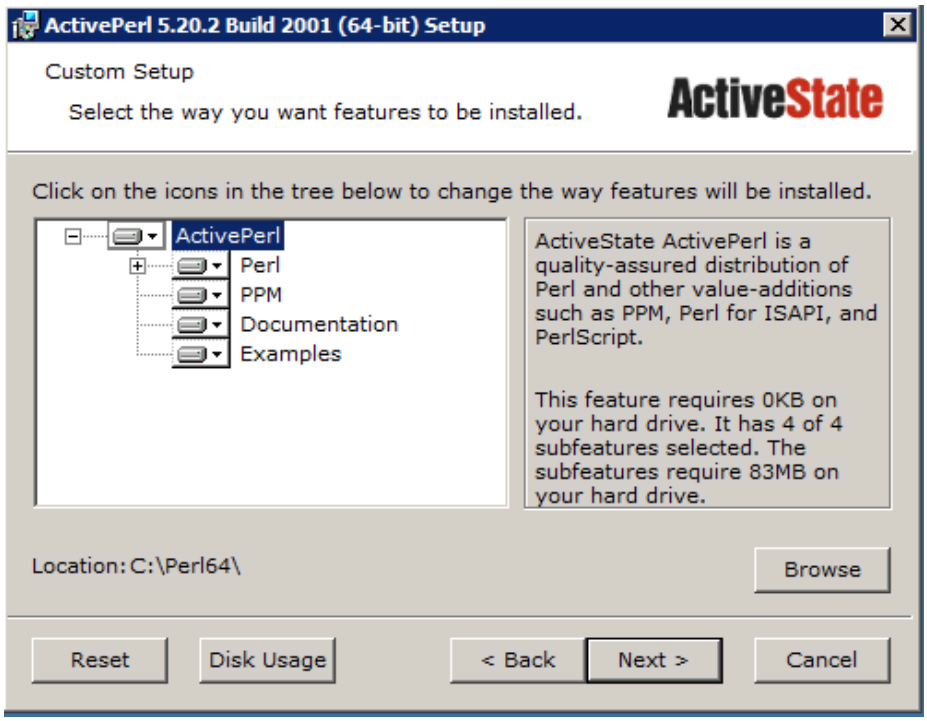
If this micro code and its corresponding lib is in place there is no need for manual lib directory updates with new microcode anymore as they get automatically downloaded from the SVP for every export tool run.

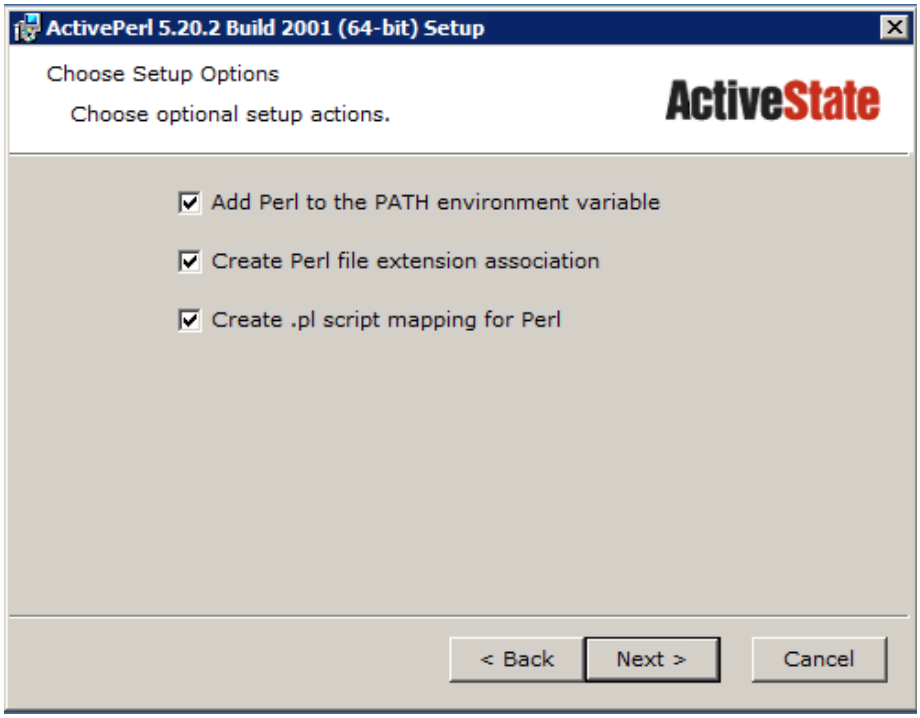
4. Copy & install latest CCI (RAID Manager) version (from WIN NT - RMHORC_X64)

   IMPORTANT:
   You have to follow steps described in chapter 3.3.2.2 "Update CCI Version on SVP" to install/upgrade CCI.

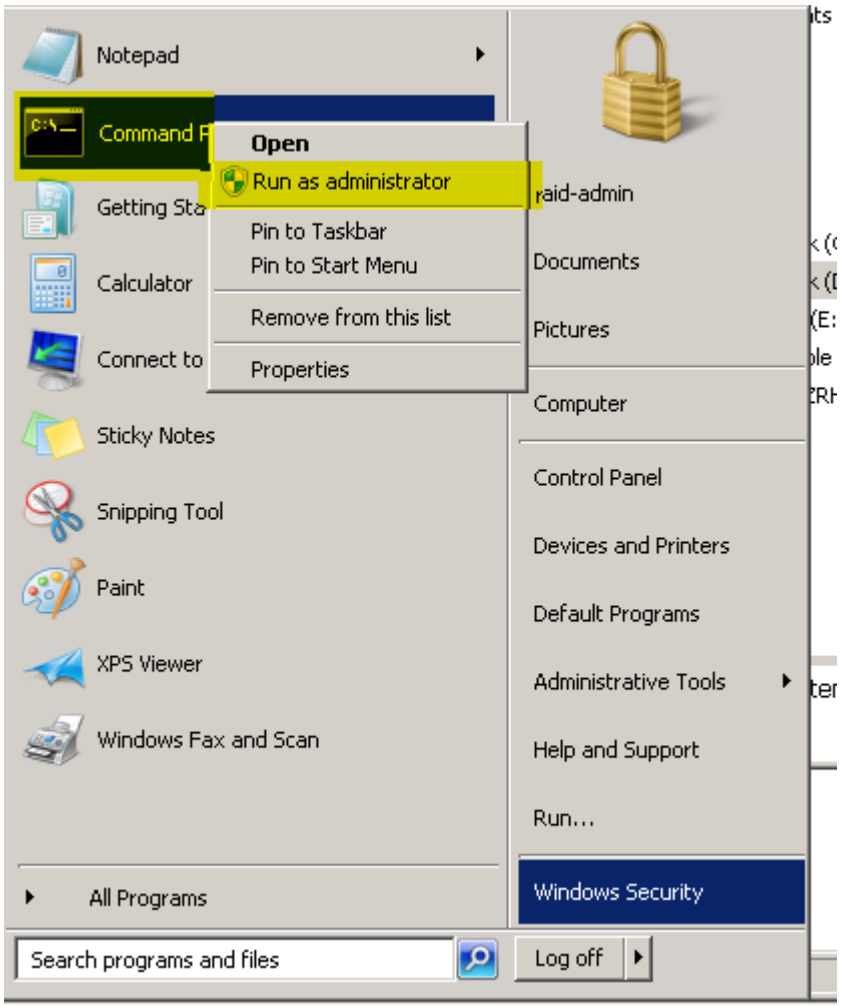
5. Copy & install latest Perl (this is needed on SVP of G800/G600/G400/G200)







6. Start command line interface **as Administrator**



7. Run Setup D:\HiCHperfpkg\bin\ppsetup.pl and enter your values.

   If the customer does not have ioportal service please chose “0” (Collect "Performance & Config Info" only).

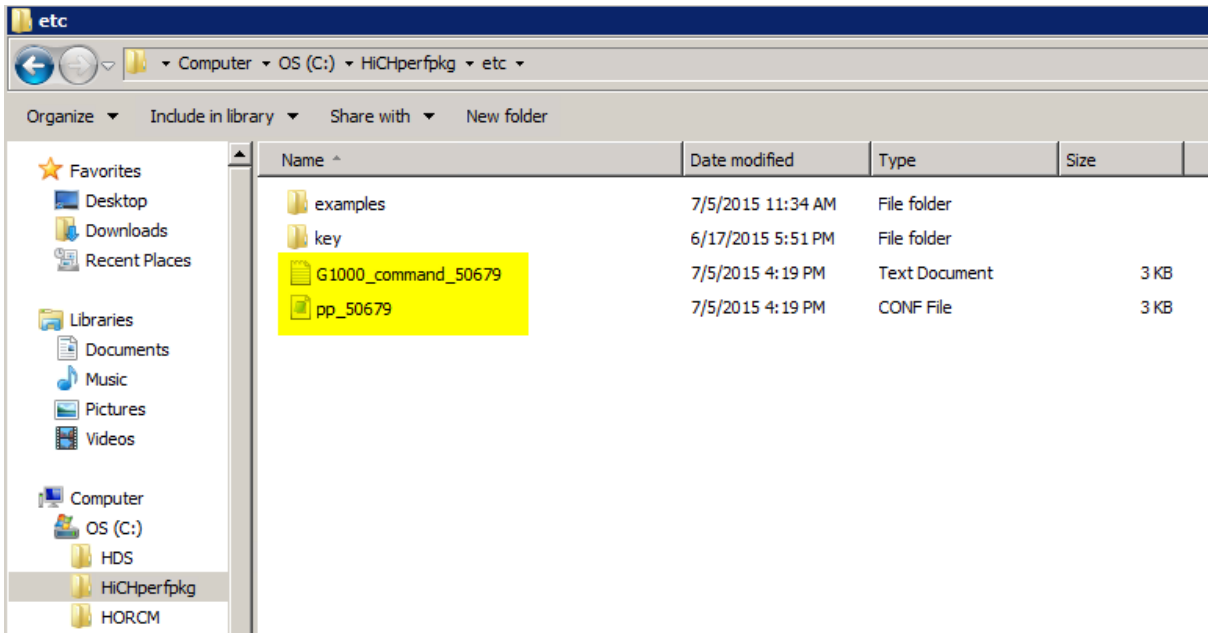
   Example, when you chose **“0”**:

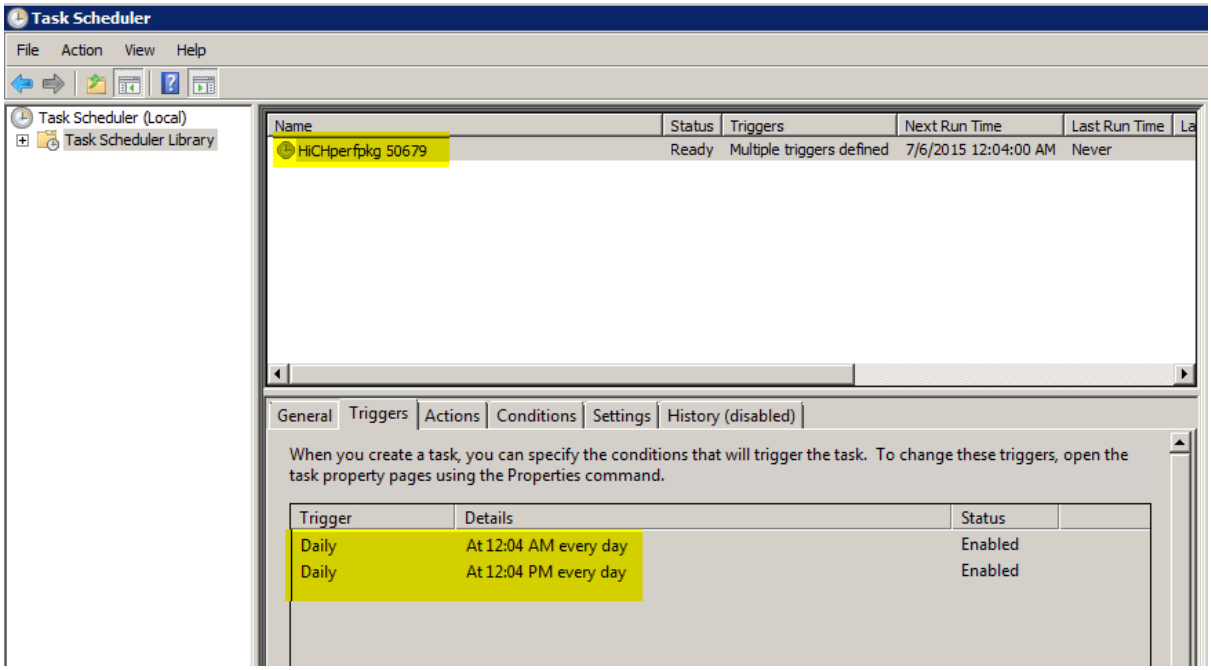
```
C:\HiCHperfpkg\bin>ppsetup.pl

## HiCHperfpkg - Performance Package Setup
   ------------------------------------------------------------------
   ------------ HiCH - Performance Collection Setup Menu -------------
   ------------------------------------------------------------------

   0) Collect "Performance & Config Info" only
   1) Collect "Performance & Config Info" & upload to hdsioportal.com
   2) Collect "VMIO Info" & upload to hdsioportal.com
  10) Update configuration files to HiCHperfpkg v8.0.x
   Choice (0/1/2/10): 0

   ------------------------------------------------------------------
   Please provide storage subsystem related information first...

   Enter storage type (G1500/G1000/G800/G600/G400/G200/VSP/HUSVM/USPV)
   Type: G1000

   Enter serial number of storage subsystem
   Serial#: 50679

   Enter IP address of storage subsystem (SVP)
   IP adress: 10.70.5.145

   Enter user name of "export tool & raidcom" that runs data collection
   User name: ioportal

   Enter password  of "export tool & raidcom" user
   Password: ioportalhds

   Enter user name of "REST API" that runs data collection
   User name: ioportalrest

   Enter password  of"REST API" user
   Password: ioportalhds

   Provided settings
   - Type:      :"G1000"
   - Serial#    :"50679"
   - SVP IP address :"10.70.5.145"
   - Export tool user name  :"ioportal"
   - Export tool password   :"ioportalhds"
   - REST API user name  :"ioportalrest"
   - REST API password   :"ioportalhds"

   Are these setting correct (y/n): y

   Checking for config file ...
   - config file: C:\HiCHperfpkg\etc\pp_50679.conf successfully created.

   Checking for command.txt file ...
   - command.txt file: C:\HiCHperfpkg\etc\G1000_command_50679.txt successfully created.

   Checking for batch file ...
   - batch file: C:\HiCHperfpkg\bin\ppwrapper_50679.bat successfully created.
   - scheduled task for C:\HiCHperfpkg\bin\ppwrapper_50679.bat successfully created.

   ------------------------------------------------------------------
   Setup successfully completed.
   Please press any key to exit ...

   Thank you, goodbye
```

