



**Hewlett Packard
Enterprise**

HPE 3Par InSplore Explorer (iNex) User's Guide

Important Note:

The CFI Database or any of its derivatives, as discussed in this document, are considered “*HP Internal, Need to know required*”. Under no circumstances they can be handed in any form to external parties, like customers, partners, etc.

Version 1.26-8 - 24-May-2016

By: hans.vansluis@hp.com

gary.e.sachs@hp.com

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1. Introduction

This document describes the usage of the “HP 3Par InSplore Explorer (iNex)”, which can be used to analyze 3Par related issues.

The utility offers the following functionality:

- Automated extraction, inflation and processing of configuration files, event and alert logs, and error counter logs.
- Automated extraction, inflation and processing of important node specific files.
- Presentation of the 3Par configuration in a tabular form using Microsoft Excel.
- Presentation of the events in a tabular form using Microsoft Excel.
- Command Line Interface and Graphical User Interface

The intended audience of this utility is HP Support, especially those engineers, who are frequently troubleshooting 3Par configurations. This tool is not intended for customer usage, although the output may be of interest to customers.

The input file of the utility is the compressed InSplore (“*.tbz2”), which forms the 3Par support data.

The output of the utility is a single Microsoft Excel worksheet, containing links, compressed lines, and color codes, allowing an easy interpretation of the data.

NOTE: Throughout this document you will see “INEX_HOME” used. Not is INEX_HOME an actual operating system environment variable, it is also used in this document as shorthand to indicate the directory where you installed iNex.

2. Detailed Specification

As mentioned earlier, the utility offers the following functionality:

- Automated extraction and inflation of the compressed InSplore file.
- Automatic verification and download of new versions of this utility.
- Automated processing of files:
 - Cluster related:
 - "showsys_-d.out"
 - "showsys_-param.out"
 - "showlicense.out"
 - "showlicense -raw.out"
 - "showversion_-b.out"
 - "showversion_-a.out"
 - "shownet.out"
 - "showuserconn.out"
 - "showuseracl.out"
 - "showuser.out"
 - "showsysmgr.out"
 - "showsysmgr_-l.out"
 - "showauthparams.out"
 - "controlencryption_status.out"
 - "showpatch_-hist.out"
 - Node related:
 - "showdate.out"
 - "shownode_-d.out"
 - "shownode -verbose.out"
 - "shownodeenv.out"
 - "showeeprom.out"
 - "showbattery.out"
 - "shownet_-d.out"
 - "df-k.out"
 - "ps_-ef.out"
 - "meminfo.out"

- Port related:
 - "showport.out"
 - "showport_-i.out"
 - "showport_-par.out"
 - "showport_-iscsi.out"
 - "showport_-rc.out"
 - "showport_-rcip.out"
 - "showport_-fcoe.out"
 - "showport_-sfp_-d.out"
 - "showport_-sfp_-ddm.out"
 - "showrctransport.out"
- Cage related:
 - "showcage_-d.out"
 - "showcage_-e.out"
- Physical Disk related:
 - "showpd_-i.out"
 - "showpd.out"
 - "showpd_-c.out"
 - "showpd_-e.out"
 - "showpd_-i.out"
 - "showpd_-s.out"
 - "showpd_-path.out"
 - "showpdch_-a.out"
 - "showspare.out"
- Common Provisioning Group related:
 - "showcpg_-r.out"
 - "showcpg_-sag.out"
 - "showcpg_-sdg.out"

- Logical Disk related:
 - "showld.out"
 - "showld_-d.out"
 - "showld_-p.out"
 - "showld_-state.out"
 - "showldch" subdirectory
 - "showldmap" subdirectory
- Virtual Volume related:
 - "showvv.out"
 - "showvv_-d.out"
 - "showvv_-s.out"
 - "showvv_-state.out"
 - "showvv_-cpgalloc.out"
 - "showvv_-pol.out"
 - "showvvcpg.out"
 - "showqps.out"
- Remote Copy related:
 - "showrcopy_-d.out"
 -
- Host and LUN related:
 - "showhost_-verbose.out"
 - "showhostset.out"
 - "showvlun.out"
 -
- Events and Alerts related:
 - "showeventlog_-d_-debug_-online.out"
 - "showeventlog_-d_-fprefix_events_nd.out"
 - "showeventlog_-d_-fprefix_events_al.out"
 - "showalert_-d.out"

- Capture related:
 - See defs\capture_definitions.txt
- Healthcheck related:
 - checkhealth*.out
- LESB /PEL counters
 - "showport_-c.out"
 - "showportlesb"
 - "portpel_history"
 - "showportpel_-both"
- Tasks related:
 - "<node>/pr_mnt/tasks_data/*"
 - "showtask.out"
 - "<node>/pr_mnt/scheduler_table"
 - "showsched_-all.out"
- stat commands :
 - "statiscsi -full_counts -iter 1"
- SR and AO related:
 - "<node>/var/log/tpd/srsampler",
 - "<node>/var/log/tpd/srdatac*
 - "<node>/var/log/tpd/srdatastop"
 - "<node>/var/log/tpd/ldrgsampler"
 - "<node>/pr_mt/scheduler_table"
 - "showaocfg.out"
 - "showsr"
 - "srrgiodensity_-btsecs" subdirectory
 - "showaomoves.out"

- Microsoft Excel workbook created with following worksheets:
 - “Overview”. This worksheet contains a Table of Contents, a high level overview of the 3Par system, an overview of the health-check of the 3Par system and an overview of important captured data.
 - “Cluster”. This worksheet gives a detailed overview of the 3Par cluster and its parameters.
 - “Nodes”. This worksheet lists all nodes within the 3Par cluster.
 - “Ports 0 – 3”. This worksheet lists all ports of the nodes 0 – 3. Per port, the important port characteristics are listed.
 - “Ports 4 – 7”. This worksheet lists all ports of the nodes 4 – 7. Per port, the important port characteristics are listed. This worksheet is only generated if there’s a node within the 4 – 7 range.
 - “SAN Ports”. This worksheet lists all, to this InServ, known devices (Server HBAs, InServ host ports, Inserv RCFC ports, remote InServ RCFC ports) on the SAN.
 - “Cage Data”. This worksheet lists all encountered drive cages and their characteristics.
 - “Cage Comms”. This worksheet lists all encountered drive cages and the reported error counters per drive cage.
 - “Physical Disks”. This worksheet lists all encountered physical disk drives (PDs) and their characteristics, including error counters.
 - “CPGs”. This worksheet lists all encountered Common Provisioning Groups (CPGs) and their characteristics.
 - “Logical Disks”. This worksheet lists all encountered Logical Disks (LDs) and their characteristics.
 - “Virtual Volumes”. This worksheet lists all encountered Virtual Volumes (VVs) and their characteristics, including distribution per VV over the available LDs.
 - “Hosts & LUNs”. This worksheet lists all servers with related HBA’s and the vdisks which are presented to this server. It also lists “host sets”. It also contains a list, per HBA, of the host ports, which report the HBA.
 - “Remote Copy”. This worksheet lists the overall status of Remote Copy (RCPY), all remote copy sets and their characteristics, and link information to/from remote systems.
 - “PD Spare Chunklets”. This worksheet lists the spare chunklets used by PDs, which hold user data from other PDs. If there is no sparing active, this worksheet is NOT displayed.
 - “Tasks”. This worksheet lists the start- and completion time and status of tasks as well as some detailed information (function, object, result) related to the specific task

- *"Event Log"*. This set of worksheets lists all events and alerts in reversed time order, meaning the most recent log entries are displayed first. There can be multiple worksheets of this type, which is dependant on the number of events observed in the "InSplore".
- *"Alerts"*. This worksheet lists the outstanding alerts.
- *"Captured"*. This worksheet lists all captured entries, observed in the files specified in "%INEX_HOME%/Defs/capture_definitions.txt" file. There can be multiple worksheets of this type, which is dependant on the number of events observed in the "InSplore".
- *"Port n:s:p LESB"*. This type of worksheet lists the LESB counters, in reversed time order, per disk- or host-port. Besides the initial values, only the deltas are reported, allowing for a quick review of differences between 2 samples of LESB counters.
- *"Tasks"*. This type of worksheet lists all tasks in reversed time order, meaning that the most recent task is displayed first. Per task, the start and completion time are provided, as well as duration and completion status.
- *"SAN Ports"*. This type of worksheet lists all known devices in the FC Fabrics, which communicate with this InServ. Devices can be HBAs in servers, but also RCFC ports of remote InServs. The worksheet also contains the local host ports and local RCFC ports.
- *"Memory"*. This type of worksheet lists the memory usage per node in the time period captured by the event logs
- *"Port n:s:p SAS Domain"*. This type of worksheet lists all devices in the SAS domain related to a specific port.
- *"Port n:s:p SAS PEL"*. This type of worksheet lists all device error counters, related to SAS, in the domain tied to the specific port.
- *"SR AO Config and Events"*. This type of worksheet lists the configuration settings of System Reporter and Adaptive Optimization as per InFormOS3.1.2. It also lists the InFormOS events related to these products.
- *"SR AO Events"*. This type of worksheet lists the SR and AO events in the SR/AO specific logfiles.
- *"iSCSI stats"*. This type of worksheet lists the iSCSI statistics. This worksheet is only generated if iSCSI is actually used and the stats contain valid data.
- *"PD Capacity Charts"*. This worksheet lists the capacity utilization (total / used / free) of PDs behind a node pair as well as of individual PDs. It allows to quickly identify if the system is correctly balanced and if not, which drives carry less data compared to others.
- *"SR AO Data Statistics"*. This worksheet contains graphs, which show the statistics in data movement between the tiers, as issued by Adaptive Optimization.

3. Installation Instructions

Server and OS requirements

The following is required to be able to successfully use the toolset:

- A laptop, workstation or server, running a version of Windows (Windows 2003, 2008, Vista or Windows 7) with 2GB of free disk space.
- iNex no longer uses and/or requires external decompression software. iNex has its own internal decompression routines.

The installation of iNex involves several simple steps:

1. Download the iNex kit.
2. Extract the iNex.
3. Copy and rename 3 initialization files.
4. Edit the inex.ini file.
5. Create your "CustomerDirectory".
6. Define the INEX_HOME Environment Variable.
7. Create desktop shortcut if you are using iNex on a Windows system.
8. Edit the OpenFile.ini file, this is optional.

You are now ready to use iNex.

1. Kit Download Locations

Read only access:

<\\fs1-bel.EU.TSLABS.HPECORP.NET\depot\storage\3par\INEX>

<\\fs1.EU.TSLABS.HPECORP.NET\depot\storage\3par\INEX>

username & password = normal HP account (include domain e.g. emea/johndoe)

Note that if mapping to this from windows OS it should not ask you for user and password since these are your normal windows credentials that you logged on with.