Example, when you chose **"1"**:

```
D:\HiCHperfpkg\bin>ppsetup.pl

## HiCHperfpkg - Performance Package Setup
   ------------------------------------------------------------------
   ------------ HiCH - Performance Collection Setup Menu -------------
   ------------------------------------------------------------------

   0) Collect "Performance & Config Info" only
   1) Collect "Performance & Config Info" & upload to hdsioportal.com
   2) Collect "VMIO Info" & upload to hdsioportal.com
   10) Update configuration files to HiCHperfpkg v8.0.x
   Choice (0/1/2): 1

   ------------------------------------------------------------------
   Please provide storage subsystem related information first...

   Enter storage type (G1500/G1000/G800/G600/G400/G200/VSP/HUSVM/USPV)
   Type: G1000

   Enter serial number of storage subsystem
   Serial#: 50679

   Enter IP address of storage subsystem (SVP)
   IP adress: 10.70.5.145

   Enter user name of "export tool & raidcom" that runs data collection
   User name: ioportal

   Enter password  of "export tool & raidcom" user
   Password: ioportalhds

   Enter user name of "REST API" that runs data collection
   User name: ioportalrest

   Enter password  of"REST API" user
   Password: ioportalhds

   Provided settings
   - Type:      :"G1000"
   - Serial#    :"50679"
   - SVP IP address :"10.70.5.145"
   - Export tool user name  :"ioportal"
   - Export tool password   :"ioportalhds"
   - REST API user name  :"ioportalrest"
   - REST API password   :"ioportalhds"

   Are these setting correct (y/n): y

   ------------------------------------------------------------------
   Please provide upload related information ...

   Enter transfer mode (ssh/https) to hdsioportal.com
   Transfer mode: https

   Enter HTTPS token
   HTTPS token: 123BDdzrn7AGW9w3fYYYYYYYYE0Fuhcx48ty2MTg1syiNUWnre

   Do you use a HTTPS proxy (y/n): n

   Provided settings
   - Transfer mode   : "https"
   - HTTPS token   : "123BDdzrn7AGW9w3fYYYYYYYYE0Fuhcx48ty2MTg1syiNUWnre"

   Are these setting correct (y/n): y

   Checking for config file ...
   - config file: D:\HiCHperfpkg\etc\pp_50679.conf successfully created.
   - config file: D:\HiCHperfpkg\etc\pp_log.conf successfully created.

   Checking for command.txt file ...
   - command.txt file: D:\HiCHperfpkg\etc\G1000_command_50679.txt successfully created.

   Checking for batch file ...
   - batch file: D:\HiCHperfpkg\bin\ppwrapper_50679.bat successfully created.
   - scheduled task for D:\HiCHperfpkg\bin\ppwrapper_50679.bat successfully created.

   - batch file: D:\HiCHperfpkg\bin\ppwrapper_log.bat successfully created.
   - scheduled task for D:\HiCHperfpkg\bin\ppwrapper_log.bat successfully created.

   ------------------------------------------------------------------
   Setup successfully completed.
   Please press any key to exit ...

   Thank you, goodbye
```

8. Verify configuration files and scheduled tasks

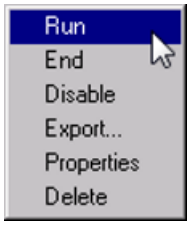




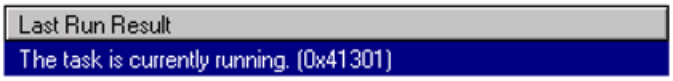
9. That's it.

2.4 Test the Installation

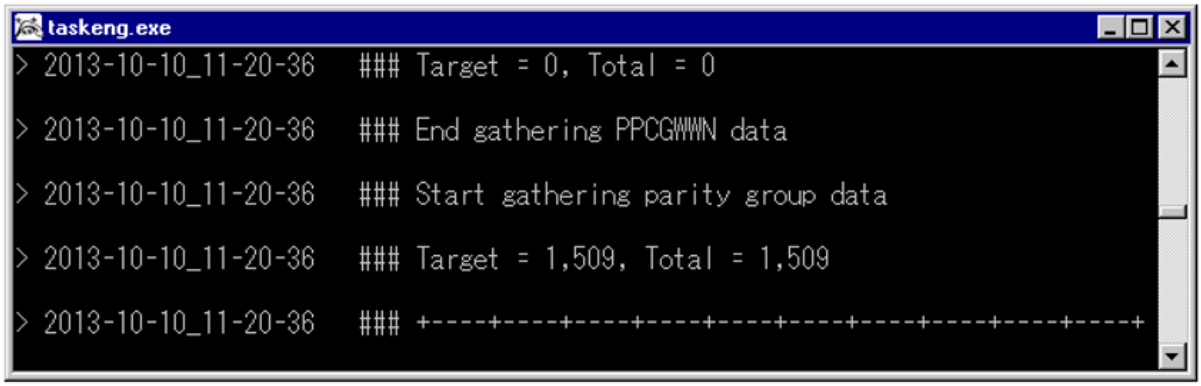
To test the installation we just have to start the scheduled task. To do so we right click on the created task and click on run:



After you started the task, the task 'Last Run Result' states 'The Task is currently running. (0x41301)':



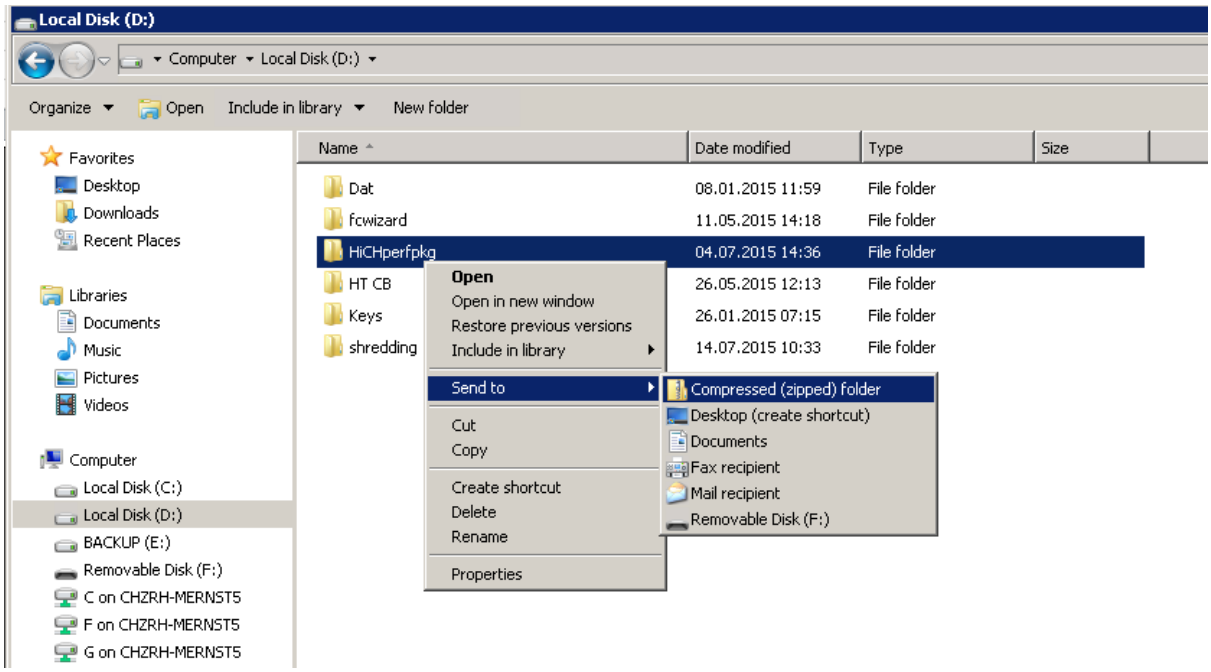
Additionally the task will show a new window called 'taskeng.exe':



If the task has finished successfully the 'Last Run Result' changes to 'The operation completed successfully. (0x0). This may take several hours to finish.

Important: All other numbers stated in the 'Last Run Result' are errors and need to be checked.

Last step is to send the first export data to the CH Performance Group to crosscheck the configuration. You can right click the folder ‘HiCHperfpkg, goto ‘Send To’ and there to ‘Compressed (zipped) Folder’ to compress the whole directory:



Mail this compressed folder to CHPerformanceGroup@hds.com

3 Additional information & configuration options

3.1 Configuration file settings (pp_<SN>.conf)

Normally the default settings when using “ppsetup” is fine. However you can change the behavior of the scripts within the config files.

File location: “..\HiCHperfpkg\etc\”.
Storage system: pp_<serial number>.conf
Logfiles: pp_log.conf (only needed when transferring data to hdsioportal.com)
VMIO: pp_vmio.conf (only needed when transferring VMWare data to hdsioportal.com)

Section	Variable	Value	Description
[main]	pp_mode	default: windows No other values supported	Defines the OS (operating system) mode. Currently only “windows” is supported Setting a value is mandatory.
	ppcollect_system	default: n/a Supported values: G1500 G1000 G800 G600 G400 G200 VSP HUSVM USPV	Defines the storage system model. Setting a value is mandatory if: - using ppcollect - using pptransfer and “pptransfer_sourcedir = defaultraid”
	ppcollect_serial	default: n/a example: 50679	Defines the storage system serial number. Setting a value is mandatory if: - using ppcollect or - using pptransfer and “pptransfer_sourcedir = defaultraid”
	ppcollect_exporttoollib	default: lib_<serial number> example: lib_50679	Defines the lib directory of the export tool files. It is looking for this directory in “..\HiCHperfpkg\lib\”. Example: D:\HiCHperfpkg\lib\lib_50679 Setting a value is mandatory if: - using ppcollect or - using pptransfer and “pptransfer_sourcedir = defaultraid”
	ppcollect_keepdays	default: 60 Supported values: 0 - n	Defines the days for how long the zip files will be kept. Setting a value is mandatory if: - using ppcollect
	ppcollect_logkeepdays	default: 60 Supported values: 0 - n	Defines the days for how long the log files will be kept. Setting a value is mandatory if: - using ppcollect
	ppcollect_memoryxmx	default: 1073741824	Defines the memory used for export tool. Setting a value is mandatory if: - using ppcollect
	ppcollect_collection	default: 7 Supported values: 1-7	Defines the collection mode. There are 7 different collection modes: 1 = export tool only 2 = raidcom only 3 = REST API only 4 = export tool + raidcom 5 = export tool + REST API 6 = raidcom + REST API 7 = export tool + raidcom + REST API Setting a value is mandatory if: - using ppcollect
	pptransfer_method	default: https Supported values: off https ssh	Defines the method how to transfer the data to hdsioportal.com (or defined target value). https: using https as transfer method (https token key required – see below) ssh: using ssh as transfer method (ssh private key required – see below) off: turning transfer off The preferred method is “https”. Setting a value is mandatory if: - using pptransfer

	pptransfer_sourcedir	default: n/a Supported values: defaultraid defaultlog defaultvmio d:\path\to\dir	Defines the directory which contains the data that should be transferred to hdsioportal.com (or defined target value). defaultraid: should be used per default for all storage systems. The installer ppsetup is also using it. defaultlog: should be used per default for transferring the logs. Defaultvmio: should be used per default for transferring the vmio data. Beside of the defaults, any path can be used as value. Setting a value is mandatory if: - using pptransfer
	pptransfer_logkeepdays	default: 60 Supported values: 0 - n	Defines the days for how long the log files will be kept. Setting a value is mandatory if: - using pptransfer

Section	Variable	Value	Description
[raidcom]	ppcollect_ccicollectionl evel	default: 0 Supported values: 0 1 2	Defines how many raidcom data get collected 0: full (partial + SI, TC, HUR per port) 1: partial (minimum + host group) 2: minimum (resource, pool, snapshot, ldev, port, parity group) Setting a value is mandatory if: - using ppcollect
	ppcollect_commanddevice	default: IP Supported values: IP FC	Defines the command device type IP or FC (fibre channel) in the horcm file. Note: When using “FC” you must map command devices Setting a value is mandatory if: - using ppcollect
	ppcollect_ccidir	default: C:\HORCM Supported values: d:\path\to\dir	Defines the CCI / HORCM directory. Setting a value is mandatory if: - using ppcollect
	ppcollect_horcmdirprefix	default: horcmdir	Defines the prefix of the raidcom collection directory. Setting a value is mandatory if: - using ppcollect

Section	Variable	Value	Description
[restapi]	ppcollect_restapiusr	default: n/a example: ioportalrest	Defines the user for REST API requests. Important: It must be a different user than export tool / raidcom user (from command txt) Setting a value is mandatory if: - using ppcollect
	ppcollect_restapicryptpw d	default: n/a example: 6tFxTguSNsDlr4Ve3_G i3KMwFdz4ee3	Defines the password of REST API user for REST API requests. Important: The password must be encrypted, otherwise it will fail. Please see chapter 3.4 “Update REST API password” for details. Setting a value is mandatory if: - using ppcollect
	ppcollect_restapicollect ionlevel	default: 0 Supported values: 0 1 2	Defines how many REST API data get collected (no difference yet implemented) 0: full (all) 1: partial (all) 2: minimum (all) Setting a value is mandatory if: - using ppcollect
	ppcollect_restapidirpref ix	default: rest	Defines the prefix of the REST API collection directory. Setting a value is mandatory if: - using ppcollect
	ppcollect_restapiprotoco l	default: https Supported values: http https	Defines REST API protocol. Setting a value is mandatory if: - using ppcollect

Section	Variable	Value	Description
[ssh]	pptransfer_username	default: n/a example: companyname	Defines the ssh user name for the data transfer to hdsioportal.com You get this user name from CHPerformanceGroup@hds.com for hdsioportal.com Setting a value is mandatory if: - using pptransfer and "pptransfer_method = ssh"
	pptransfer_keyfile	default: n/a example: id_dsa.customer.ppk	Defines the ssh private key file for the data transfer to hdsioportal.com. The public key is stored on the portal. You can either create the public and private yourself (see section "SSH key") and provide the public key as described to CHPerformanceGroup@hds.com or you can request a private key from CHPerformanceGroup@hds.com (less secure). Setting a value is mandatory if: - using pptransfer and "pptransfer_method = ssh"
	pptransfer_remotehost	default: ftp.hdsioportal.com	Defines the remote ssh server for the data transfer. Setting a value is mandatory if: - using pptransfer and "pptransfer_method = ssh"
	pptransfer_remotedir	default: incoming	Defines the remote ssh server directory for the data transfer. Setting a value is mandatory if: - using pptransfer and "pptransfer_method = ssh"
	pptransfer_pscppath	default: putty\pscp.exe	Defines the path to putty's pscp.exe. Setting a value is mandatory if: - using pptransfer and "pptransfer_method = ssh"
	pptransfer_plinkpath	default: putty\plink.exe	Defines the path to putty's plink.exe. Setting a value is mandatory if: - using pptransfer and "pptransfer_method = ssh"

Section	Variable	Value	Description
[https]	pptransfer_token	default: n/a example: 123BDdzrn7AGW9w3fYYYYY YYYE0Fuhcx48ty2MTg1syi NUWnre	Defines the https token for the data transfer to hdsioportal.com You get this https token from CHPerformanceGroup@hds.com for hdsioportal.com Setting a value is mandatory if: - using pptransfer and "pptransfer_method = https"
	pptransfer_proxyserver	default: n/a example: proxy.company.com	Defines a proxy server for the data transfer to hdsioportal.com This is optional and only needed if the customer uses a proxy server.
	pptransfer_proxyprotocol	default: n/a example: https	Defines a proxy server for the data transfer to hdsioportal.com This is optional and only needed if the customer uses a special proxy server protocol.
	pptransfer_proxyport	default: n/a example: 8443	Defines a proxy server for the data transfer to hdsioportal.com This is optional and only needed if the customer uses a special proxy server port.
	pptransfer_proxyuser	default: n/a example: myuser	Defines a proxy server for the data transfer to hdsioportal.com This is optional and only needed if the customer uses proxy server authentication.
	pptransfer_proxypwd	default: n/a example: mypassword	Defines a proxy server for the data transfer to hdsioportal.com This is optional and only needed if the customer uses proxy server authentication.
	pptransfer_proxyoptions	default: n/a example: --proxy-ntlm	Defines curl / proxy options for the data transfer to hdsioportal.com This is optional and only needed if the customer requires any special proxy/curl options.
	pptransfer_remoteserver	default: www.hdsioportal.com	Defines the remote https upload server for the data transfer. Setting a value is mandatory if: - using pptransfer and "pptransfer_method = https"
	pptransfer_remotepath	default: file_upload/store_file	Defines the remote https upload server directory for the data transfer. Setting a value is mandatory if: - using pptransfer and "pptransfer_method = https"
	pptransfer_curlpath	default: curl\curl.exe	Defines the path to curl.exe. Setting a value is mandatory if: - using pptransfer and "pptransfer_method = https"

Section	Variable	Value	Description
[monitor]	ppmonitor_switch	default: off Supported values: on off test	Defines if monitoring is enabled or not. on: enable monitoring off: disable monitoring test: test monitoring (sending test email) Note: Setting this value to "on" or "test" is not enough to enable monitoring. You must additionally configure the corresponding bat file (see section "Monitoring") Setting a value is mandatory if: - using ppmonitor
	ppmonitor_mailrelay	default: mail.company.com example: mail.company.com	Defines the mail relay (smtp server). Setting a value is mandatory if: - using ppmonitor
	ppmonitor_emailrecipient	default: recipient@company.com example: recipient@company.com	Defines the email recipient(s). More than 1 recipient must be coma separated. Example: Recipient1@company.com,recipient2@company.com Setting a value is mandatory if: - using ppmonitor
	ppmonitor_emailsender	default: sender@company.com example: sender@company.com	Defines the email sender (email "from" field). Setting a value is mandatory if: - using ppmonitor
	ppmonitor_runsperday	default: 2 Supported values: 0 - n	Defines the collection runs per day. It checks if this amount of log files. If there are more or less an email will be sent. Setting a value is mandatory if: - using ppmonitor
	ppmonitor_logkeepdays	default: 60 Supported values: 0 - n	Defines the days for how long the log files will be kept. Setting a value is mandatory if: - using ppmonitor
	ppmonitor_transfercheck	default: on Supported values: on off	Defines if the successful transfer should be checked or not. Use it only in combination with hdsioportal service. Setting a value is mandatory if: - using ppmonitor

Section	Variable	Value	Description
[zip]	ppcollect_zipmethod	default: zip Supported values: zip tgz	Defines the compressing method. Either zip (with 7zip) or tgz (tar.gz) is used. Setting a value is mandatory if: - using ppcollect
	ppcollect_zippath	default: 7-ZipPortable\7-Zip\7z.exe	Defines the path to the zip tool. Setting a value is mandatory if: - using ppcollect
	ppcollect_archivedir	default: saves	Defines the prefix of the archiving directory. Setting a value is mandatory if: - using ppcollect

Section	Variable	Value	Description
[java]	ppcollect_javaexecutable	default: java	Defines the java executable. You should add the java directory to the default path. Setting a value is mandatory if: - using ppcollect

Section	Variable	Value	Description
[log]	ppcollect_exporttoollogprefix	default: log	Defines the prefix of the export tool log file. Setting a value is mandatory if: - using ppcollect
	ppcollect_loglevel	default: normal Supported values: normal debug	Defines the log level of ppcollect. Setting a value is mandatory if: - using ppcollect
	pptransfer_loglevel	default: normal Supported values: normal debug	Defines the log level of pptransfer. Setting a value is mandatory if: - using pptransfer
	ppmonitor_loglevel	default: normal Supported values: normal debug	Defines the log level of ppmonitor. Setting a value is mandatory if: - using ppmonitor

Section	Variable	Value	Description
[features]	pptransfer_maxentries	default: 1000	Defines the maximum entries (transferred files) in the spooling list file (pptransfer_spoolinglistfile). Setting a value is mandatory if: - using pptransfer
	#pptransfer_deletefiles	(normally commented out) default: 0 Supported values: 0 - n	Delete files old than x days. Normally ppcollect and the variable "ppcollect_keepdays" is taking care of deleting old data. However sometimes ppcollect runs on a different server than pptransfer. Then pptransfer can take care of deleting the source file with this variable. 0 = nothing gets deleted 1 - n = delete files old than x days Example value: 7 = delete all files older than 7 days in the source folder This is optional and should be used with care. Therefore it commented out per default.

Section	Variable	Value	Description
[spooling]	pptransfer_spoolingprefix	default: spooling	Defines the prefix of the spooling directory. Setting a value is mandatory if: - using pptransfer
	pptransfer_spoolinglistfile	default: spooling_list.txt	Defines the spooling list file which keeps track of transferred files. It contains the file names of transferred files. Setting a value is mandatory if: - using pptransfer
	pptransfer_spoolingsuffix	default: tgz,zip,log	Defines the suffixes of files which will be transferred from source directory (defined in variable pptransfer_sourcedir). The suffixes must be coma separated. Setting a value is mandatory if: - using pptransfer

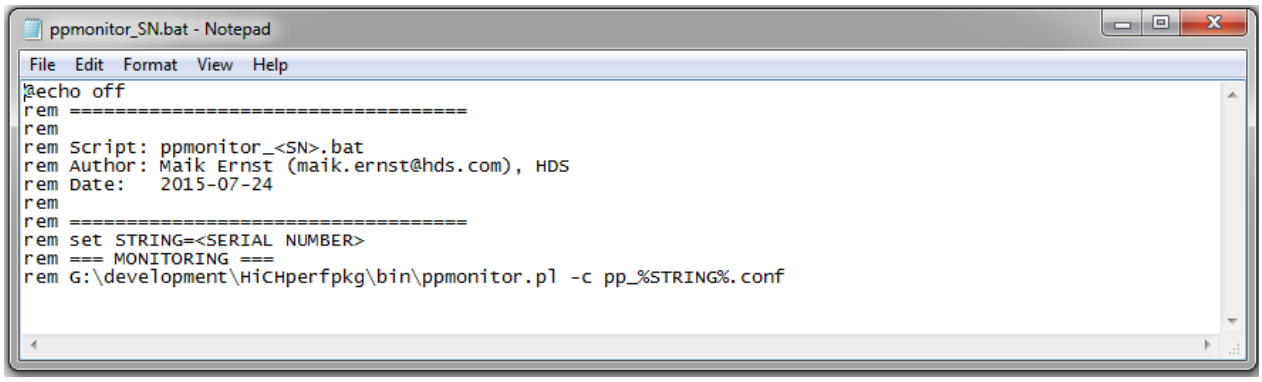
Section	Variable	Value	Description
[maindir]	pp_bin	default: bin	Defines the path of the bin directory. Example: “..\HiCHperfpkg\<defined valued>\”. Setting a value is mandatory. You should actually never change this.
	pp_data	default: data	Defines the path of the data directory. Example: “..\HiCHperfpkg\<defined valued>\”. Setting a value is mandatory. You should actually never change this.
	pp_etc	default: etc	Defines the path of the etc directory. Example: “..\HiCHperfpkg\<defined valued>\”. Setting a value is mandatory. You should actually never change this.
	pp_doc	default: doc	Defines the path of the doc directory. Example: “..\HiCHperfpkg\<defined valued>\”. Setting a value is mandatory. You should actually never change this.
	pp_lib	default: lib	Defines the path of the lib directory. Example: “..\HiCHperfpkg\<defined valued>\”. Setting a value is mandatory. You should actually never change this.
	pp_log	default: log	Defines the path of the log directory. Example: “..\HiCHperfpkg\<defined valued>\”. Setting a value is mandatory. You should actually never change this.
	pp_spool	default: spool	Defines the path of the spool directory. Example: “..\HiCHperfpkg\<defined valued>\”. Setting a value is mandatory. You should actually never change this.

3.2 Monitoring (ppmonitor) - optional

The ppmonitor script is part of the HiCHperfpkg. It is responsible to check if the ppcollect script collected the performance data accordingly and optionally pptransfer transferred the data. Afterwards it sends an email if there was an issue. It is optional to configure ppmonitor.

Copy file HiCHperfpkg\bin\examples\ppmonitor_SN.bat to HiCHperfpkg\bin\ppmonitor_SN.bat.
Rename the file according to the serial number.
Orignal file name: ppmonitor_SN.bat
New file name: ppmonitor _<serial number>.bat
Example: ppmonitor _50679.bat

Open the file.



<u>Delete "rem" at the beginning of the following lines</u> and change the parameters accordingly to your environment.

- Serial number

Line:
```
rem set STRING=<SERIAL NUMBER>
```
to
```
set STRING=<SERIAL NUMBER>
```

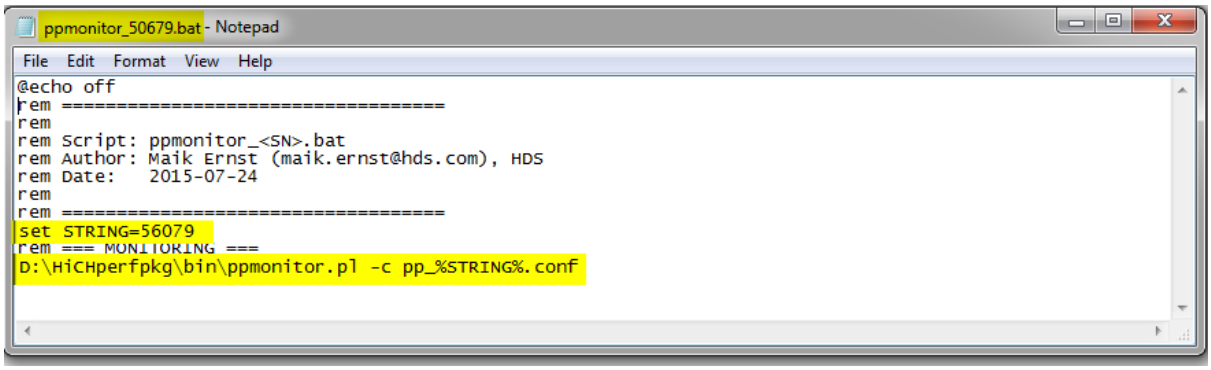
Set the STRING variable to the serial number of the system you would like to monitor.
Example:
```
set STRING=50679
```

- Script path

Line:
```
rem G:\development\HiCHperfpkg\bin\ppmonitor.pl -c pp_%STRING%.conf
```
to
```
G:\development\HiCHperfpkg\bin\ppmonitor.pl -c pp_%STRING%.conf
```

Set correct script path.

Example how it should look like:



- **Scheduled task**

  Please create a separate scheduled task which starts **after** all collections for that day of the defined serial number has been finished! Otherwise you will get false errors messages via email.

  Example with 2 runs a day:
  "VSP SN 54069 collect/transfer" starts daily at 00:05am and finishes at 03:30am
  "VSP SN 54069 collect/transfer" starts daily at 12:05pm and finishes at 3:30pm
  Then the task…
  "VSP SN 54069 monitor" should start daily not before 4:30pm (1 hour buffer to 3:30pm)

  It is recommended to start it at 10pm to have enough hours as buffer between the last collect finished and monitoring starts.