FTP access: (read only)

<ftp://fs1-bel.EU.TSLABS.HPECORP.NET/storage/3par/INEX>

<ftp://fs1.EU.TSLABS.HPECORP.NET/storage/3par/INEX>

username & password = normal HP account (as with the fileshare but without the auto-logon from windows)

You will need to look in the \Windows folder and it is here you will find the latest full kit, it is a zip file. Download the zip file.

2. iNex Kit Extraction

The zip file containing the utility and supporting file must be extracted to a directory, e.g. D:\Tools\Inex. Unzip the zip file in that directory. The directory structure will look like:

```
D:\Tools\Inex>dir
Volume in drive D is MISC
Volume Serial Number is 6847-F565

Directory of D:\Tools\Inex

01/27/2015  06:11      <DIR>          .
01/27/2015  06:11      <DIR>          ..
04/23/2015  08:26      <DIR>          bat
04/23/2015  08:26      <DIR>          config
04/23/2015  08:41      <DIR>          databases
04/23/2015  08:34      <DIR>          defs
04/23/2015  08:26      <DIR>          docs
01/20/2015  09:41      <DIR>          DSNs
05/04/2015  09:32      <DIR>          exe
04/23/2015  08:26      <DIR>          images
04/23/2015  08:26      <DIR>          lib
01/20/2015  09:41      <DIR>          log
07/11/2012  08:52      <DIR>          output
04/30/2015  06:26      <DIR>          tmp
04/23/2015  08:26      <DIR>          tools
               10 File(s)          99,480,305 bytes
               16 Dir(s)  356,582,834,176 bytes free
D:\Tools\Inex>
```

3. Copy and Rename INI Files(for new installations)

Located in the Config subdirectory of the iNex installation directory are 3 files:

- Rename_me_inex.ini
- Rename_me_monitor_pd.ini

- Rename_me_OpenFile.ini

Make a copy of each of these files and then rename them, respectively, to:

- Inex.ini
- Monitor_pd.ini
- OpenFile.ini

in the same Config subdirectory.

4. Edit the inex.ini file

The utility comes with an initialization file, which contains keywords, which allow some control over the operation of the program(s). The file itself contains a lot of comments and most keywords are commented out. The file is considered to be self-explanatory and can be edited with standard text editors, like Notepad, etc.

To uncomment a keyword you need to remove the hash mark (#) from column 1. Then to comment the line out, place a hash mark (#) in column 1 of that line.

The keyword "CustomersDirectory" must be changed, also you must uncomment the keyword. "CustomersDirectory" is used to tell iNex what directory is being used as a base/parent directory under which the individual case/customer directories will be created to store all the associated case/customer data, i.e. - inspire.

It is important to understand that iNex uses the directory structure to derive certain key pieces of information, specifically the customer name and the case number(s).

At the top level of the expected directory structure is the customer directory defined by the keyword, "CustomersDirectory", found in the inex.ini files.

As an example, if "CustomersDirectory" is defined as the following in your inex.ini file:

```
CustomersDirectory=C:\3PAR\Customers
```

Then the directory structure would be similar to the following:

```
C:\
  3PAR
```

```
Customers
  NATO
  SIE99999
  Mitchell International
```

The “customer” directory can be anything you want to help you keep track of your data. In the example above, we used a SI case number. Into you “customer” directory you place your InSplore that you wished to have processed. iNex verifies that you are using a “customer” directory. iNex also verifies that you are under the expected “CustomersDirectory” as well, if not it will tell you and not process the InSplore!

You can also add a subdirectory below the “customer” directory that uses the SI, OPT or GR* case number for further identification. If you do, you would want to place your InSplore into this directory. As an example:

```
C:\
  3PAR
    Customers
      NATO
      SIE69965
```

iNex uses these names to build output filenames to help keep data separated and easily identifiable for your work.

Appendix B contains an example of the “config/inex.ini” file.

5. Create the “CustomersDirectory”

Remember you need to make sure that the directory path you specified for the keyword “CustomerDirectory” is created. Use the mkdir command to create the directory:


```
mkdir C:\3PAR\Customers
```

If the directory path you use contains spaces, you will need to enclose your directory path in quotation marks ("").

6. Define the INEX_HOME Environment Variable

With V1.25-1 we re-introduce the use of the INEX_HOME environment variable. We brought this environment variable back because of a new updated OpenFile macro. The INEX_HOME environment variable points to the directory in which you "installed"/extracted iNex.

Windows:

Open up a command prompt window as an administrator. At the command prompt issue the following command:

```
setx INEX_HOME <iNex-install-directory> /m
```

Linux:

Place the following in your ~/.bash_profile:

```
Export INEX_HOME=<iNex-install-directory>
```

For either operating system the variable name INEX_HOME must be uppercase and you will replace <iNex-install-directory> with the actually directory path where you installed iNex. If your iNex installation directory path name contains any spaces, you must enclose the directory path in quotation marks ("").

7. Create Desktop Shortcut (Windows Only)

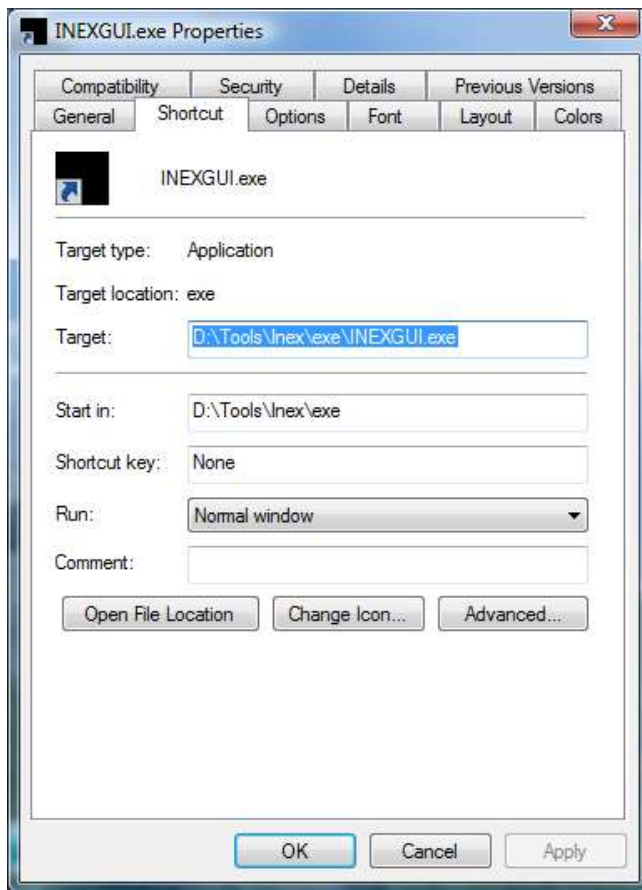
As from V1.01 onwards, the utility also provides a GUI. The executable can be found in the %INEX_HOME%\exe subdirectory and is called "INEXGUI_x64.exe". As there's no shortcut added to the Desktop or "Start Menu", we suggest to place a short-cut to the executable on the Desktop. The easiest way to achieve this is as follows:

- Open a Windows Explorer window and go to the %INEX_HOME%\exe directory.
- Select the "INEXGUI_x64.exe" file and right-click it. Select the "Copy" function.
- Go to the Desktop, right-click and use the "Paste Shortcut" function. The following



short-cut will now appear on the Desktop:

- Select the just created short-cut and right-click it. Use the "Properties" function. You'll see the 'shortcut' tab.



- Change the "Start in" location from "%INEX_HOME%\exe" to "%INEX_HOME%", so remove the "\exe".
- Change the name of the short-cut to "INEXGUI" in the "General" tab.
- Save the new properties by clicking "OK". The GUI is now ready to work and will continue to work once new versions are released.

8. The "OpenFile" macro initialization file

iNex V1.25-1 is taking a new approach with regards to the "OpenFile" macro. We now provide an OpenFile.ini file, which resides in the config subdirectory of the iNex installation directory, that you may customize indicating your text editor preference.

The OpenFile macro is pre-loaded into the EXCEL spreadsheets created by iNEX. The macro allows you to open the file, in which the information was found and jump directly to the line with that information. The macro is only valid on the "Captured Data" and "Tasks" worksheets..

Currently 4 text editors are supported: PSPad, Vim/gVim, UltraEdit and Notepad++. By default the OpenFile macro will use NOTEPAD++.

IMPORTANT: *You must install your editor of choice. iNex does not install or provide installation kits for these text editors.*

As stated above, OpenFile.ini is located in %INEX_HOME%/Config. OpenFile.ini is a text file that you can edit with your favorite text editor. To enable your editor preference simply comment out the 3 lines Editor, LineNrOption and LineNrPosition associated with NOTEPAD++ at the bottom of the file. To comment out the line, place a hash mark (#) in column 1 of that line.

Then to enable your editor of choice, uncomment the 3 lines Editor, LineNrOption and LineNrPosition under the editor you wish. Removing the hash mark (#) from column 1 uncomments that line.

The OpenFile.ini file contains several lines of explanatory text at the top of the file which should help you with the file and its fields.

Remember, before closing the file to save your changes.

The keystroke to invoke the macro, once in the Excel spreadsheet, is <Shift>+<Ctrl>+G.

4. Command Line Interface.

inex program

Usage: `inex <InputFile> options`

with:

- `<InputFile>` being the filename of the compressed InSplore file.
- `options` defines optional parameters. These optional parameters can be a space separated list of the following:
 - `win[dow]=<nrdays>` Specifies the number of days the utility can search backwards in the event log and captured, typically node specific, files. Default: 7 days.
NOTE: This parameter can also be defined in the %INEX_HOME%/Config/inex.ini file
 - `esc[al]=GCSS:<number>|L3:<number>|Bug[zilla]:<number>` Specifies the case numbers within GCSS, L3 and BugZilla. The number will listed in the "Cluster" worksheet.
 - `cus[tomer]=<string>` Specifies the name of the customer, if not already part of the directory name of the InSplore. Default: extracted from the directory name of the InSplore.
 - `mod[e]=standard|decompressed` Specifies the operating mode of the `inex` utility. "Standard" means normal processing will full file decompression. "Decompressed" is a sub-set of "standard", as the InSplore file is not decompressed, but just processed. Default: "standard".
 - `lev[el]=<0..9>` Specifies the debug level and amount of detailed information logged in the %INEX_HOME%/log/inex.log file. Default: 3. This parameter shall not be used, unless directed by a INEX developer otherwise.
 - `out[put]=<directory>`. Overrides the default output directory, which is the same as the directory containing the compressed InSplore file.
 - `for[mat]=spreadsheet,csv`. Specifies the format of the output as generated by the `iNex` utility. "Spreadsheet" means that a spreadsheet with several worksheet will be generated, while "csv" means that multiple comma separated files will be generated. Default is that both formats are generated.
 - `map[ping]=yes|no`. Specifies if the mapping information, which can be extensive on large systems, must be read and processed.