3.3 Update HiCHperfpkg

3.3.1 Updating versions below 7.0

Do a complete new installation and afterwards:

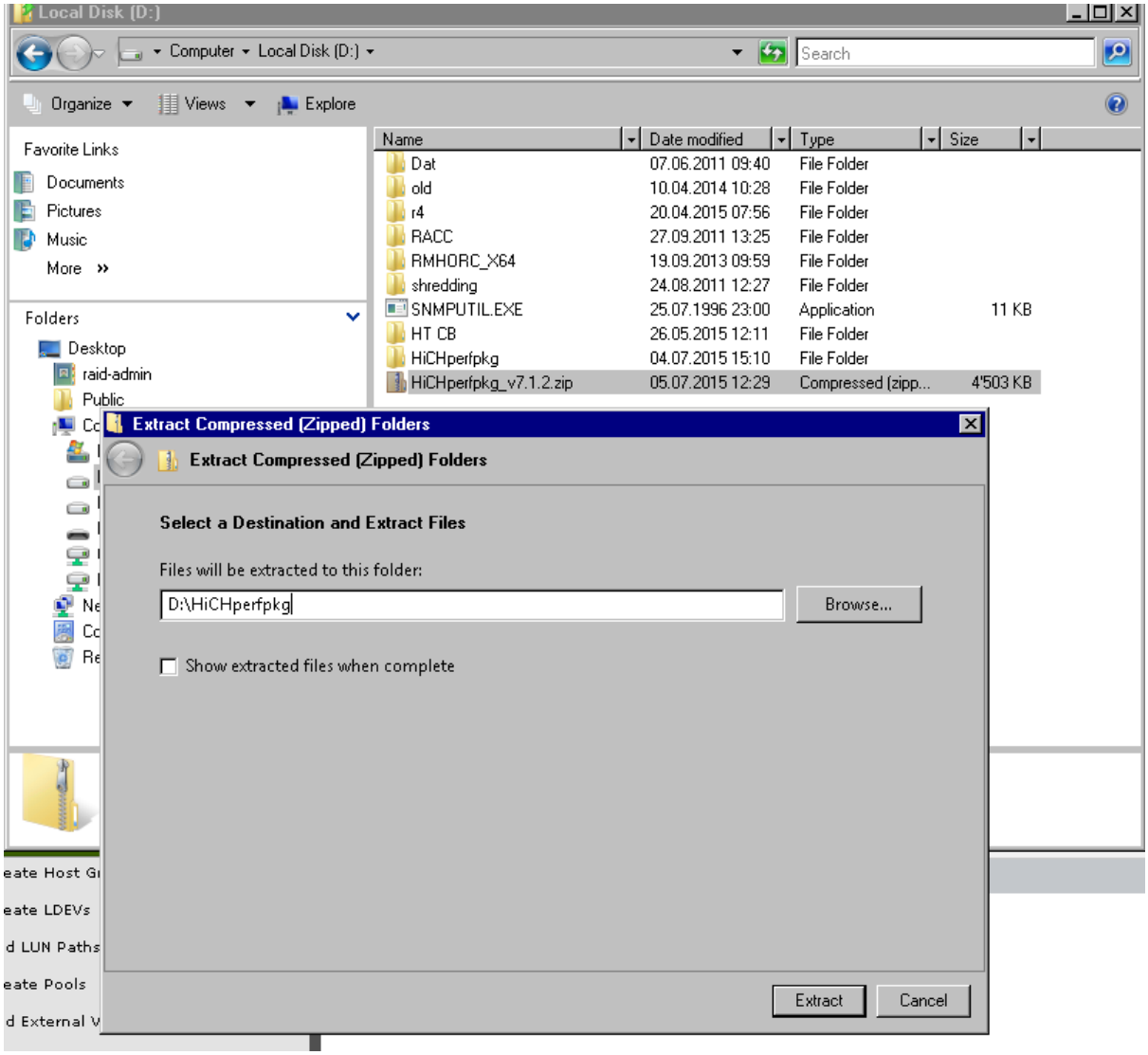
- Delete existing tasks in task scheduler
- Keep data for 30 days
- After 30 days delete all folders

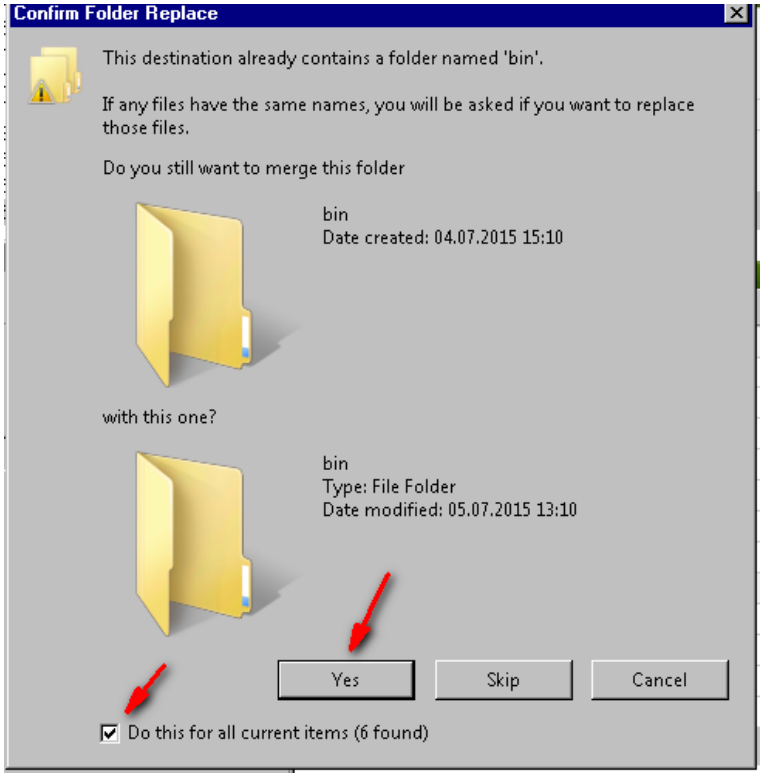
3.3.2 Updating versions 7.0 and higher

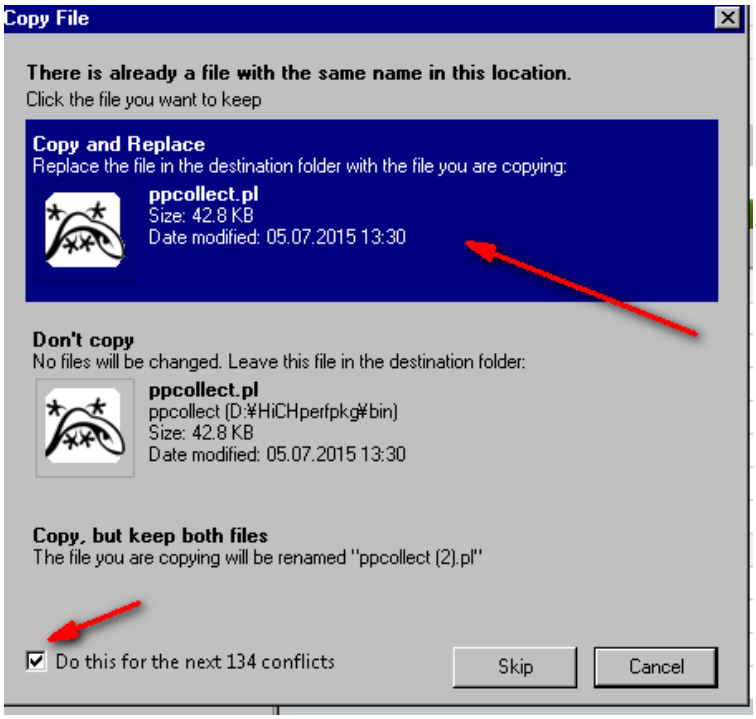
3.3.2.1 HiCHperfpkg

1. Copy and overwrite files

If there is a new version of HiCHperfpkg available you can normally update the software by replacing the following files with the newer ones.





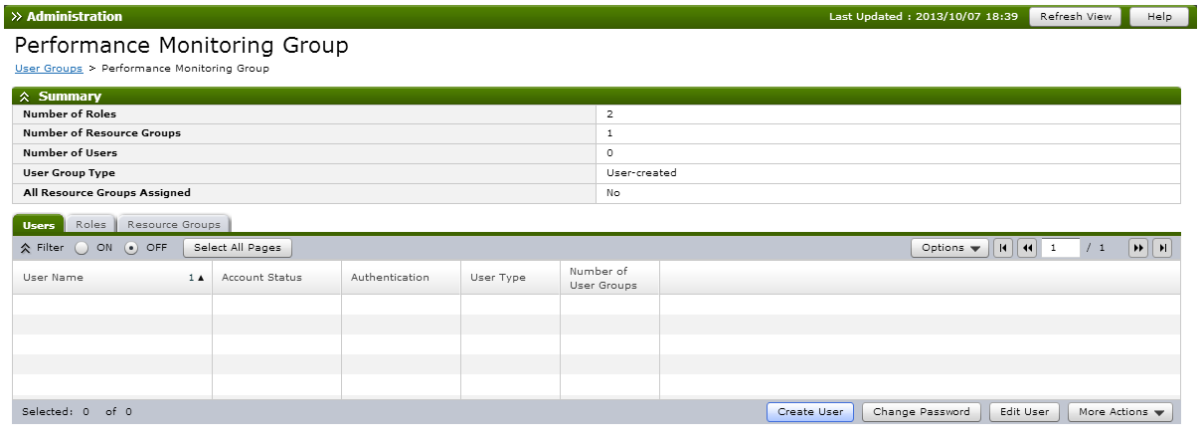


That means you can keep you configurations files and scheduled tasks as they are.

NOTE: This is possible from Version 7.0 and higher.

2. Create new user for REST API collection
   (required when updating from version 7.x.x to 8.x.x)

Select the existing performance monitoring group and click on ‘Create User’:

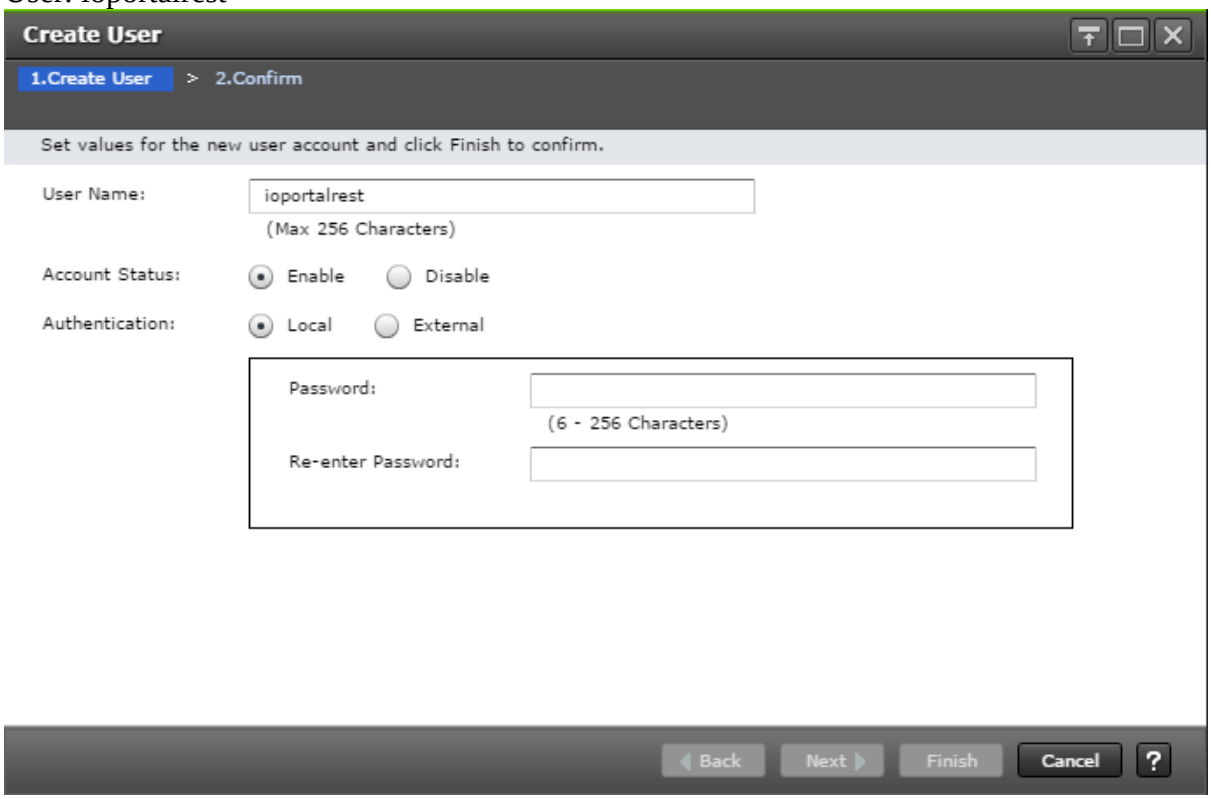


A new wizard for the creation of the user starts.

Choose a username e.g. “ioportalrest”.

The password is created like ‘ioportal%companyname%’ e.g. for HDS it is ‘ioportalhds’. There must be at least 6 characters (A-Z,a-z,0-9,-,_)for the password. Make sure that the authentication is set to local. To create the user click on ‘Finish’:

User: ioportalrest



Important: The password should be in lower case.

3. Run ppsetup.pl

Run setup D:\HiCHperfpkg\bin\ppsetup.pl.

Please chose “10” (Update configuration files to HiCHperfpkg). This will update the configuration files with the latest parameters if required.

```
D:\HiCHperfpkg\bin>ppsetup.pl

## HiCHperfpkg - Performance Package Setup
   ----------------------------------------------------------------
   ------------ HiCH - Performance Collection Setup Menu -------------
   ----------------------------------------------------------------

   0) Collect "Performance & Config Info" only
   1) Collect "Performance & Config Info" & upload to hdsioportal.com
   2) Collect "VMIO Info" & upload to hdsioportal.com
  10) Update configuration files to HiCHperfpkg v8.0.x
   Choice (0/1/2/10): 10

   ----------------------------------------------------------------
   Starting the upgrade procedure conf file...

   - Config file found: D:\HiCHperfpkg\etc\pp_54068.conf
     Add line: # 1=export tool only, 2=raidcom only, 3=REST API only,
     Add line: # 4=export tool + raidcom, 5=export tool + REST API,
     Add line: # 6=raidcom + REST API, 7=export tool + raidcom + REST API
     Add line: ppcollect_collection = 7

     IMPORTANT IMPORTANT IMPORTANT
     Create a NEW USER for REST API collection in the same user group as for export tool &
     raidcom collection.
     Using the same user for raidcom and REST API will cause errors. Details see install
     manual (chapter 3.3.2.1).

     Enter user name of "REST API" that runs data collection
     User name: ioportalrest

     Enter password  of"REST API" user
     Password: ioportalhds

     Provided settings
     - REST API user name  :"ioportalrest"
     - REST API password   :"ioportalhds"

     Are these setting correct (y/n): y
     Add line: [restapi]
     Add line: ppcollect_restapiusr = ioportalrest
     Add line: # The password must be encrypted. Details see manual.
     Add line: ppcollect_restapicryptpwd = 6tFxTguSNsDlr4Ve3_Gi3KMwFdz4ee3
     Add line: # 0=full, 1=partial ,2=minimum
     Add line: ppcollect_restapicollectionlevel = 0
     Add line: ppcollect_restapidirprefix = rest
     Add line: # http, https
     Add line: ppcollect_restapiprotocol = https
     Delete line: # on, off, raidcomonly
     Delete line: ppcollect_ccicollection = on
     Change line: # [G1000/G800/G600/G400/G200/VSP/HUSVM/USPV]
     To line: # [G1500/G1000/G800/G600/G400/G200/VSP/HUSVM/USPV]
     Change line: pptransfer_maxentries = 360
     To line: pptransfer_maxentries = 1000
     Deleting D:\HiCHperfpkg\etc\pp_54068.conf
     Deleted D:\HiCHperfpkg\etc\pp_54068.conf
     Recreate D:\HiCHperfpkg\etc\pp_54068.conf
     Recreation D:\HiCHperfpkg\etc\pp_54068.conf finished

   - Config file found: D:\HiCHperfpkg\etc\pp_log.conf
     Already up to date. Nothing to do.

   ----------------------------------------------------------------
   Starting the upgrade procedure command txt...

   - Config file found: D:\HiCHperfpkg\etc\G1000_command_54068.txt
     Already up to date. Nothing to do.

   ----------------------------------------------------------------
   Setup successfully completed.
   Please press any key to exit ...
```

NOTE: This is possible from Version 7.3 and higher.

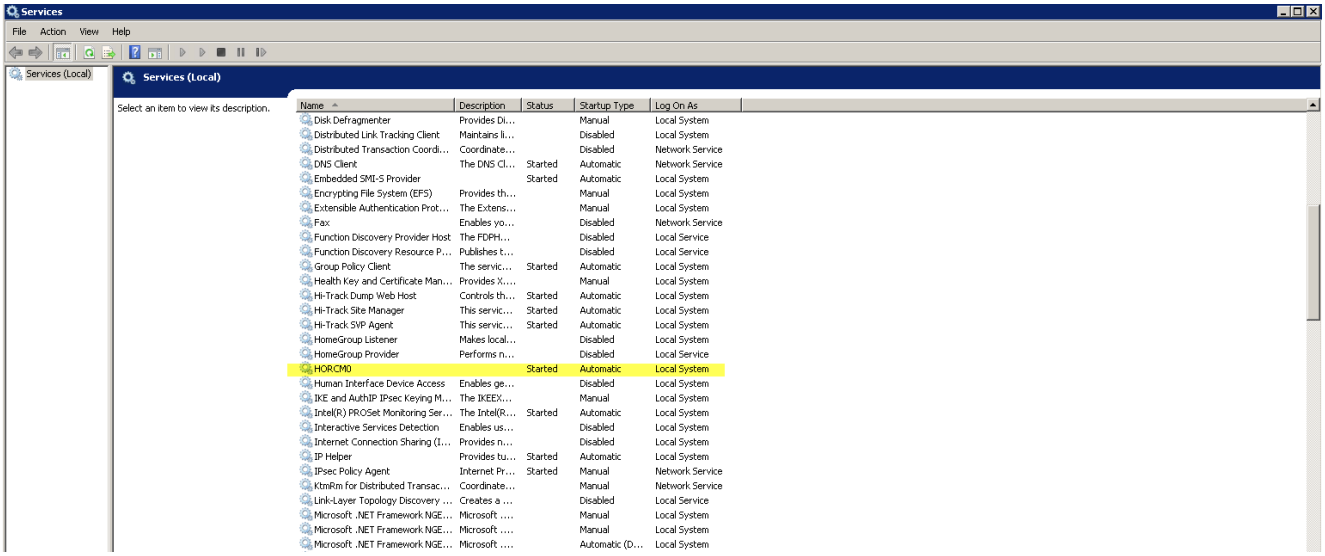
Please also check the “Trouble shooting” section and chapter “User rights of directories” when you are copying directories!

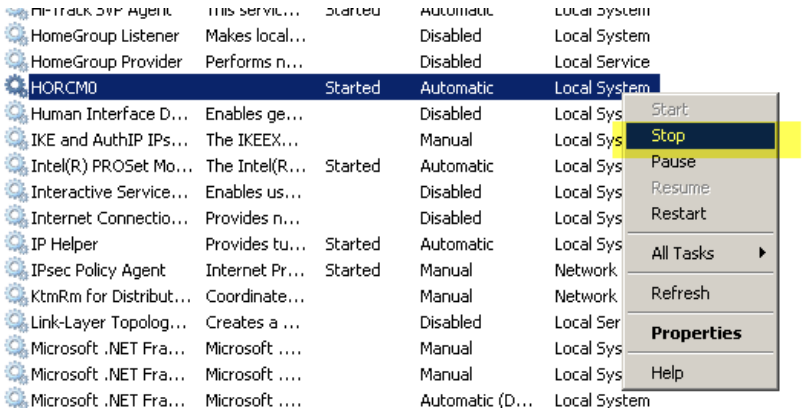
4. Finished

3.3.2.2 Update CCI Version on SVP

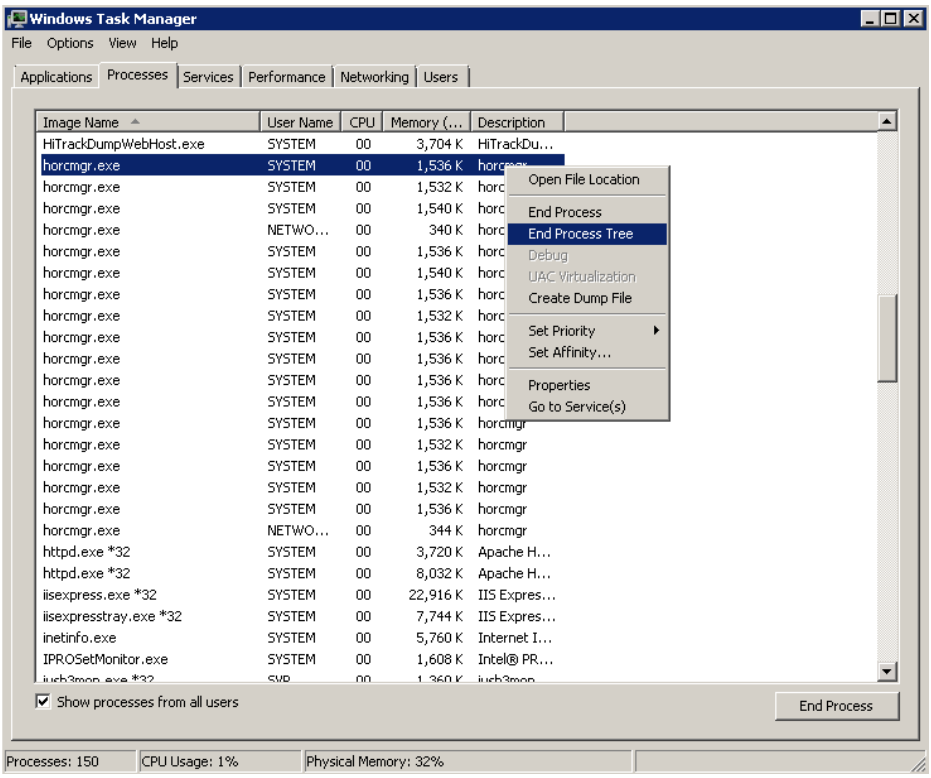
It is a very important step to upgrade CCI (RAID manager) on the SVP regularly. The best case would be when you do it after every microcode update. It is absolutely necessary to upgrade CCI when upgrading the HiCHperfpkg.

- G1500 / G1000 / VSP / HUSVM CCI upgrade
    - Download latest CCI software and copy to SVP
    - Stop HORCM0 service in "Services"
      This is a very important step as it stops the horcmgr.exe for the virtual CMD. If you don't stop it various CCI files will not get upgraded which causes raidcom errors.

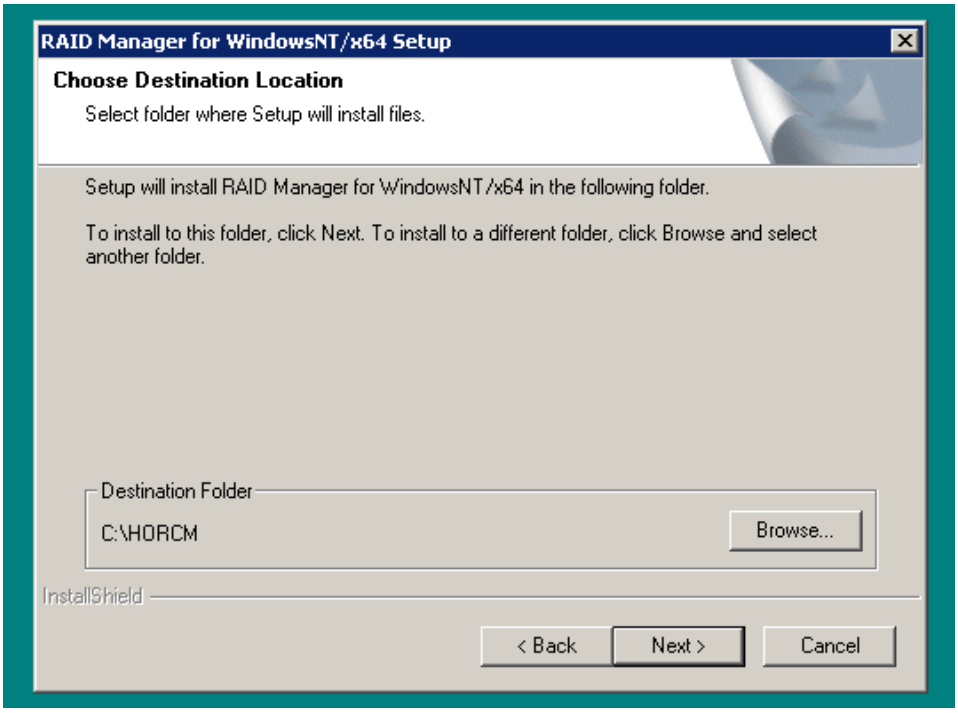




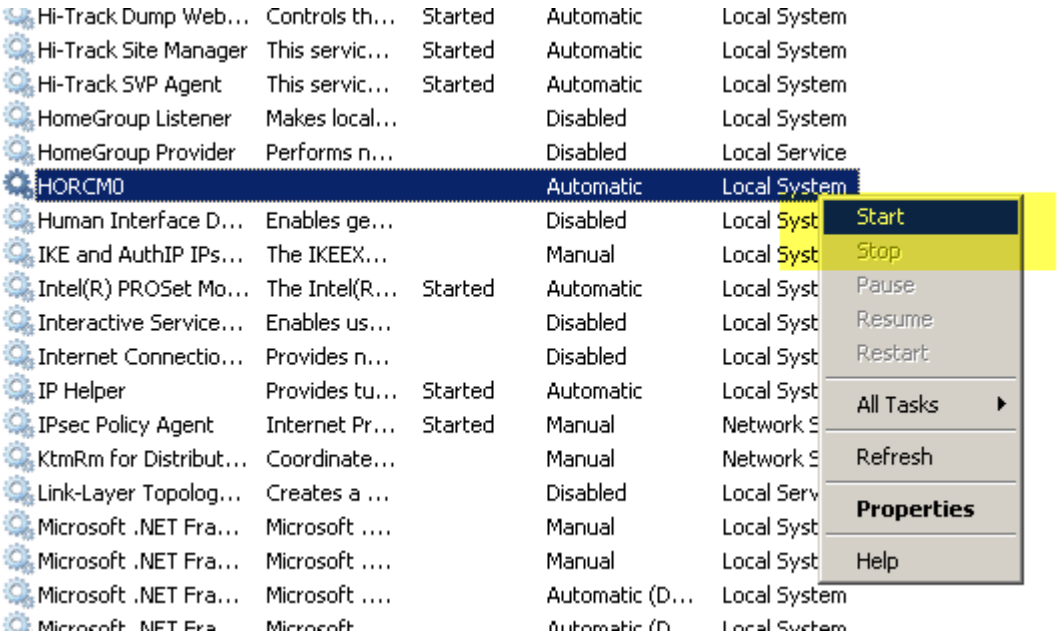
- Make sure no horcmgr.exe is running anymore and if so kill them in the Windows Task Manager with “End Process Tree”



- Install CCI Software to default directory



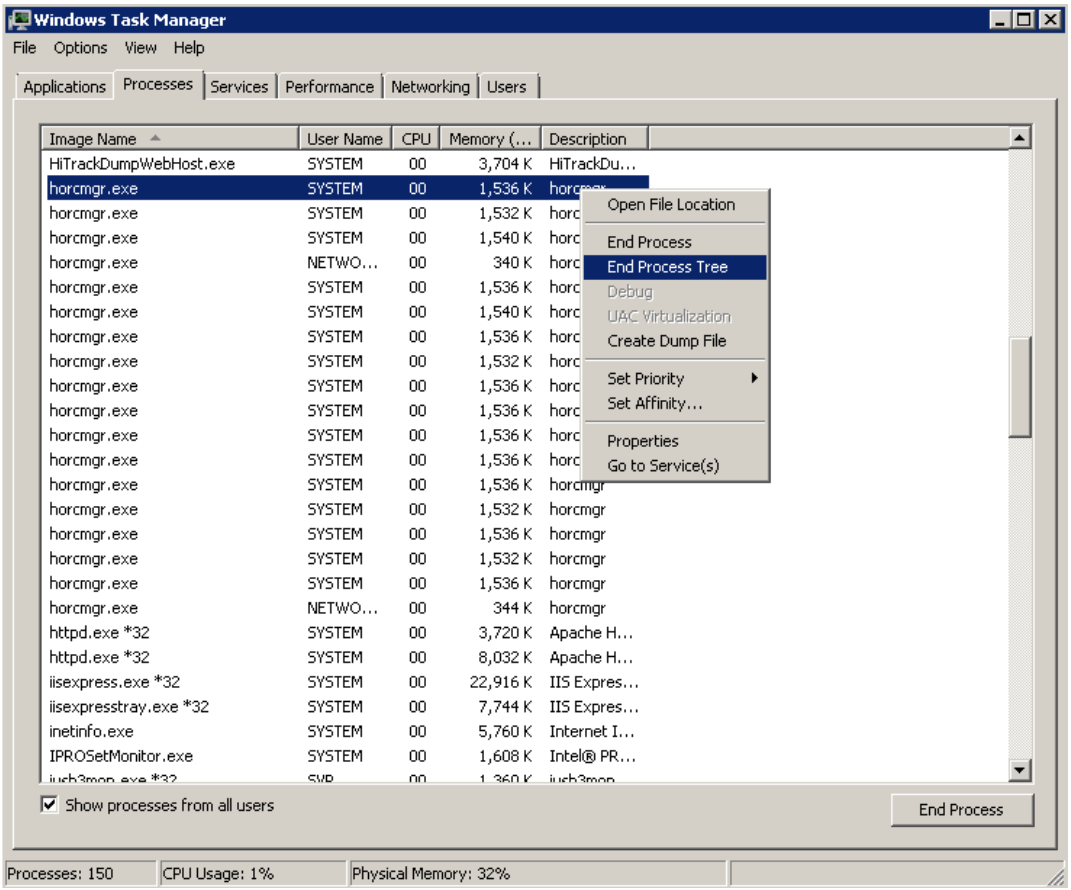
- Start HORCM0 service in “Services”