- *max[imum]=<value>*. Specifies the maximum number of events, which needs to be placed in the Microsoft Excel worksheet.

NOTE: options must be enclosed by double-quote (") characters. This is a requirement enforced by Windows parameter parsing.

Example:

```
D:\Tools\Inex>exe\inex.exe  
"D:\Customers\Croon\73456\20120608\INSPL0RE_20120608_112405.tbz2"  
"cus=MyCustomer" "win=14"
```

This command generates the following directory tree (highlighted are the output files):

```
C:\Work\Customers\AnteMetA\76097\20120717>dir
```

Volume in drive C is PC COE

Volume Serial Number is 1C93-5E28

Directory of C:\Work\Customers\AnteMetA\76097\20120717

```
08/19/2012  09:00 AM    <DIR>          .
08/19/2012  09:00 AM    <DIR>          ..
08/19/2012  09:00 AM                11,527,500
AnteMetA_76097_20120717_1304647_F400_LOOS1.xlsm
07/18/2012  08:30 AM                7,304 crashtxt.120717.160006.14338822
07/18/2012  08:31 AM           50,876,861 insplore.120717.163541.42162674
08/06/2012  05:29 PM    <DIR>          InSplore.F400_LOOS1-
1304647.20120717.1607
          3 File(s)          62,411,665 bytes
          3 Dir(s)   442,898,345,984 bytes free
```

```
C:\Work\Customers\AnteMetA\76097\20120717>
```

```
D:\Customers\Croon\73456\20120608\InSplore.Croon_3PAR-01-
```

```
1205190.20120608.1102>dir
```

Volume in drive D is Data

Volume Serial Number is A034-41D9

Directory of D:\Customers\Croon\73456\20120608\InSplore.Croon_3PAR-01-1205190.20120608

```
14-Jul-12  09:21    <DIR>          .
14-Jul-12  09:21    <DIR>          ..
14-Jul-12  09:21    <DIR>          .tpd_cache
08-Jun-12  11:05                44 checkhealth_-svc_-quiet_-detail_alert.out
08-Jun-12  11:05                46 checkhealth_-svc_-quiet_-
detail_cabling.out
08-Jun-12  11:05                43 checkhealth_-svc_-quiet_-detail_cage.out
08-Jun-12  11:05                43 checkhealth_-svc_-quiet_-detail_date.out
08-Jun-12  11:05                43 checkhealth_-svc_-quiet_-detail_file.out
08-Jun-12  11:05                41 checkhealth_-svc_-quiet_-detail_ld.out
08-Jun-12  11:05                46 checkhealth_-svc_-quiet_-
detail_license.out
08-Jun-12  11:05                46 checkhealth_-svc_-quiet_-
detail_network.out
08-Jun-12  11:05           346 checkhealth_-svc_-quiet_-detail_node.out
08-Jun-12  11:05                41 checkhealth_-svc_-quiet_-detail_pd.out
08-Jun-12  11:06                43 checkhealth_-svc_-quiet_-detail_pdch.out
08-Jun-12  11:06                43 checkhealth_-svc_-quiet_-detail_port.out
08-Jun-12  11:06                41 checkhealth_-svc_-quiet_-detail_rc.out
08-Jun-12  11:06                43 checkhealth_-svc_-quiet_-detail_snmp.out
08-Jun-12  11:06                41 checkhealth_-svc_-quiet_-detail_sp.out
08-Jun-12  11:06                43 checkhealth_-svc_-quiet_-detail_task.out
08-Jun-12  11:06           5,877 checkhealth_-svc_-quiet_-detail_vlun.out
08-Jun-12  11:06                41 checkhealth_-svc_-quiet_-detail_vv.out
14-Jul-12  09:21    <DIR>          InSplore.node2.20120608.1102
14-Jul-12  09:20    <DIR>          InSplore.node3.20120608.1102
08-Jun-12  11:14           148,997 InSplor_log.Croon_3PAR-01
08-Jun-12  11:03                6,883 showalert_-d.out
08-Jun-12  11:05                14 showauthparam.out
```

08-Jun-12	11:03		335	showbattery.out
08-Jun-12	11:03		335	showcage.out
08-Jun-12	11:03		18,287	showcage_-d.out
08-Jun-12	11:03		59,031	showcage_-e.out
08-Jun-12	11:03		4,616	showcage_-sfp_-d.out
08-Jun-12	11:03		3,096	showcage_-sfp_-ddm.out
08-Jun-12	11:03		686	showcpg.out
08-Jun-12	11:03		980	showcpg_-r.out
08-Jun-12	11:03		284	showcpg_-sag.out
08-Jun-12	11:03		372	showcpg_-sdg.out
08-Jun-12	11:03		108	showdate.out
08-Jun-12	11:05		18	showdomain.out
08-Jun-12	11:05		21	showdomainset.out
08-Jun-12	11:03		1,135	showeeprom.out
08-Jun-12	11:04		47,645,985	showeventlog_-d_-debug_-oneline.out
08-Jun-12	11:05		1,177,081	showeventlog_-d_-fprefix_events_al.out
08-Jun-12	11:05		20,578,734	showeventlog_-d_-fprefix_events_nd.out
08-Jun-12	11:05		9,412	showfirmwaredb.out
08-Jun-12	11:05		3,528	showhost.out
08-Jun-12	11:05		19	showhostset.out
08-Jun-12	11:05		3,976	showhost_-d.out
08-Jun-12	11:05		12,576	showhost_-verbose.out
08-Jun-12	11:05		56	showiscsisession.out
08-Jun-12	11:05		12,126	showld.out
14-Jul-12	09:21	<DIR>		showldch
14-Jul-12	09:21	<DIR>		showldmap
08-Jun-12	11:05		20,382	showld_-d.out
08-Jun-12	11:05		6,708	showld_-p.out
08-Jun-12	11:05		6,321	showld_-state.out
08-Jun-12	11:05		495	showlicense.out
08-Jun-12	11:05		562	showlicense_-raw.out
08-Jun-12	11:05		297	shownet.out
08-Jun-12	11:05		3,815	shownet_-d.out
08-Jun-12	11:05		7,678	shownodeenv.out
08-Jun-12	11:05		4,994	shownode_-d.out
08-Jun-12	11:05		22,362	shownode_-verbose.out
08-Jun-12	11:05		32	showpatch_-hist.out
08-Jun-12	11:05		11,316	showpd.out
08-Jun-12	11:05		18	showpdata.out
14-Jul-12	09:20	<DIR>		showpdch_-a
14-Jul-12	09:21	<DIR>		showpdv
08-Jun-12	11:05		16,005	showpd_-c.out
08-Jun-12	11:05		9,184	showpd_-e.out
08-Jun-12	11:05		14,018	showpd_-i.out
08-Jun-12	11:05		6,846	showpd_-s.out
08-Jun-12	11:05		2,812	showport.out
08-Jun-12	11:05		31	showportarp.out
14-Jul-12	09:20	<DIR>		showportdev
08-Jun-12	11:05		31	showportisns.out
14-Jul-12	09:20	<DIR>		showportlesb
08-Jun-12	11:05		6,391	showport_-c.out
08-Jun-12	11:05		2,183	showport_-i.out
08-Jun-12	11:05		40	showport_-iscsi.out
08-Jun-12	11:05		2,730	showport_-par.out
08-Jun-12	11:05		185	showport_-rc.out
08-Jun-12	11:05		370	showport_-rcip.out

```

08-Jun-12 11:05      14,817 showport_-sfp_-d.out
08-Jun-12 11:05     12,385 showport_-sfp_-ddm.out
08-Jun-12 11:05        45 showrcopy_-d.out
08-Jun-12 11:05        91 showrctransport.err
08-Jun-12 11:05     1,863 showrsv.out
08-Jun-12 11:05        22 showrsv_-l_scsi2.out
08-Jun-12 11:05    15,435 showrsv_-l_scsi3.out
08-Jun-12 11:05        29 showsnmpmgr.out
08-Jun-12 11:05        32 showsnmppw.out
08-Jun-12 11:05   879,005 showspare.out
08-Jun-12 11:05       273 showsys.out
08-Jun-12 11:05        54 showsysmgr.out
08-Jun-12 11:05       669 showsys_-d.out
08-Jun-12 11:05       418 showsys_-param.out
08-Jun-12 11:05        19 showtarget.out
08-Jun-12 11:05       544 showtask.out
08-Jun-12 11:05       320 showtoc.out
08-Jun-12 11:05        44 showtocgen.out
08-Jun-12 11:05       245 showuser.out
08-Jun-12 11:05        13 showuseracl.out
08-Jun-12 11:05     1,598 showuserconn.out
08-Jun-12 11:05       503 showversion.out
08-Jun-12 11:05     2,813 showversion_-a.out
08-Jun-12 11:05       507 showversion_-b.out
08-Jun-12 11:05       272 showversion_-p.err
08-Jun-12 11:05    40,378 showvlnun.out
08-Jun-12 11:05     7,392 showvv.out
14-Jul-12 09:21    <DIR>      showvvmap
08-Jun-12 11:05        17 showvvset.out
08-Jun-12 11:05     5,265 showvv_-cpgalloc.out
08-Jun-12 11:05     8,125 showvv_-d.out
08-Jun-12 11:05     9,179 showvv_-s.out
08-Jun-12 11:05     4,940 showvv_-state.out
14-Jul-12 09:20    <DIR>      startprog
08-Jun-12 11:05        84 statiscsi_-fullcounts_-iter_1.out
14-Jul-12 09:20    <DIR>      tocs
      104 File(s)      70,848,804 bytes
      14 Dir(s)  127,814,189,056 bytes free

```

```

D:\Customers\Croon\73456\20120608\InSplore.Croon_3PAR-01-
1205190.20120608.1102>

```


printcfg program

Usage: printcfg <InputFile>

The <InputFile> is the HTML formatted InServ configuration file, as it can be downloaded from STaTS. The program processes the inputfile, generates a temporary InSplore, processes the temporary InSplore, generates the output files (in the format as specifies in inex.ini) and deletes the temporary InSplore.

Below is an example of the execution of the program.

```
D:\Products\3Par\\Inex>printcfg
D:\Customers\BBVA\75877\20121019\config.121018.230009.0001

3Par iNex Print Configuration Utility V1.07 31-Oct-2012

30-Oct-2012:11:36:53 Processing config.121018.230009.0001 ... OK
30-Oct-2012:11:36:54 Reading directory structure of "InSplore.1404819-"... OK
30-Oct-2012:11:36:54 Processing showsys_-d.out ... OK
30-Oct-2012:11:36:54 System Name: "CMDTC126". Type: InServ V800. SN: 1404819
30-Oct-2012:11:36:54 Nodes: Configured: 4 Online: 0,1,4,5 Participate: 0,1,4,5
30-Oct-2012:11:36:54 Processing showld.out ... OK
30-Oct-2012:11:36:54 Processing showvv.out ... OK
30-Oct-2012:11:36:54 Processing showdate.out ... OK
30-Oct-2012:11:36:54 Processing showpd_-i.out ... OK
30-Oct-2012:11:36:54 Processing showcage_-d.out ... OK
30-Oct-2012:11:36:54 Processing showport.out ... OK
30-Oct-2012:11:36:54 Processing showhost_-d.out ... OK
30-Oct-2012:11:36:54 Processing sub-directory showportdev ...Done
30-Oct-2012:11:36:54 Processing showport_-iscsi.out ... OK
30-Oct-2012:11:36:54 Processing showport_-par.out ... OK
30-Oct-2012:11:36:54 Processing showld_-p.out ... OK
30-Oct-2012:11:36:54 Processing showpd_-c.out ... OK
30-Oct-2012:11:36:54 Processing showcpg_-r.out ... OK
30-Oct-2012:11:36:54 Processing showcpg_-sdg.out ... OK
30-Oct-2012:11:36:54 Processing showrcopy_-d.out ... OK
30-Oct-2012:11:36:54 Processing showport_-sfp_-ddm.out ... OK
30-Oct-2012:11:36:54 Processing showpd.out ... OK
30-Oct-2012:11:36:54 Processing showpd_-i.out ... OK
30-Oct-2012:11:36:54 Processing showcpg_-sag.out ... OK
30-Oct-2012:11:36:54 Processing showport_-c.out ... OK
30-Oct-2012:11:36:54 Processing showvv_-s.out ... OK
30-Oct-2012:11:36:54 Processing showhostset.out ... OK
30-Oct-2012:11:36:54 Processing shownet_-d.out ... OK
30-Oct-2012:11:36:54 Processing showvv_-d.out ... OK
30-Oct-2012:11:36:54 Processing showlicense.out ... OK
30-Oct-2012:11:36:54 Processing showsys_-param.out ... OK
30-Oct-2012:11:36:54 Processing showport_-i.out ... OK
30-Oct-2012:11:36:54 Processing showvlun.out ... OK
30-Oct-2012:11:36:54 Processing showpd_-s.out ... OK
30-Oct-2012:11:36:54 Processing showld_-d.out ... OK
30-Oct-2012:11:36:54 Processing showport_-rc.out ... OK
30-Oct-2012:11:36:54 Processing shownode_-d.out ... OK
30-Oct-2012:11:36:54 Processing shownet.out ... OK
30-Oct-2012:11:36:54 Processing showport_-sfp_-d.out ... OK
30-Oct-2012:11:36:54 Processing showversion.out ... OK
30-Oct-2012:11:36:54 Creating list of files to be investigated:
```

```
30-Oct-2012:11:36:54 Processed 0 files
30-Oct-2012:11:36:54 Analyzing captured data ... OK
30-Oct-2012:11:36:54 Generating output (Formats: spreadsheet, csv) ... OK
30-Oct-2012:11:37:00
D:\Customers\BBVA\75877\20121019\BBVA_75877_20121019_1404819_CMDTC126_20121018230009.x
lsm
30-Oct-2012:11:37:00 D:\Customers\BBVA\75877\20121019\csv
30-Oct-2012:11:37:00 Finished

D:\Products\3Par\Perl\Inex>
```

The output files may not contain all data, which is generated when processing a regular InSplore, as some data is not available in the HTML-formatted configuration file.

read_evtlog program

Usage: read_evtlog <InputDir> [options]

With <InputDir> being the directory containing the evtlog.*.debug files. These files can be downloaded from STaTS. The program processes the files in the input directory, generates a temporary InSplore, processes the temporary InSplore, generates the output files (in the format as specifies in inex.ini) and deletes the temporary InSplore.

The options are:

- *max[imum]=<value>*. Specifies the maximum number of events, which needs to be placed in the Microsoft Excel worksheet.

Below is an example of the execution of the program.

```
D:\Products\3Par\Inex>read_evtlog D:\Customers\BBVA\75877\20121018

3Par iNex Read Event Logs Utility V1.07 31-Oct-2012

30-Oct-2012:15:13:27 Processing evtlog.121018.004735.debug ... OK
30-Oct-2012:15:13:27 Processing evtlog.121018.014751.debug ... OK
30-Oct-2012:15:13:27 Processing evtlog.121018.024807.debug ... OK
30-Oct-2012:15:13:27 Processing evtlog.121018.034823.debug ... OK
30-Oct-2012:15:13:27 Processing evtlog.121018.044843.debug ... OK
30-Oct-2012:15:13:27 Processing evtlog.121018.054858.debug ... OK
30-Oct-2012:15:13:27 Processing evtlog.121018.064914.debug ... OK
30-Oct-2012:15:13:27 Processing evtlog.121018.074930.debug ... OK
30-Oct-2012:15:13:27 Processing evtlog.121018.084945.debug ... OK
30-Oct-2012:15:13:27 Processing evtlog.121018.095001.debug ... OK
30-Oct-2012:15:13:27 Processing evtlog.121018.105019.debug ... OK
30-Oct-2012:15:13:28 Processing evtlog.121018.115038.debug ... OK
30-Oct-2012:15:13:28 Processing evtlog.121018.125056.debug ... OK
30-Oct-2012:15:13:28 Processing evtlog.121018.135116.debug ... OK
30-Oct-2012:15:13:28 Processing evtlog.121018.145133.debug ... OK
30-Oct-2012:15:13:28 Processing evtlog.121018.155150.debug ... OK
30-Oct-2012:15:13:28 Processing evtlog.121018.165211.debug ... OK
30-Oct-2012:15:13:28 Processing evtlog.121018.175234.debug ... OK
30-Oct-2012:15:13:29 Processing evtlog.121018.185252.debug ... OK
30-Oct-2012:15:13:29 Processing evtlog.121018.195309.debug ... OK
30-Oct-2012:15:13:29 Processing evtlog.121018.205328.debug ... OK
30-Oct-2012:15:13:29 Processing evtlog.121018.215346.debug ... OK
30-Oct-2012:15:13:29 Processing evtlog.121018.225403.debug ... OK
30-Oct-2012:15:13:29 Processing evtlog.121018.235419.debug ... OK
30-Oct-2012:15:13:29 Processing evtlog_121018_235419_debug ... OK
30-Oct-2012:15:13:29 Reading directory structure of "InSplore.1404819-"... OK
30-Oct-2012:15:13:29 Processing showsys_-d.out ... OK
30-Oct-2012:15:13:29 System Name: "CMDTCL126". Type: InServ V800. SN: 1404819
30-Oct-2012:15:13:29 Nodes: Configured: 4 Online: 0,1,4,5 Participate: 0,1,4,5
30-Oct-2012:15:13:29 Processing showdate.out ... OK
30-Oct-2012:15:13:29 Processing showeventlog_-d_-debug_-online.out ... OK
30-Oct-2012:15:13:46 Processing showversion.out ... OK
30-Oct-2012:15:13:46 Creating list of files to be investigated:
30-Oct-2012:15:13:46 Processed 0 files
30-Oct-2012:15:13:46 Analyzing captured data ... OK
```

```
30-Oct-2012:15:13:56 Generating output (Formats: spreadsheet,csv) ... OK
30-Oct-2012:15:14:50
D:\Customers\BBVA\75877\20121018\BBVA_75877_20121018_1404819_CMDTC126_20121030141327.x
lsm
30-Oct-2012:15:14:50 D:\Customers\BBVA\75877\20121018\csv
30-Oct-2012:15:14:50 Finished

D:\Products\3Par\Inex>
```

post_csv program

Usage: post_csv <SystemSN> <CSVDirectory> <Delimiter>

With: <SystemSN> being the serial number of the system.
<CSVDirectory> being the full pathname of the directory containing the csv files
<Delimiter> being the delimiter used within the csv files.

This program is automatically invoked by the iNex applications if csv files are generated. The intent of this utility ("post_csv") is that the post processing of the csv files, which can be loading into a database, can be done externally from the program.

5. Remote Chunklets

INEX provides the capability for analyzing mapping information to identify those LDs that have chunklets located on PDs which are not owned by the owning node of the LD. A shell script will be generated with the appropriate “movech -f -perm” commands to relocate these “remote” chunklets. Please be aware this feature will not violate HP 3PAR layout criteria.

Inex_find_rmtchs.exe is located in the “/tools” sub-directory of the INEX installation directory.

From the command line:

```
inex_find_rmtchs <mapping-information-database>
```

With: <mapping-information-database> being the full path name of the SQLite Database which holds the mapping information.

This tool is also available from the INEX GUI under the “Tools” menu on the menu bar.

6. Chunklet Tracking

INEX can now analyze the one-line, debug showevent log for mapping information searching for chunklet movements. INEX collects these chunklet movements and then builds a script that provides the necessary movech commands to reverse the logged chunklet movements, returning a chunklet to its original position. Again, this chunklet tracking tool will not violate HP 3PAR layout criteria.

Inex_tracking_chunklets.exe is located in the “/tools” sub-directory of the INEX installation directory.

From the command line:

```
inex_tracking_chunklets <decompressed-insplore-directory>
```

With: < decompressed-insplore-directory > being the full path name of the decompressed InSplore directory.

This tool is also available from the INEX GUI under the “Tools” menu on the menu bar.

7. Slow Disk Checker/3PAR Disk Monitor

INEX provides a tool to scan the appropriate files looking for PDs that may be categorized as “slow”. HP 3PAR arrays that incur “slow” disks have been found to suffer severe performance issues. Identifying a “slow” disk early enough allows customers and/or HP Support personnel the ability to address a “slow” disk before it may impact performance.

Inex_slowdisk_monitor_pd.exe is located in the “/tools” sub-directory of the INEX installation directory.

From the command line:

```
inex_monitor_pd <decompressed-insplore-directory>
```

With: < decompressed-insplore-directory > being the full path name of the decompressed InSplore directory.