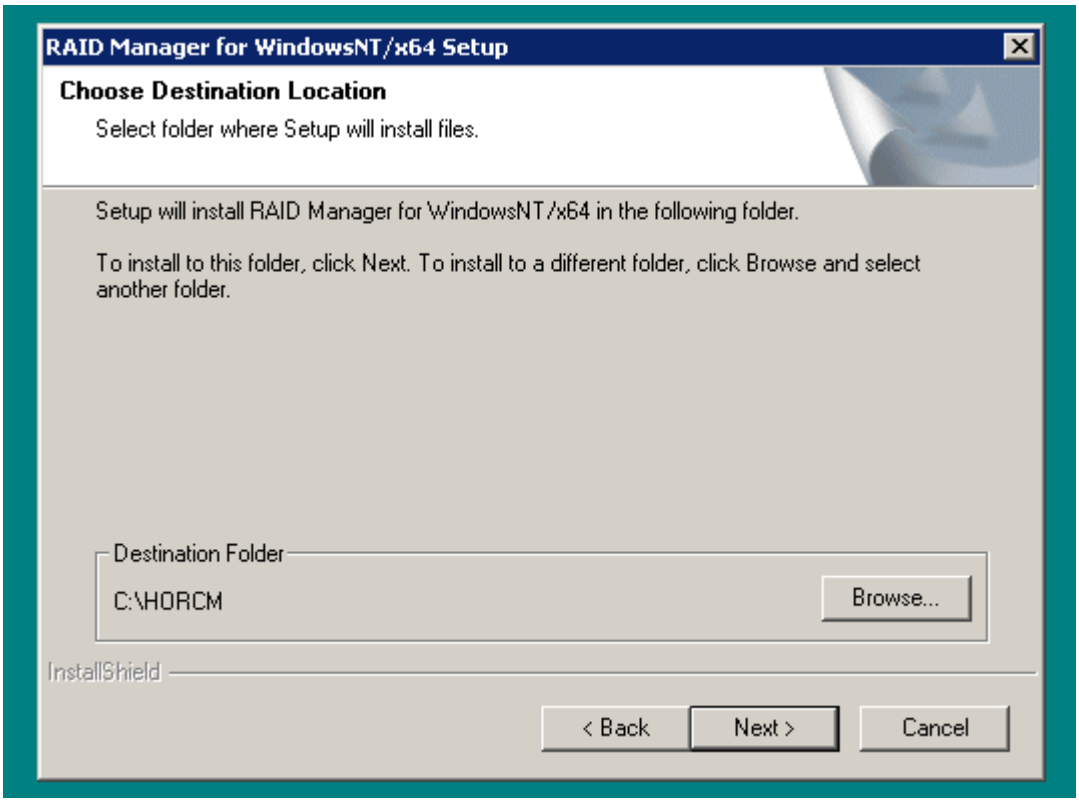
- Reboot SVP
- Finished

- G800 / G600 / G400 / G200 CCI upgrade

  - Download latest CCI software and copy to SVP
  - Make sure no horcmgr.exe is running anymore and if so kill them in the Windows Task Manager with “End Process Tree”



- Install CCI Software to default directory



- Reboot SVP
- Finished

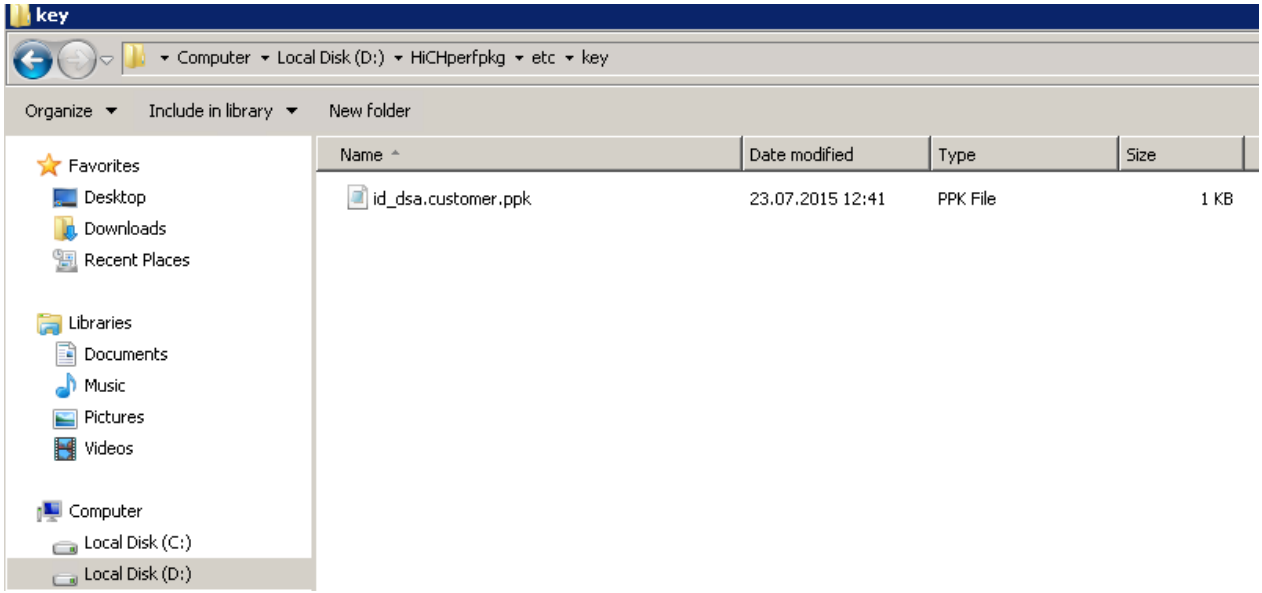
3.4 Update REST API password

If you would like to update your REST API password in the configuration file (pp_<serial>.conf) you have to run the following script to get the encrypted password.

```
D:\HiCHperfpkg\lib\modules>c.pl -e <your password>
ENCODED: 6tFxTguSNsDlr4Ve3_Gi3KMwFdz4ee3
G:\development\HiCHperfpkg\lib\modules>


Add it to pp_<serial>.conf
ppcollect_restapicryptpwd = 6tFxTguSNsDlr4Ve3_Gi3KMwFdz4ee3
```

3.5 SSH key

Copy the private key into ‘<drive>:\<path>\ HiCHperfpkg\etc\key’. The directory should look like this after this step:



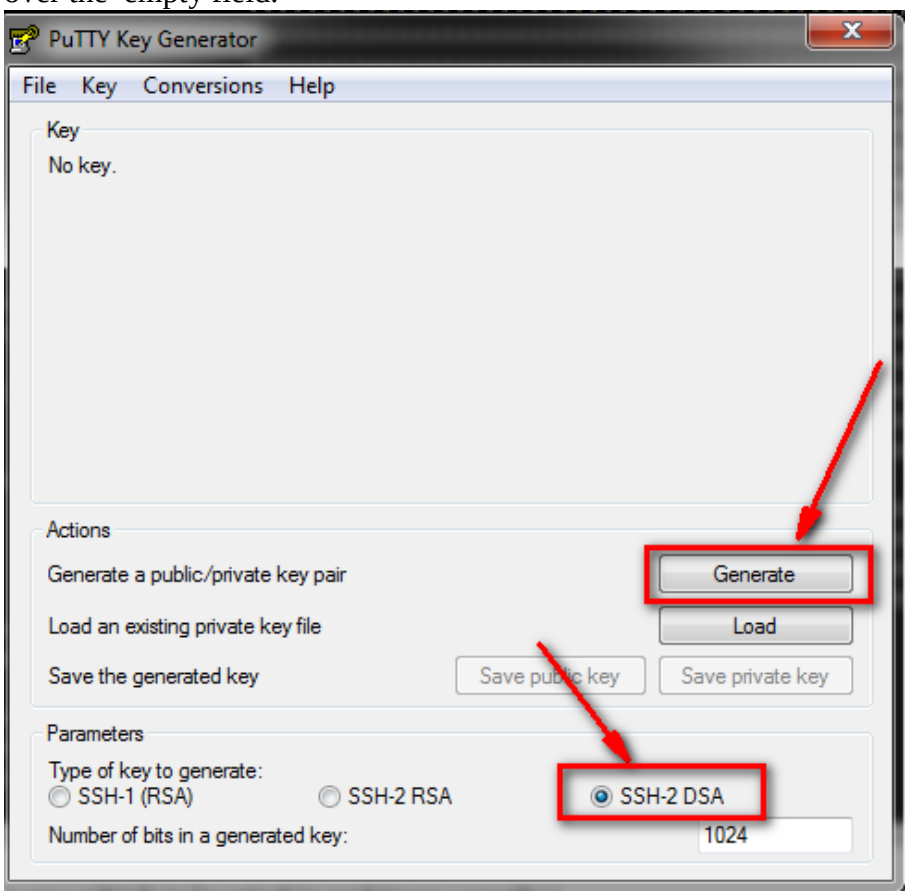
<customer> is a place holder for the customer name.

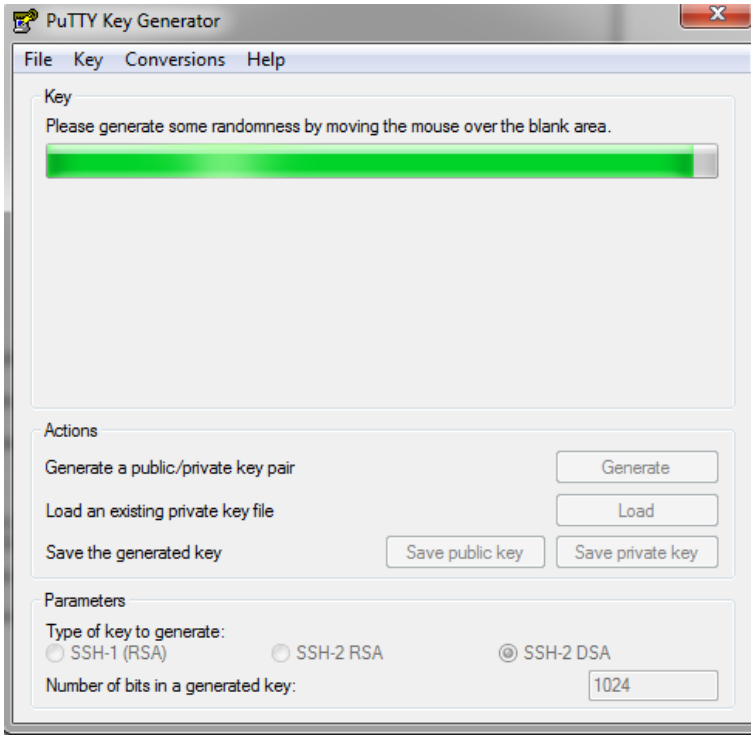
3.5.1 Generate ssh key

You can create your own ssh key pair as follows:

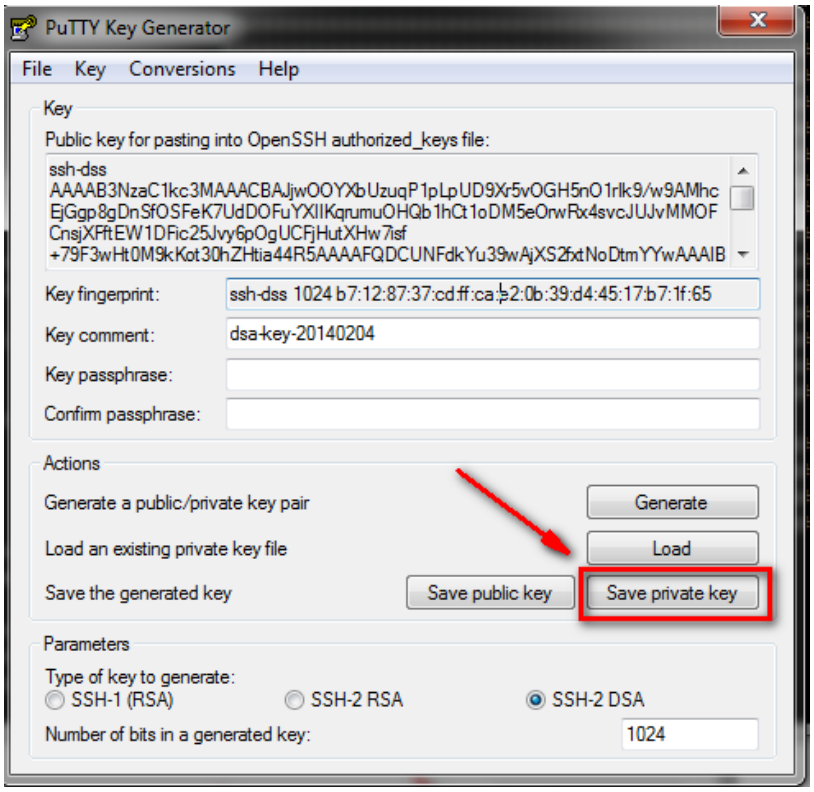
Start puttygen.exe which is located in '<drive>:\<path>\ HiCHperfpkg\bin\putty\'

Choose "SSH-2DSA" in the Parameters and click "Generate", then move your mouse around over the empty field.