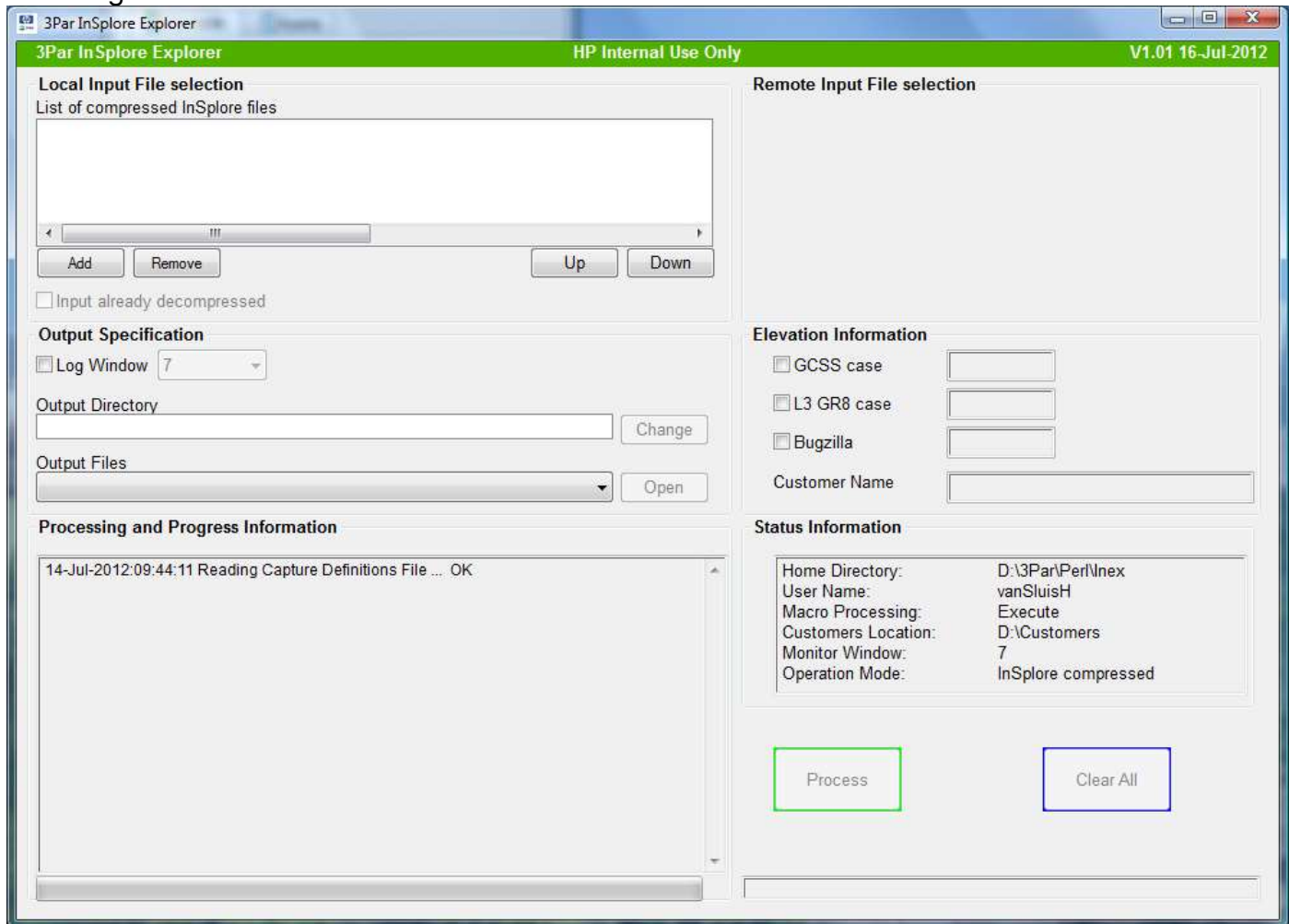
This tool is also available from the INEX GUI under the “Tools” menu on the menu bar.

Please refer to the included 3PAR Disk Monitor Usage Guide for configuring the monitor_pd.ini in the \config sub-directory under your INEX installation directory.

8. The Graphical User Interface.

The Graphical User interface the same functionality as the command line interface. The main advantage of the GUI is that it allows drag and drop of files into the “List of compressed InSplore files” list-box

The image below shows the initial screen.



The GUI also automatically deducts the customer name, GCSS, L3 GR8 and BugZilla case numbers, if they are present in the full filename of the compressed InSplore.

Once one of the files is dragged into the “List of compressed InSplore files” list-box, the following buttons / check-boxes are activated:

- “Process” button, which will start the processing of the compressed InSplore file.
- “Clear All” button, which will reset the GUI to its initial values.
- “Input already decompressed” check-box. Once checked, it’ll instruct the GUI that the decompressed InSplore file is already present. This checkbox has the same functionality as the “mode=decompressed” option on the Command Line Interface.
- “Log Window” check-box, which, once checked, will allow the change of the monitor window. This will have the same effect as the “window=<nrdays>” option on the Command Line Interface.
- “Output Directory Change” button, which allows a different specification of the output directory. This has the same effect as the “out=<directory>” option on the Command Line Interface.

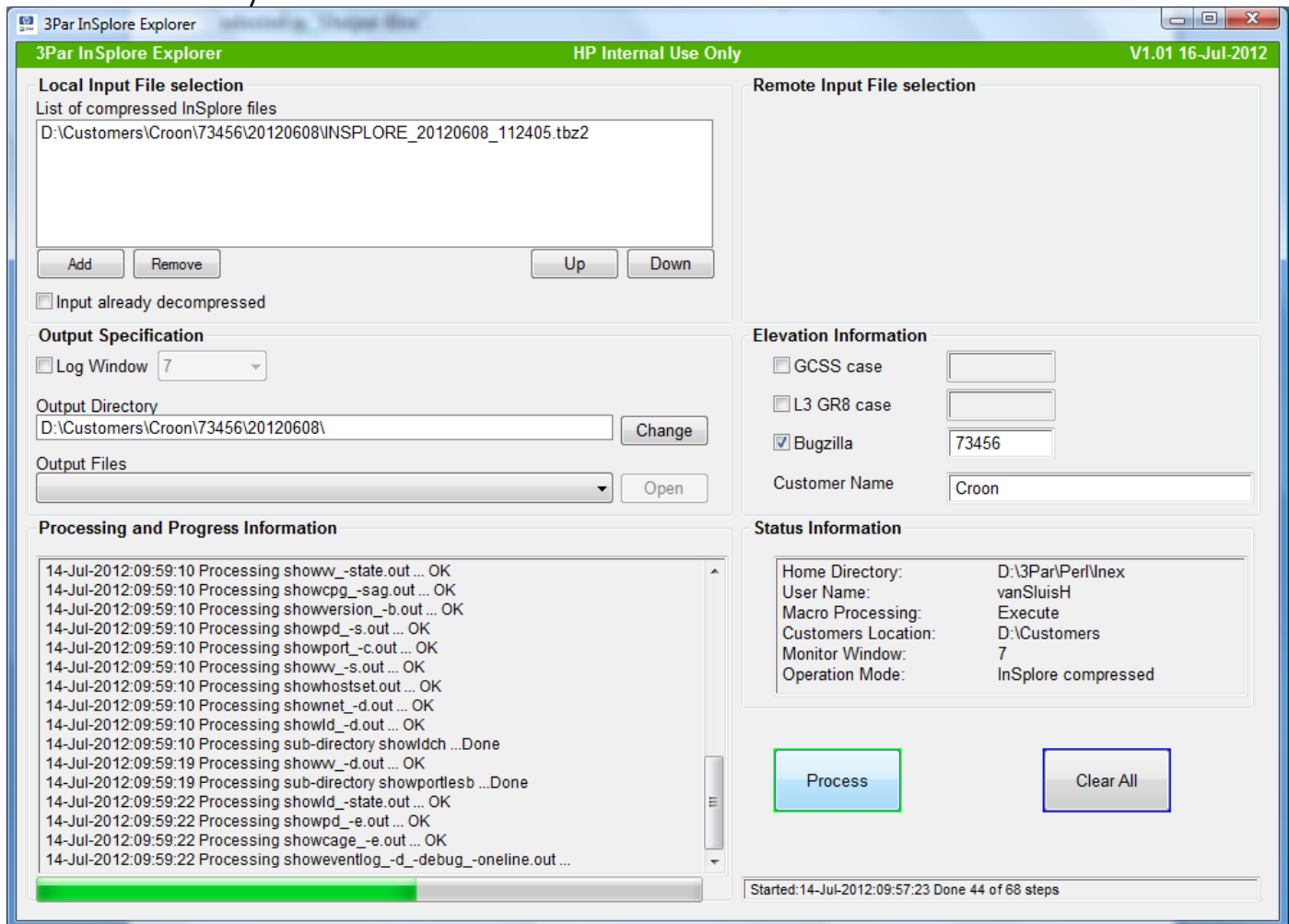
The screenshot displays the '3Par InSplore Explorer' application window. The title bar includes '3Par InSplore Explorer', 'HP Internal Use Only', and 'V1.01 16-Jul-2012'. The interface is divided into several sections:

- Local Input File selection:** Contains a list box with one file: 'D:\Customers\Croon\73456\20120608\INSPLORE_20120608_112405.tbz2'. Below the list are 'Add', 'Remove', 'Up', and 'Down' buttons. A checkbox labeled 'Input already decompressed' is present.
- Output Specification:** Includes a 'Log Window' dropdown set to '7', an 'Output Directory' text field with 'D:\Customers\Croon\73456\20120608\' and a 'Change' button, and an 'Output Files' dropdown with an 'Open' button.
- Processing and Progress Information:** A log area showing the message '14-Jul-2012:09:44:11 Reading Capture Definitions File ... OK'.
- Remote Input File selection:** An empty list box for remote file selection.
- Elevation Information:** Contains checkboxes for 'GCSS case', 'L3 GR8 case', and 'Bugzilla' (checked). The 'Bugzilla' field is set to '73456'. A 'Customer Name' field is set to 'Croon'.
- Status Information:** A table-like display showing system parameters:

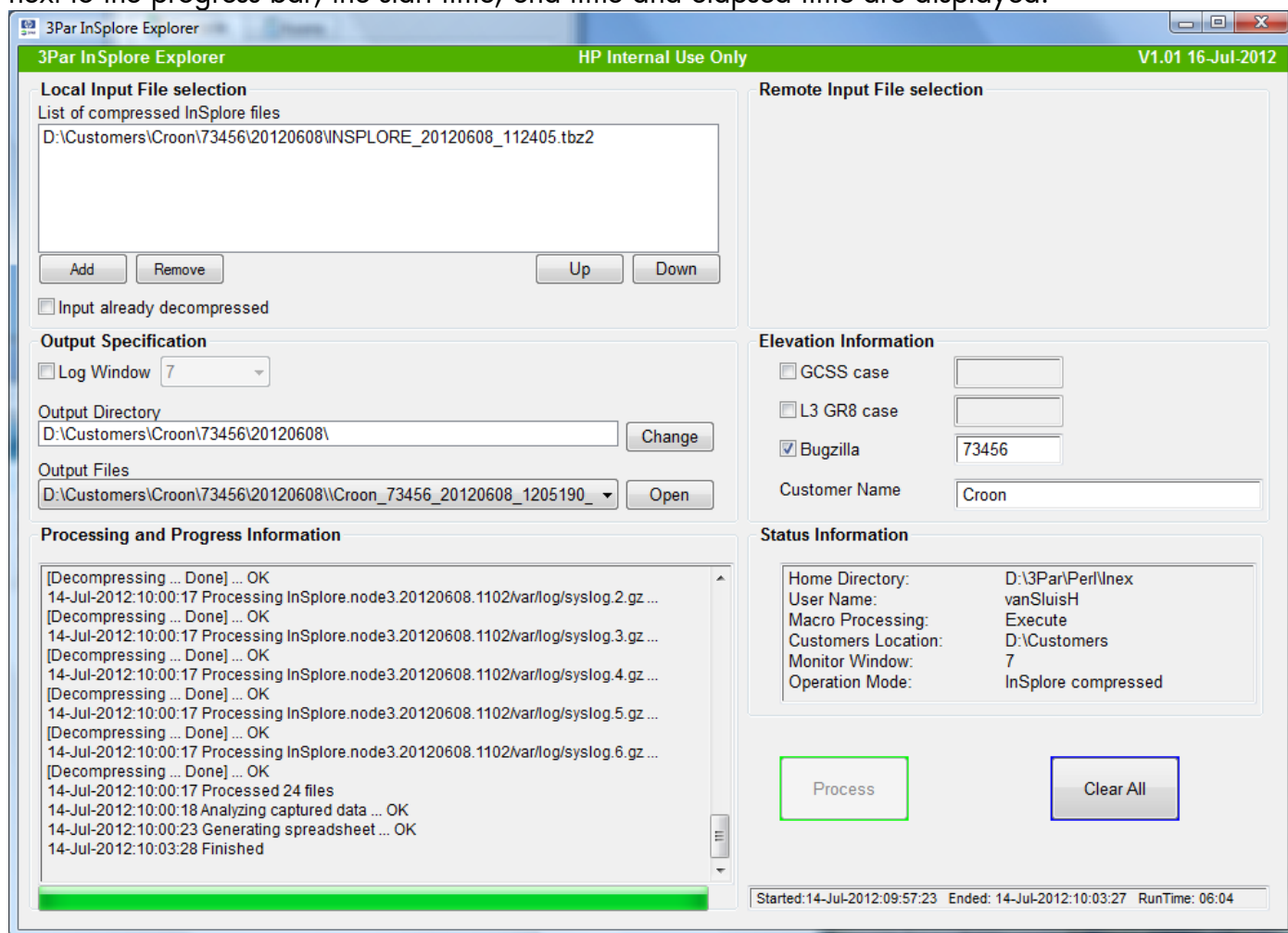
Home Directory:	D:\3Par\Perl\Inex
User Name:	vanSluisH
Macro Processing:	Execute
Customers Location:	D:\Customers
Monitor Window:	7
Operation Mode:	InSplore compressed

At the bottom right, there are two prominent buttons: 'Process' (highlighted with a green border) and 'Clear All' (highlighted with a blue border).

After clicking the “Process” button, the program starts processing all files, just like the command line utility.



Once finished, it'll disable the "Process" button and activate the "Open" button of the "Output files". Clicking on that button will cause Microsoft Excel to start with the spreadsheet specified in the filename selected in "Output Files". In the lower right corner, next to the progress bar, the start time, end time and elapsed time are displayed.



Note that one can have multiple instances of Microsoft Excel open, although not of the same file (Microsoft Excel restriction).

The GUI program is closed by clicking on the red "X" in the upper right corner.

9. Interpretation of the output data.

Introduction

As mentioned previously in this document, the output of this utility is the 3Par configuration and event data presented in a tabular form. For this purpose, the utility generates a Microsoft Excel file, containing several worksheets.

The worksheets (and their names) are color coded.



The picture above gives the names of the worksheets and offers tabs for easy access to the information on that worksheet. The worksheet which will initially presented is "Cluster". Worksheet names, which are highlighted, contain error conditions the utility wants to draw your attention to.

The “Overview” worksheet

This worksheet is the first presented worksheet upon opening of the spreadsheet file. It

1	2	3	A	B	C	D	E	F	G	H	I	J
1			Overview of Available Worksheets									
2												
3			Alerts		EventLog		Ports Nodes 4 - 7		Port 0 2 1LESB		Port 1 2 1LESB	
4			CPGs		Hosts & LUNs		RemoteCopy		Port 0 5 1LESB		Port 1 5 1LESB	
5			Cage Comms		LogicalDisks		VirtualVolumes		Port 0 6 1LESB		Port 1 6 1LESB	
6			Cage Data		Nodes				Port 0 6 2LESB		Port 1 6 2LESB	
7			Captured Log Data		Physical Disks				Port 0 6 3LESB		Port 1 6 3LESB	
8			Cluster		Ports Nodes 0 - 3				Port 0 6 4LESB		Port 1 6 4LESB	
9												
11												
12			System Overview									
13			InSplore Filename		dummy_file.txt		Baselevel		3.1.1.226		GCSS	Not Specified
14			InSplore DateTime		16-Jul-2012 11:18:40		Patches		P01,P06,P11,P91		L3	Not Specified
15			System Name		CMDTC126		Version		3.1.1		BugZilla	Not Specified
16			System Type		InServ V800						Report Issues or Suggestions	
17			Serial Number		1404819							
18			System ID		4819							
19			Nr Disk Ports		16							
20			Nr Host Ports		8							
21			Nr RCIP Ports		4							
22												
24												
25			Health Check Overview									
26				Component	Status	# Categories	# Messages					
27				Alert	Warning	1	16					
47				Cabling	OK	-	-					
48				Cage	OK	-	-					
49				Date	OK	-	-					
50				File	OK	-	-					
51				Ld	Warning	1	1					
56				License	OK	-	-					
57				Network	Error	1	1					
62				Pd	Warning	1	18					
84				Pdch	Warning	1	14					
102				Port	OK	-	-					
103				Rc	Critical	4	35					
145				Snmp	OK	-	-					
146				Sp	OK	-	-					
147				Task	OK	-	-					
148				Vlun	Warning	2	354					
507				Vv	OK	-	-					
508												
510												
511			Analysis Overview									
512			Code	Severity		RankNr	Text					
513			1000	Warning	Number of occurrences: 5		Node %p1% reboot observed on %p3%.					
519			1001	Warning	Number of occurrences: 3		Node %p1% is unable to join the cluster.					
523												

provides a Table of Contents, some cluster configuration information, an overview of the outcome of the health-check of the system and the results of the analysis of the system by iNex. The information is color coded and initially provided in a condensed format. In the Table of Contents, the highlighted hyperlinks reference worksheets, in which one or more components report an unexpected value.

Within the Health Check Overview, one will find the health status of all major

24					
25	Health Check Overview				
26		Component	Status	# Categories	# Messages
+	27	Alert	Warning	1	16
	47	Cabling	OK	-	-
	48	Cage	OK	-	-
	49	Date	OK	-	-
	50	File	OK	-	-
+	51	Ld	Warning	1	1
	56	License	OK	-	-
+	57	Network	Error	1	1
+	62	Pd	Warning	1	18
+	84	Pdch	Warning	1	14
	102	Port	OK	-	-
-	103	Rc	Critical	4	35
	104			8	Links which are down
	105			4	VVs which are not synced
	106			22	Groups which are not started
	107			1	Failed targets
+	108	For more details, click on "+" sign in front of row			
	145	Snmp	OK	-	-
	146	Sp	OK	-	-
	147	Task	OK	-	-
+	148	Vlun	Warning	2	354
	507	Vv	OK	-	-
	508				

components. If the status isn't "OK" (color 'green'), then the "+" sign in front of the row allows the user to view the high level issues ('categories') for that component. In the example to the left, there are categories. Per category, the number of messages is provided. More detailed information can be viewed by clicking on the second level "+" sign in front of the row with "For more details, click on "+" sign in front of row". When done, the following information appears.

105		4	VVs which are not synced
106		22	Groups which are not started
107		1	Failed targets
108	For more details, click on "+" sign in front of row		
109	rc:CMDVG126		Target CMDVG126 has failed.
110	rc:CMDVG126_0_1_1		Link CMDVG126_0_1_1 of target CMDVG126 is down.
111	rc:CMDVG126_1_1_1		Link CMDVG126_1_1_1 of target CMDVG126 is down.
112	rc:CMDVG126_4_1_1		Link CMDVG126_4_1_1 of target CMDVG126 is down.
113	rc:CMDVG126_5_1_1		Link CMDVG126_5_1_1 of target CMDVG126 is down.
114	rc:rcv_fc_011		Link rcv_fc_011 of target receive is down.
115	rc:rcv_fc_111		Link rcv_fc_111 of target receive is down.
116	rc:rcv_fc_411		Link rcv_fc_411 of target receive is down.
117	rc:rcv_fc_511		Link rcv_fc_511 of target receive is down.
118	rc:Discos_APGMM001_01		Group Discos_APGMM001_01 is not started to target CMDVG126.
119	rc:Discos_APGMM101_01		Group Discos_APGMM101_01 is not started to target CMDVG126.
120	rc:Discos_GENPRD_500GB_01		Group Discos_GENPRD_500GB_01 is not started to target CMDVG126.
121	rc:vol_SATA_Linux_GENPRD_1		VV vol_SATA_Linux_GENPRD_1 of group Discos_GENPRD_500GB_01 is not synced on target CMDVG126.
122	rc:vol_SATA_Linux_GENPRD_2		VV vol_SATA_Linux_GENPRD_2 of group Discos_GENPRD_500GB_01 is not synced on target CMDVG126.
123	rc:vol_SATA_Linux_GENPRD_3		VV vol_SATA_Linux_GENPRD_3 of group Discos_GENPRD_500GB_01 is not synced on target CMDVG126.
124	rc:vol_SATA_Linux_GENPRD_4		VV vol_SATA_Linux_GENPRD_4 of group Discos_GENPRD_500GB_01 is not synced on target CMDVG126.
125	rc:Discos_LPEMS501_01		Group Discos_LPEMS501_01 is not started to target CMDVG126.
126	rc:Discos_LPEMS502_01		Group Discos_LPEMS502_01 is not started to target CMDVG126.
127	rc:Discos_MATRIX_01		Group Discos_MATRIX_01 is not started to target CMDVG126.
128	rc:Discos_PROD17_01		Group Discos_PROD17_01 is not started to target CMDVG126.
129	rc:Discos_SPAST001_01		Group Discos_SPAST001_01 is not started to target CMDVG126.
130	rc:Discos_SPGEC001_01		Group Discos_SPGEC001_01 is not started to target CMDVG126.
131	rc:Discos_SPM_15GB_01		Group Discos_SPM_15GB_01 is not started to target CMDVG126.
132	rc:Discos_SPM_20GB_01		Group Discos_SPM_20GB_01 is not started to target CMDVG126.
133	rc:Discos_SPM_20GB_02		Group Discos_SPM_20GB_02 is not started to target CMDVG126.
134	rc:Discos_SPM_30GB_01		Group Discos_SPM_30GB_01 is not started to target CMDVG126.
135	rc:Discos_SPM_40GB_01		Group Discos_SPM_40GB_01 is not started to target CMDVG126.
136	rc:Discos_SPM_40GB_02		Group Discos_SPM_40GB_02 is not started to target CMDVG126.
137	rc:Discos_SPM_500GB_01		Group Discos_SPM_500GB_01 is not started to target CMDVG126.
138	rc:Discos_SPRET001_01		Group Discos_SPRET001_01 is not started to target CMDVG126.
139	rc:Discos_SPRET002_01		Group Discos_SPRET002_01 is not started to target CMDVG126.
140	rc:Discos_SPTLM001_01		Group Discos_SPTLM001_01 is not started to target CMDVG126.
141	rc:Discos_SPTLM002_01		Group Discos_SPTLM002_01 is not started to target CMDVG126.
142	rc:Discos_SPVIR004_01		Group Discos_SPVIR004_01 is not started to target CMDVG126.
143	rc:Discos_SPVIR005_01		Group Discos_SPVIR005_01 is not started to target CMDVG126.
144			

GCSS	4612345678
L3	Not Specified
BugZilla	Not Specified

[Report Issues or Suggestions](#)

The Overview worksheet also provides links to the GCSS, GR8 and BugZilla case numbers. If available, the number will be displayed as hyperlink. In the example to the left, the GCSS case number specified is "4612345678". Clicking on the number will cause an Internet Browser to be opened to the URL of the specific case viewer.

staff of the iNex program.

Furthermore, with "Report Issues or Suggestions", the user has the capability to send an email directly to the support

The “Cluster” worksheet

The picture below shows the “Cluster” worksheet. This worksheet contains besides some general information regarding the cluster.

A	B	C	D	E	F	G	H	I	J	K	L	M	N
Cluster													
System Name		inserv											
System Type		InServ F400											
Serial Number		1304251											
System ID		4251											
Chunklet Size		256MB											
Nodes	Number	4											
Nodes	Master	0											
Nodes	OnLine	0,1,2,3											
Nodes	In Cluster	0,1,2,3											
Capacity	Total (GB)	52092											
Capacity	Allocated (GB)	31833	61.11%										
Capacity	Free (GB)	20258	38.89%										
Capacity	Failed (GB)	0.25	0.00%										
Ports	Nr Disk Ports	8											
Ports	Nr Host Ports	4											
Ports	Nr RCIP Ports	4											
Parameters	CopySpaceReclaim	1											
Parameters	EventLogSize	3M											
Parameters	RawSpaceAlertFC	0											
Parameters	RawSpaceAlertNL	0											
Parameters	RawSpaceAlertSSD	0											
Parameters	RemoteSyslog	0											
Parameters	RemoteSyslogHost	0.0.0.0											
Parameters	SparingAlgorithm	Default											
Parameters	VRetentionTimeMax	336 Hours											

Cluster Capacity (52092 GB)

Legend: Allocated (GB) Free (GB) Failed (GB)

Information on this worksheet contains System Name, System Type, System Serial Number, Nodes, Licenses, Version, Patches, Capacity and Number of Ports Information. The graph shows the relation between allocated, free and failed capacity.

The “Nodes” worksheet

This worksheet contains node specific information.

	A	B	C	D	E	G	I	K	M
1	Number of Nodes: 4					Node 0	Node 1	Node 2	Node 3
2									
3									
4					Id	0	1	2	3
6					Name	1304251-0	1304251-1	1304251-2	1304251-3
8					Datetime	16-Apr-2012 01:12:40	16-Apr-2012 01:12:40	16-Apr-2012 01:12:40	16-Apr-2012 01:12:40
10					Secondary	1	0	3	2
12	General				CacheAvailable	100%	100%	100%	100%
13	General				ControlMem	4096MB	4096MB	4096MB	4096MB
14	General				DataMem	6144MB	6144MB	6144MB	6144MB
15	General				InCluster	Yes	Yes	Yes	Yes
16	General				LED	GreenBlink	GreenBlink	GreenBlink	GreenBlink
17	General				Master	Yes	No	No	No
18	General				State	OK	OK	OK	OK
20	Eeprom				Assembly	FLH 2011/15 Serial 0a90	FLH 2011/15 Serial 0a04	FLH 2011/13 Serial 09a5	FLH 2011/15 Serial 0a6a
21	Eeprom				BIOSState	ff 23 26 27 28 29 2b 80	ff 23 26 27 28 29 2b 80	ff 23 26 27 28 29 2b 80	ff 23 26 27 28 29 2b 80
22	Eeprom				BIOSVersion	2.4.8	2.4.8	2.4.8	2.4.8

Nodes are displayed per column, allowing for an easy, side-by-side, comparison. The node specific information is given per row. Node specific information is Node ID, Node Name, Master Yes/No, Node State, Eeprom contents, Power info, Network Interfaces info, Network Statistics, Memory (Cache and Control) Info, CPU Info, Internal HDD and PCI Device information.

The “Ports” worksheets

This worksheet lists all relevant information related to a specific port on a per-node base. The notation used is “Node:Slot:Port”. The number of worksheets depends on the number of nodes. The first worksheet will contain all ports related to nodes 0-3; the second worksheet contains information of all ports related to nodes 4-7.

Ports which are active (not being “free”) are printed in black; free ports are printed in grey. Active ports have a hyperlink to the LESB counters of that specific port.

	A	B	C	D	E	G	I	K	M	O
1										
2	Number of ports: 24					Port 0:2:1	Port 0:2:2	Port 0:2:3	Port 0:2:4	Port 0:6:1
3					Type	disk	disk	free	free	rcip
4					State	ready	ready	loss_sync	loss_sync	offline
5					Mode	initiator	initiator	initiator	initiator	peer
6					Modechange	prohibited	prohibited	allowed	allowed	
7					Vendor	3PAR	3PAR	3PAR	3PAR	Intel
8					Model	FC044X	FC044X	FC044X	FC044X	e1000
9					Firmware	1.32.A.3	1.32.A.3	1.32.A.3	1.32.A.3	7.3.20-k2
10					Rev	09	09	09	09	n/a
11					Sn	0565a704001954d1	0565a704001954d1	0565a704001954d1	0565a704001954d1	Onboard
12					Config	valid	valid	—	—	—
13	Wwn				Node	2ff7-0002-ac00-109b	2ff7-0002-ac00-109b	2ff7-0002-ac00-109b	2ff7-0002-ac00-109b	—
14	Wwn				Port	2021-0002-ac00-109b	2022-0002-ac00-109b	2023-0002-ac00-109b	2024-0002-ac00-109b	0002AC691521
15	Device				Name	cage0	cage1	—	—	—
16	Device				Pos	0	0	—	—	—
17	Connection				Maxspeed	4Gbps	4Gbps	4Gbps	4Gbps	—
18	Connection				Mode	disk	disk	disk	disk	—
19	Connection				Operate	4Gbps	4Gbps	n/a	n/a	—
20	Connection				Speed	auto	auto	auto	auto	n/a
21	Connection				Topo	private_loop	private_loop	n/a	n/a	—
22	Connection				Type	loop	loop	loop	loop	—
23	RemoteCopy				Addr	—	—	—	—	—
24	RemoteCopy				Peeraddr	—	—	—	—	—
25	RemoteCopy				State	—	—	—	—	unknown
26	RemoteCopy				Type	—	—	—	—	rcip

Port specific information is, besides Port Type, Status, mode and WWNs, also the Connection Information, Remote Copy Information and SFP, including DDM, Information.

As of V1.26-6 the “Ports” worksheet will display “Pre-312” for “Connection Failover” in InSplores that are from OS versions prior to V3.1.2.

	A	B	C	D	E	G	I
1	List of Worksheets					Port 0:0:1	Port 0:0:2
2	Number of ports: 52						
3							
4					Type	disk	disk
5					State	ready	ready
6					Mode	initiator	initiator
7					Modechange	allowed	allowed
8					Vendor	3PAR	3PAR
9					Model	FC044X	FC044X
10					Firmware	1.32.A.5	1.32.A.5
11					Rev	09	09
12					Sn	08a5878400297703	08a5878400297703
13					Config	valid	valid
14	Wwn				Node	2ff7-0002-ac00-0f72	2ff7-0002-ac00-0f72
15	Wwn				Port	2001-0002-ac00-0f72	2002-0002-ac00-0f72
17	Device				Name	cage8	cage9
18	Device				Pos	0	0
20	Connection				Failover	Pre-312	Pre-312
21	Connection				Label		
22	Connection				Maxspeed	4Gbps	4Gbps
23	Connection				Mode	disk	disk
24	Connection				Oprate	4Gbps	4Gbps
25	Connection				Partner		
26	Connection				Protocol		
27	Connection				Speed	auto	auto
28	Connection				Topo	private_loop	private_loop
29	Connection				Type	loop	loop

The “Cage Data” worksheet

This worksheet displays disk drive cage specific information. Cages are listed per column, thus allowing an easy, side-by-side, comparison. The picture below gives an overview of the information displayed for cage type “DC3”, which can be found in F-Series 3Par systems. The highlighted field means that the cage state isn’t “OK”, which will also lead to the worksheet name to be highlighted.

	A	B	C	E	F	H	I	K	L	N	O
1											
2	Number of Cages: 8			cage0		cage1		cage2		cage3	
3											
4	General	ID		0		1		2		3	
5		Name		cage0		cage1		cage2		cage3	
6		Nr Drives		16		16		12		12	
7		Position		Bay 3 D4		Bay 1 D6		Bay 6 D0		Bay 8 D2	
9	MidPlane	Vendor		3PARdata		3PARdata		3PARdata		3PARdata	
10		Model		DC3		DC3		DC3		DC3	
11		SN		OPS69907C0196B6		OPS69907C019657		OPS69907C0196F2		OPS69907C019692	
12		WWN		2000-0050-cc01-96b6		2000-0050-cc01-9657		2000-0050-cc01-96f2		2000-0050-cc01-9692	
13		Temp	State	OK		OK		OK		OK	
14		Sensor	Value	35		38		33		31	
15		OpsPanel		OK		OK		OK		OK	
16		Audio Alarm		Muted		Muted		Muted		Muted	
17		ID Switch		1		1		1		1	
18		Cage State		Warning		OK		OK		OK	
20	Interface Board		LoopA	LoopB	LoopA	LoopB	LoopA	LoopB	LoopA	LoopB	
21		Firmware Status	Current	Current	Current	Current	Current	Current	Current	Current	
22		Revision	08	08	08	08	08	08	08	08	
23		IFC State	OK	OK	OK	OK	OK	OK	OK	OK	
24		ESH State	OK	OK	OK	OK	OK	OK	OK	OK	
25		Master CPU	Yes	No	Yes	No	Yes	No	Yes	No	
26		Loop Map	Valid	Valid	Valid	Valid	Valid	Valid	Valid	Valid	
27		N-S-P	0:2:1	1:2:1	0:2:2	1:2:2	2:2:1	3:2:1	2:2:2	3:2:2	
28		Loop Position	0	1	0	1	0	1	0	1	
29		Link Speed	4Gbps	4Gbps	4Gbps	4Gbps	4Gbps	4Gbps	4Gbps	4Gbps	
30		Port 0	OK	Failed	OK	OK	OK	OK	OK	OK	
31		Port 1	OK	No_SFP	OK	No_SFP	OK	No_SFP	OK	No_SFP	
32		Port 2	No_SFP	No_SFP	No_SFP	No_SFP	No_SFP	No_SFP	No_SFP	No_SFP	
33		Port 3	No_SFP	No_SFP	No_SFP	No_SFP	No_SFP	No_SFP	No_SFP	No_SFP	
35	Power Supplies		PS0	PS1	PS0	PS1	PS0	PS1	PS0	PS1	
36		State	OK	OK	OK	OK	OK	OK	OK	OK	
37		Fan State	MedSpeed	MedSpeed	MedSpeed	MedSpeed	MedSpeed	MedSpeed	MedSpeed	MedSpeed	
38		AC	OK	OK	OK	OK	OK	OK	OK	OK	
39		Model	-	-	-	-	-	-	-	-	

Note that this worksheet does not contain the error counters, as part of the “showcage – e” command. That information is on a dedicated worksheet.