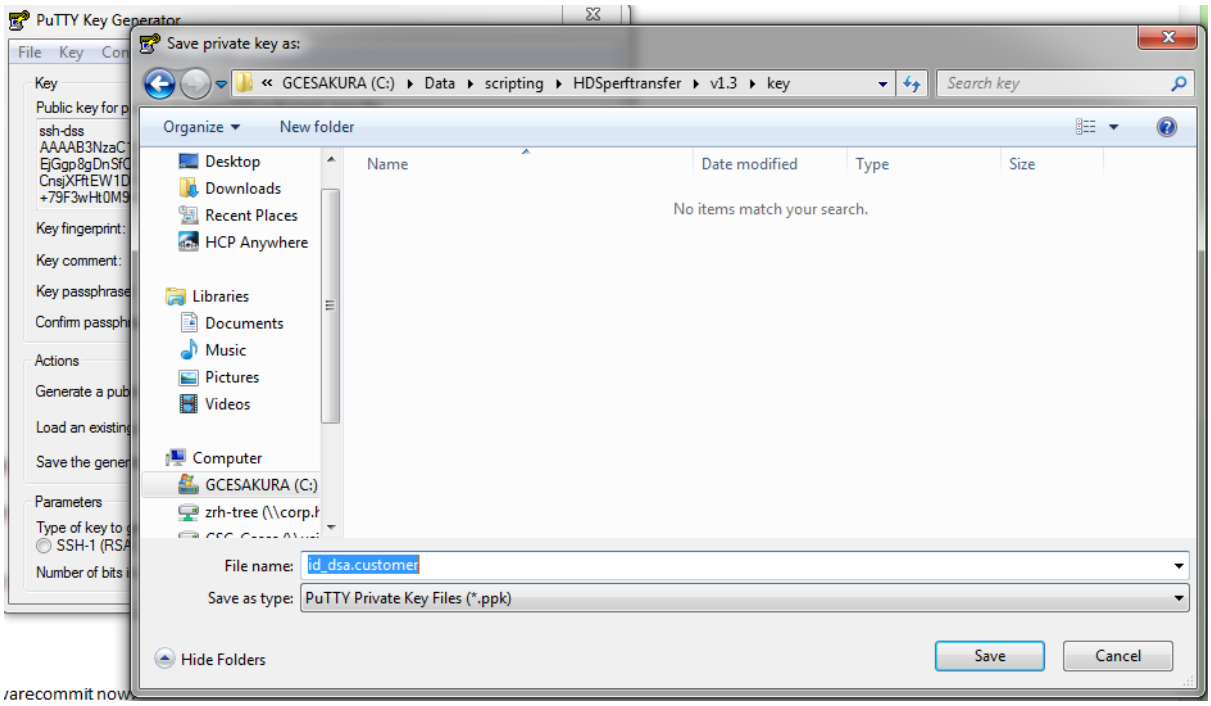




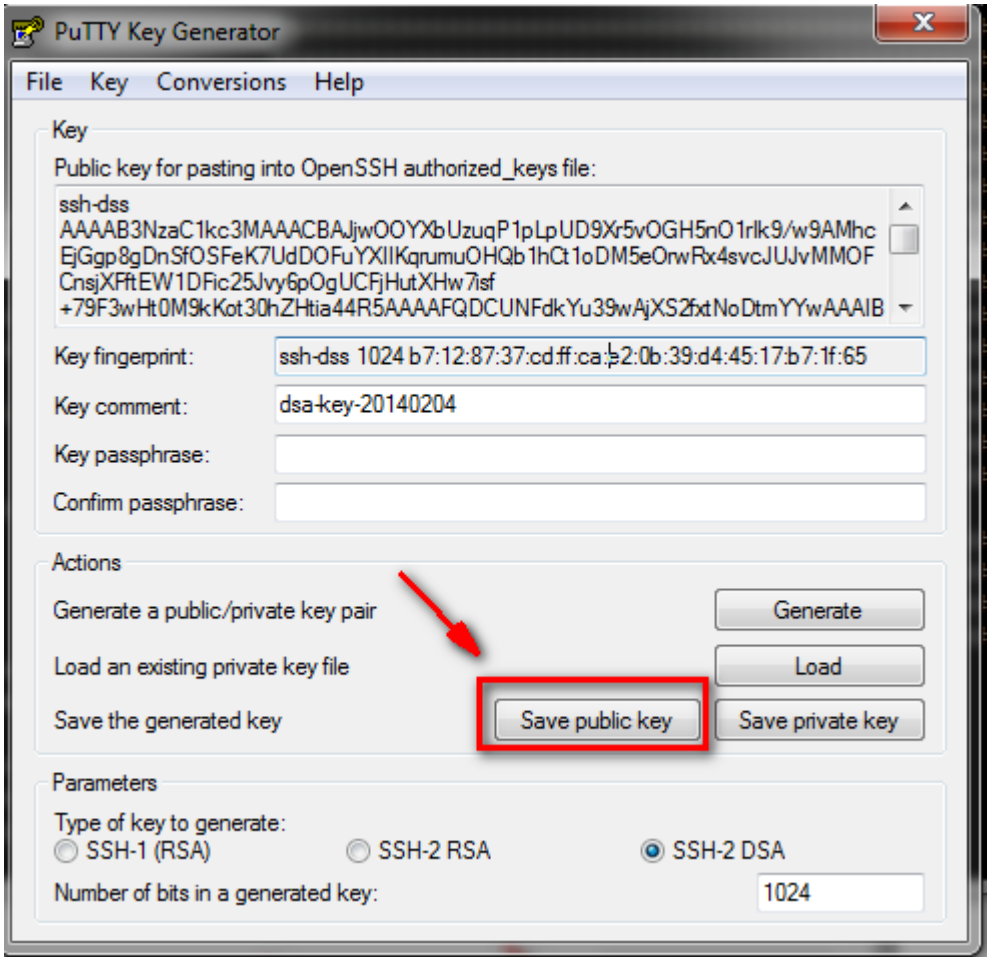
Afterwards save the private key and name the file like “id_dsa.customer.ppk”. <customer> is a place holder for the customer name.

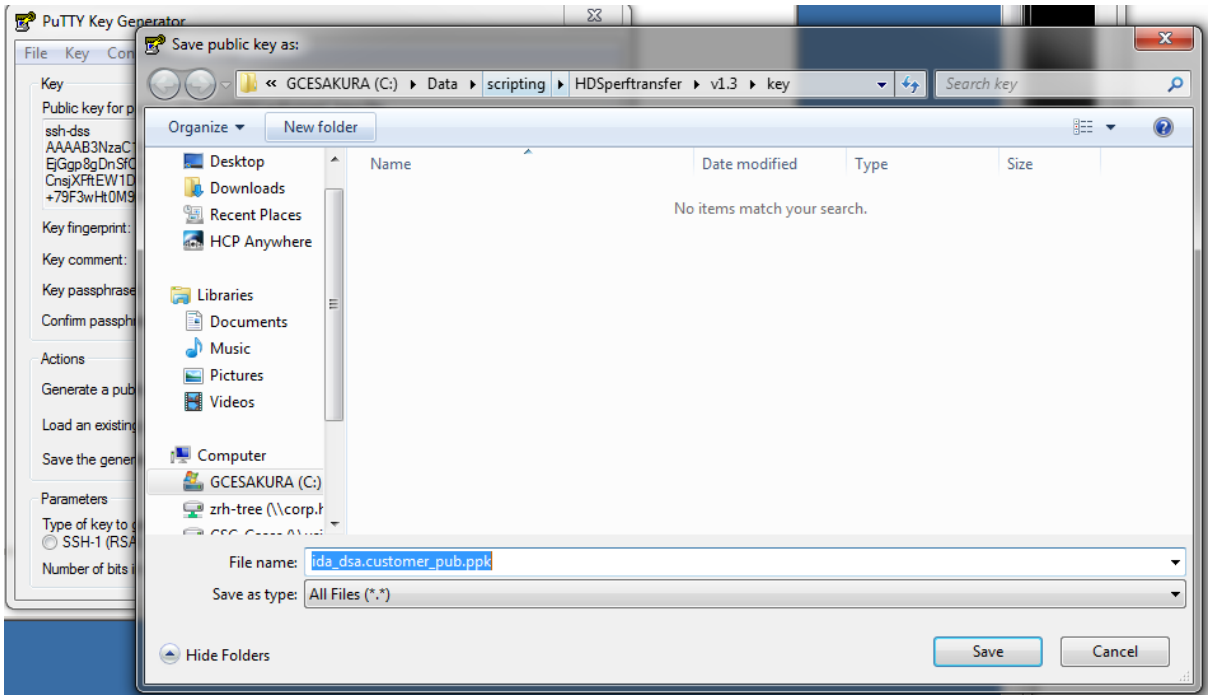


PuTTY Key Generator
File Key Conversions Help
Key
Public key for pasting into OpenSSH authorized_keys file:
ssh-dss
AAAAB3NzaC1kc3MAAACBAJjwOOYXbUzuqP1pLpUD9Xr5vOGH5nO1rlk9/w9AMhc
EjGgp8gDnSfOSFeK7UdDOFuYXIIKqrumuOHQb1hCt1oDM5eOrwRx4svcJUJvMMOF
CnsjXFftEW1DFic25Jvy6pOgUCFjHutXHw7isf
+79F3wHt0M9kKot30hZHtia44R5AAAAFQDCUNFdkYu39wAjXS2fxtNoDtmYYwAAAIB
PuTTYgen Warning
Are you sure you want to save this key without a passphrase to protect it?
Yes
No
Actions
Save the generated key
Save public key
Save private key
Parameters
Type of key to generate:
SSH-1 (RSA)
SSH-2 RSA
SSH-2 DSA
Number of bits in a generated key:
1024

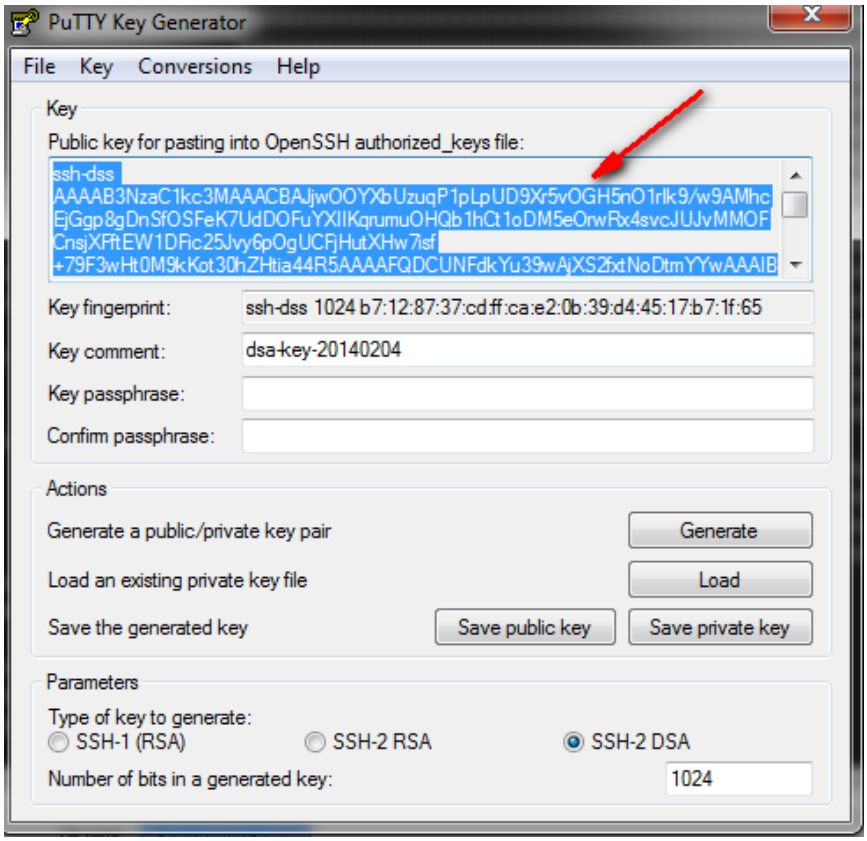

Save private key as:
GCESAKURA (C:) ▸ Data ▸ scripting ▸ HDSperftransfer ▸ v1.3 ▸ key
Search key
Organize
New folder
Desktop
Downloads
Recent Places
HCP Anywhere
Libraries
Documents
Music
Pictures
Videos
Computer
GCESAKURA (C:)
Name
Date modified
Type
Size
No items match your search.
File name:
id_dsa.customer
Save as type:
PuTTY Private Key Files (*.ppk)
Hide Folders
Save
Cancel

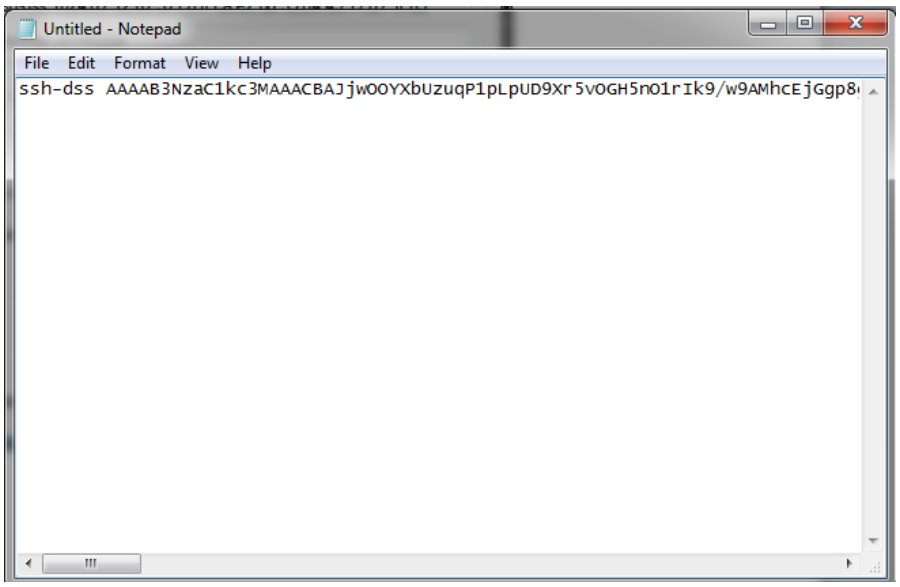
Do the same for the public key and name the file like “id_dsa.customer_pub.ppk”. <customer> is a place holder for the customer name.





Please copy the public key also in a text file by selecting it in the window and pressing <CTRL>+C and paste it via notepad into a text file.





As a final step send the public key "id_dsa.customer_pub.ppk" and the text file to CHPerformanceGroup@hds.com.

3.6 VMio (VMWare IOstatistics) – optional (beta)

The VMio script (extractVMIOstats.ps1) is part of the HiCHperfpkg. It is responsible to collect VMWare IOstatistics from an existing vcenter server and transferring them to HDSioportal. It is optional to configure VMio and currently in a testing phase. So please always contact CHPerformanceGroup@hds.com before enabling this option.

extractVMIOstats.ps1 README

Prerequisites:
- Make sure in vCenter Settings, the statistics level is 3 for the 5 minute interval (default, unless simple vCenter installation was performed)
- PowerShell v2 or above
- vSphere PowerCLI 5.8 or above

Installation:
- Run vSphere PowerCLI Link from Start Menu
- Run following command: Set-ExecutionPolicy RemoteSigned
- Open the script and edit the parameters above the line saying "Do not modify below this line" according to your needs

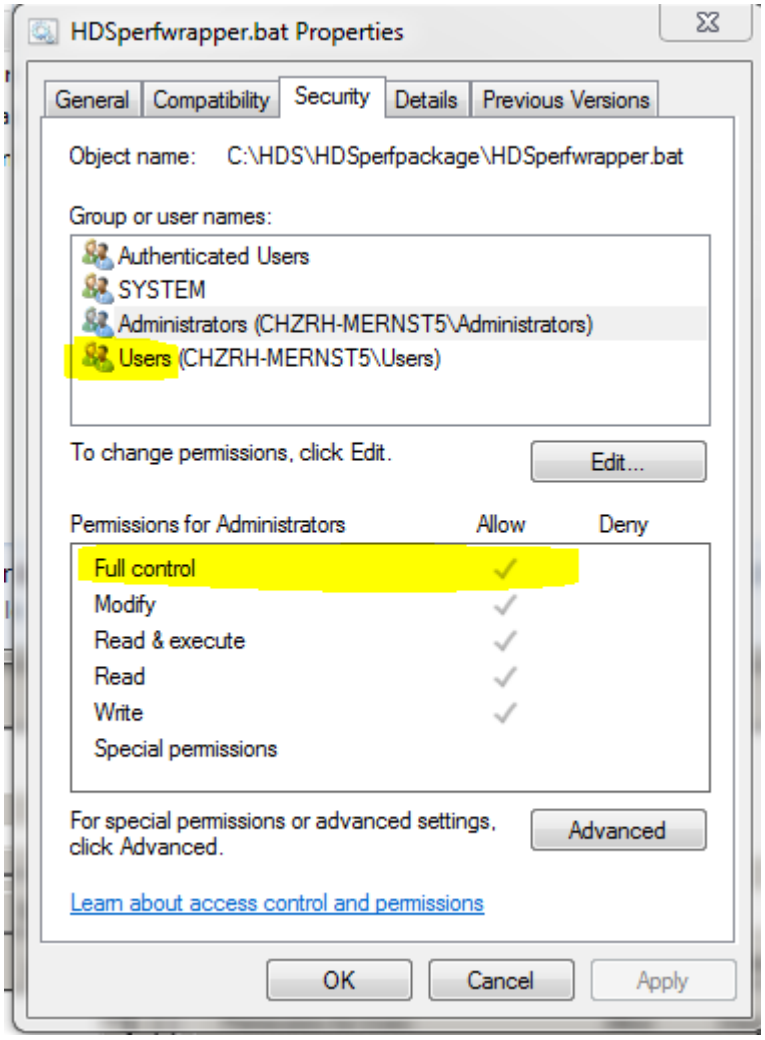
Execution:
- Change to the script directory and execute the script using the parameter 'interval' in hours of your choice:

    e.g.: .\extractVMIOstats.ps1 -interval 12

4 Trouble shooting

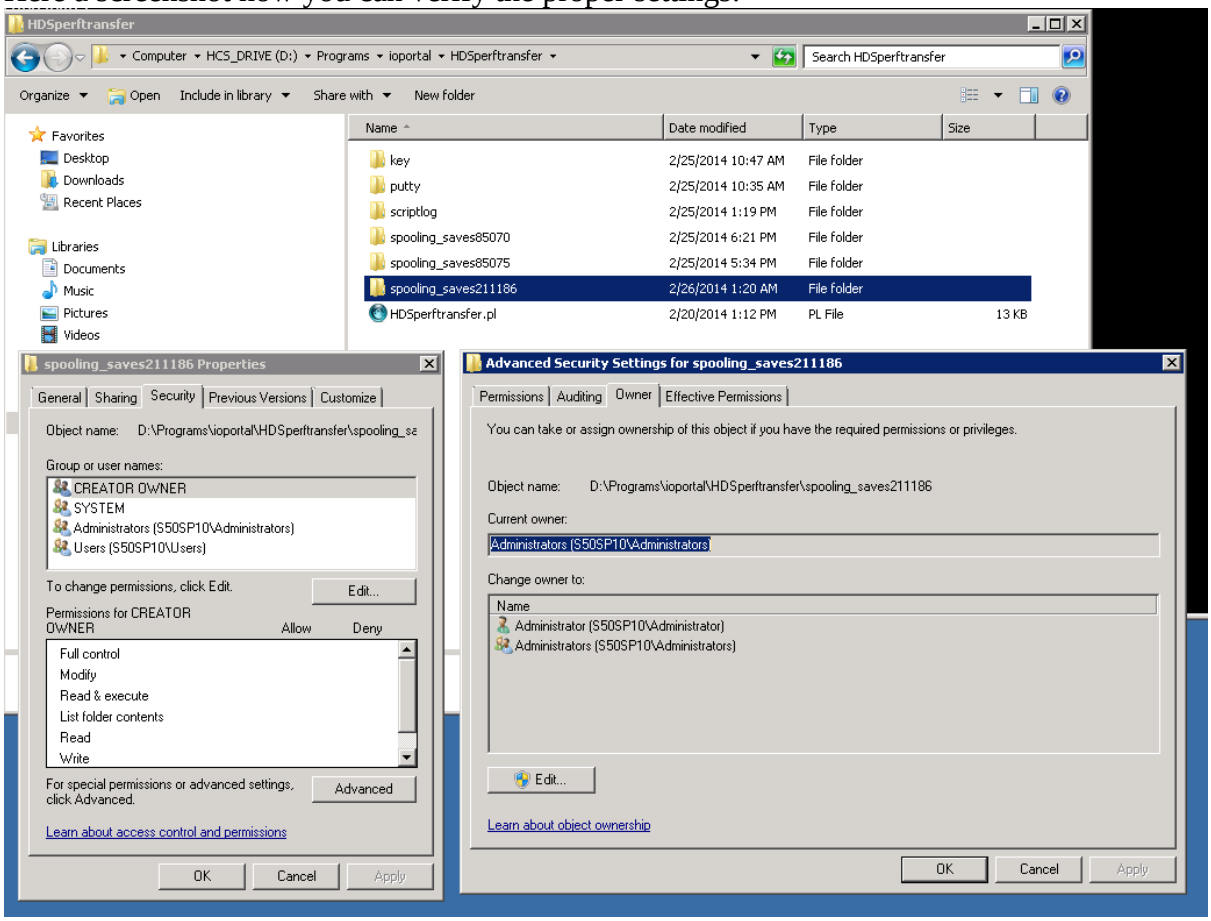
4.1 User rights of directories

If the scripts does not run accordingly please verify if the user rights of the directories/scripts/files are set correctly. You should give the user who is running the script in the task scheduler FULL CONTROL.



Especially when you copy folders like “data\saves<serial number>” and “spool\spooling_saves<serial number>” the directory/file owner could change. This will cause errors like “permission denied” when deleting old files or adding transferred files to the spooling list if the user in the task scheduler does not have rights as to delete/modify these files.

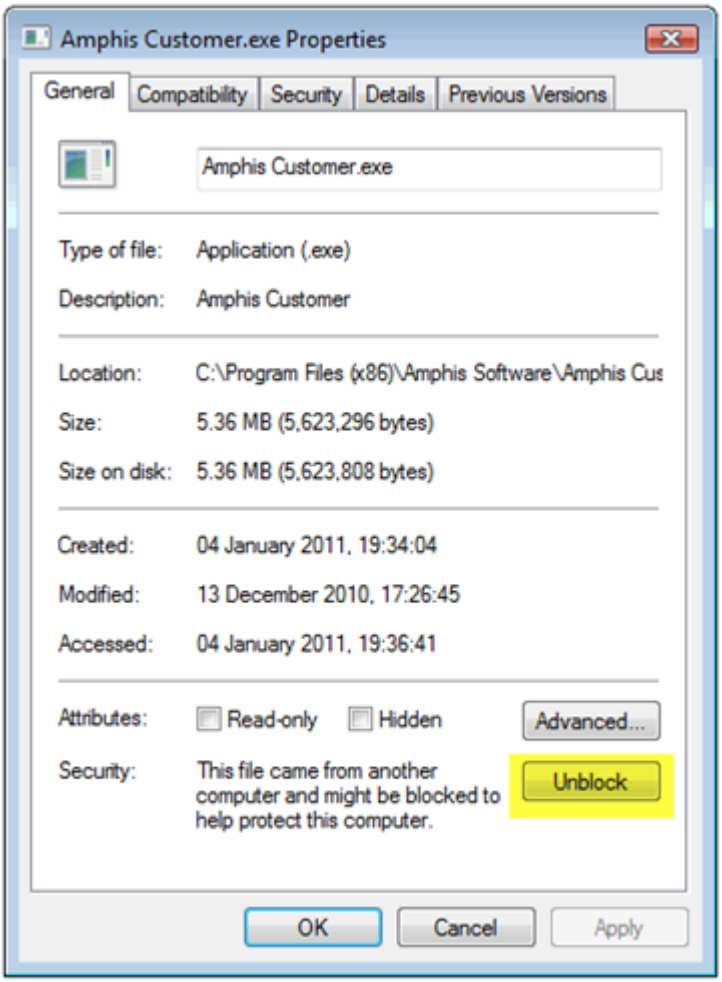
Here a screenshot how you can verify the proper settings:



4.2 Unblock scripts

If the scripts does nor run accordingly please verify if all scripts are unblocked.
Scripts:

- ppwrapper_.bat
- ppmonitor.pl
- ppsetup.pl
- ppcollect.pl
- pptransfer.pl
- curl.exe
- pscp.exe
- plink.exe
- etc.



4.3 SSH server host key caching

NOTE: This issue should be fixed with version 4.7 as it automatically stores the new key in cache.

When you connect to ftp.hdsioportal.com via ssh a fingerprint gets created and stored.
If this has been done with another user than defined in the task scheduler you could get an error message like this when you try to transfer the data to ftp.hdsioportal.com:

```
###
The server's host key is not cached in the registry. You
have no guarantee that the server is the computer you
think it is.
The server's rsa2 key fingerprint is:
ssh-rsa 2048 c5:70:a8:62:57:1c:c1:54:e0:db:6a:04:bf:ee:c1:0f
Connection abandoned.
Lost connection
###
```

The issue can be solved with PLINK.exe located in
'<drive>:\<path>\ HiCHperfpkg\HDSperftransfer\putty\'

You must run the following plinke.exe command as the user which is defined in the task scheduler. This can be done by using pstool from Microsoft:
http://technet.microsoft.com/de-de/sysinternals/bb896649.aspx

Run in the command line:
```
psexec -i -u "<your task scheduler user>" cmd.exe
```

Then you get command line as the "`<your task scheduler user>`"

In this new command line run the following command:
```
PLINK.EXE -i <drive>:\<path>\ HiCHperfpkg\HDSperftransfer\key\
id_dsa.customer.ppk -agent ftp.hdsioportal.com:incoming
```

```
The server's host key is not cached in the registry. You
have no guarantee that the server is the computer you think it is.
The server's rsa2 key fingerprint is:
ssh-rsa 2048 c5:70:a8:62:57:1c:c1:54:e0:db:6a:04:bf:ee:c1:0f
If you trust this host, enter "y" to add the key to
PuTTY's cache and carry on connecting.
If you want to carry on connecting just once, without
adding the key to the cache, enter "n".
If you do not trust this host, press Return to abandon the
connection.
Store key in cache? (y/n) y
login as: <customer user>
```

Please try afterwards to run the schedules task again and check if it works.

4.4 Perl modul missing (autoflush – IO::Handle)

When you using Version 7.3 or higher the error message might appear when using Perl version 5.10.0 which is default on SVP of VSP and HUSVM.

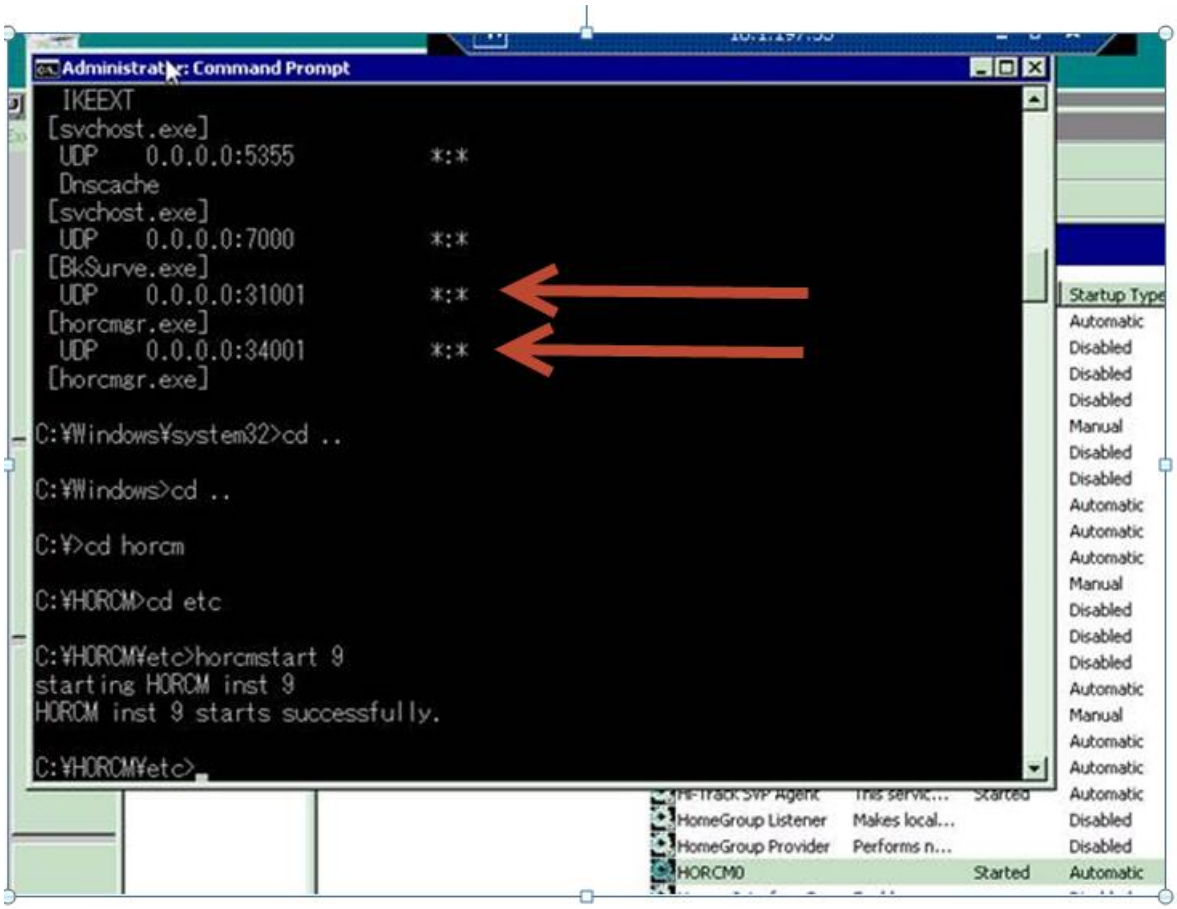
Error message:

```
D:\HiCHperfpkg\bin>ppsetup.pl
2016.03.27,17:50:12,ERROR,GENERAL,Script died: Can't locate object method "autoflush" via
package "IO::Handle" at D:\HiCHperfpkg\bin\ppsetup.pl line 118.
Can't locate object method "autoflush" via package "IO::Handle" at
D:\HiCHperfpkg\bin\ppsetup.pl line 118.

D:\HiCHperfpkg\bin>perl -v
This is perl, v5.10.0 built for MSWin32-x64-multi-thread
(with 5 registered patches, see perl -V for more detail)
```

It should be fixed but if not get in touch with CHPerformanceGroup@hds.com.
You also can update perl version to v5.16 or higher (see chapter 2.1.4 Perl) to solve it.

4.5 CCI (raidcom) horcm instance does not start / collection fails

If the horcm instance does not start even with manual created horcm files you might check if the virtual CMD is running on the SVP (only for G1500/G1000/VSP/HUSVM). Verify if horcmgr.exe is listening to 31001 and 34001. If this is not the case you might check if service HORCM0 is running on the SVP (see also chapter 3.3.2.2 “Update CCI Version on SVP”).



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