The next image shows the layout of disk drive cages, of the DC4 type.

	A	B	C	E	F	H	I	K	L	N	O
1	Number of Cages: 4			cage0		cage1		cage2		cage3	
2											
3											
4	General		ID	0		1		2		3	
5			Name	cage0		cage1		cage2		cage3	
6			Model	DC4		DC4		DC4		DC4	
7			Nr Drives	40		40		40		40	
8			Position	Cabinet01 Bay6		Cabinet01 Bay5		Cabinet01 Bay4		Cabinet01 Bay3	
9			Vendor	3PARdata		3PARdata		3PARdata		3PARdata	
10			Model	DC4		DC4		DC4		DC4	
12	MidPlane		Firmware_status	Current		Current		Current		Current	
13			Loop_Split	0		0		0		0	
14			Product_Rev	2.61		2.61		2.61		2.61	
15			State	Normal Op		Normal Op		Normal Op		Normal Op	
16			Unique_ID	1062030000396300		1062030000386C00		1062030000373700		1062030000396F00	
18	FC Interfaces			FCAL0	FCAL1	FCAL0	FCAL1	FCAL0	FCAL1	FCAL0	FCAL1
19			LED(Loop_Split)	Off	Off	Off	Off	Off	Off	Off	Off
20			LEDs(system_hotplug)	Green,Off	Green,Off	Green,Off	Green,Off	Green,Off	Green,Off	Green,Off	Green,Off
21			Link_A_RXLEDs	Green	Off	Green	Off	Green	Off	Green	Off
22			Link_A_TXLEDs	Green	Off	Green	Off	Green	Off	Green	Off
23			Link_B_RXLEDs	Off	Green	Off	Green	Off	Green	Off	Green
24			Link_B_TXLEDs	Off	Green	Off	Green	Off	Green	Off	Green
25		SFP0	DDM	Yes	-	Yes	-	Yes	-	Yes	-
26			RXLoss	No	-	No	-	No	-	No	-
27			Speed	4.2Gbps	-	4.2Gbps	-	4.2Gbps	-	4.2Gbps	-
28			TXDisable	No	-	No	-	No	-	No	-
29			TXFault	No	-	No	-	No	-	No	-
30			State	OK	-	OK	-	OK	-	OK	-
31			Vendor	FINISAR	-	FINISAR	-	FINISAR	-	FINISAR	-
32		SFP1	DDM	-	Yes	-	Yes	-	Yes	-	Yes
33			RXLoss	-	No	-	No	-	No	-	No
34			Speed	-	4.2Gbps	-	4.2Gbps	-	4.2Gbps	-	4.2Gbps
35			TXDisable	-	No	-	No	-	No	-	No
36			TXFault	-	No	-	No	-	No	-	No
37			State	-	OK	-	OK	-	OK	-	OK
38			Vendor	-	FINISAR	-	FINISAR	-	FINISAR	-	FINISAR
39		Speed	Port0	4Gbps	-	4Gbps	-	4Gbps	-	4Gbps	-
40			Port1	-	4Gbps	-	4Gbps	-	4Gbps	-	4Gbps
41			N-S-P	2:0:1	3:0:1	2:0:2	3:0:2	2:0:3	3:0:3	2:0:4	3:0:4
42			Loop Pos	0	0	0	0	0	0	0	0

Besides the information showed above, the spreadsheet will also list the drive magazine information as well as Power Supply information of the drive cage.

The “Cage Comms” worksheet.

This worksheet lists the error counters of each disk drive cage. The base for this worksheet is the “showcage –e” command.

The layout of the worksheet differs on the drive cage type. Below is an example of a drive cage of type “DC3”.

	A	B	C	D	E	F	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W
							State		Bad Words		CRC Error		Clock Delta		Loop Up		Insert		Stall		Utilization	
	Cage	WWN	Cal	Ma	Rat	Type	LoopA	LoopB	LoopA	LoopB	LoopA	LoopB	LoopA	LoopB	LoopA	LoopB	LoopA	LoopB	LoopA	LoopB	LoopA	LoopB
4	cage0					Port0	0x0	0x0	-	-	-	-	0x4	-	0x4	-	0x1	-	-	-	0x6	-
5	cage0					Port1	0x22	0x0	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6	cage0					Port2	0x22	0x0	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7	cage0					Port3	0x22	0x0	-	-	-	-	-	-	-	-	-	-	-	-	-	-
8	cage0	5000-cca0-1755-5905	0	0	0	Disk	0x0	0x0	-	-	-	-	0x3	-	0x6	-	0x1	-	-	-	-	-
9	cage0	5000-cca0-1754-4500	0	1	0	Disk	0x0	0x0	-	-	-	-	0x5	-	0x6	-	0x1	-	-	-	-	-
10	cage0	2210-000a-3300-cdb5	0	2	0	Disk	0x0	0x0	-	-	-	-	0x3	-	0xc	-	0x2	-	-	-	-	-
11	cage0	5000-cca0-1753-6144	0	3	0	Disk	0x0	0x0	-	-	-	-	0x3	-	0x6	-	0x1	-	-	-	-	-
12	cage0	5000-cca0-176b-b940	0	4	0	Disk	0x0	0x0	-	-	-	-	0x2	-	0x6	-	0x1	-	-	-	-	-
13	cage0	5000-cca0-1754-48e0	0	5	0	Disk	0x0	0x0	-	-	-	-	0x3	-	0x6	-	0x1	-	-	-	-	-
14	cage0	2210-000a-3300-cebf	0	6	0	Disk	0x0	0x0	-	-	-	-	0x3	-	0xc	-	0x2	-	-	-	0x2	-
15	cage0	5000-cca0-1751-77d0	0	7	0	Disk	0x0	0x0	-	-	-	-	0x4	-	0x5	-	0x2	-	-	-	-	-
16	cage0	5000-cca0-1756-83bc	0	8	0	Disk	0x0	0x0	-	-	-	-	0x2	-	0x6	-	0x1	-	-	-	-	-
17	cage0	5000-cca0-1753-64dc	0	9	0	Disk	0x0	0x0	-	-	-	-	0x3	-	0x6	-	0x1	-	-	-	-	-
18	cage0	2210-000a-3300-cfa7	0	10	0	Disk	0x0	0x0	-	-	-	-	0x3	-	0xc	-	0x2	-	-	-	-	-
19	cage0	5000-cca0-1752-a750	0	11	0	Disk	0x0	0x0	-	-	-	-	0x3	-	0x6	-	0x1	-	-	-	-	-
20	cage0	5000-cca0-1753-3ac8	0	12	0	Disk	0x0	0x0	-	-	-	-	0x4	-	0x6	-	0x1	-	-	-	-	-
21	cage0	5000-cca0-1753-638c	0	13	0	Disk	0x0	0x0	-	-	-	-	0x3	-	0x6	-	0x1	-	-	-	-	-
22	cage0	2210-000a-3300-cf16	0	14	0	Disk	0x0	0x0	-	-	-	-	0x3	-	0xb	-	0x2	-	-	-	0x2	-
23	cage0	5000-cca0-1750-c7dc	0	15	0	Disk	0x0	0x0	-	-	-	-	0x1	-	0x6	-	0x1	-	-	-	-	-

Information displayed is the cage name, disk drive WWN, physical position of the drive, loop-state (A&B loop) and the error counters per (A&B) loop per device.

If the value “-” is given, it means that the counter value is zero (0x0). The result is that only non-zero counters are displayed with their reported value.

The example to the left is of a “DC4” drive cage.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																									
A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA	AB	AC	AD	AE	AF	AG	AH	AI	AJ	AK	AL	AM	AN	AO	AP	AQ	AR	AS	AT	AU	AV	AW	AX	AY	AZ	BA	BB	BC	BD	BE	BF	BG	BH	BI	BJ	BK	BL	BM	BN	BO	BP	BQ	BR	BS	BT	BV	BW	BX	BY	BZ	CA	CB	CC	CD	CE	CF	CG	CH	CI	CJ	CK	CL	CM	CN	CO	CP	CQ	CR	CS	CT	CU	CV	CW	CX	CY	CZ	DA	DB	DC	DD	DE	DF	DG	DH	DI	DJ	DK	DL	DM	DN	DO	DP	DQ	DR	DS	DT	DV	DW	DX	DY	DZ	EA	EB	EC	ED	EE	EF	EG	EH	EI	EJ	EK	EL	EM	EN	EO	EP	EQ	ER	ES	ET	EU	EV	EW	EX	EY	EZ	FA	FB	FC	FD	FE	FF	FG	FH	FI	FJ	FK	FL	FM	FN	FO	FP	FQ	FR	FS	FT	FV	FW	FX	FY	FZ	GA	GB	GC	GD	GE	GF	GG	GH	GI	GJ	GK	GL	GM	GN	GO	GP	GQ	GR	GS	GT	GV	GW	GX	GY	GZ	HA	HB	HC	HD	HE	HF	HG	HH	HI	HJ	HK	HL	HM	HN	HO	HP	HQ	HR	HS	HT	HV	HW	HX	HY	HZ	IA	IB	IC	ID	IE	IF	IG	IH	II	IJ	IK	IL	IM	IN	IO	IP	IQ	IR	IS	IT	IU	IV	IW	IX	IY	IZ	JA	JB	JC	JD	JE	JF	JG	JH	JI	IJ	JK	IL	IM	IN	IO	IP	IQ	IR	IS	IT	IU	IV	IW	IX	IY	IZ	KA	KB	KC	KD	KE	KF	KG	KH	KI	KJ	KK	KL	KM	KN	KO	KP	KQ	KR	KS	KT	KV	KW	KX	KY	KZ	LA	LB	LC	LD	LE	LF	LG	LH	LI	LJ	LK	LL	LM	LN	LO	LP	LQ	LR	LS	LT	LV	LW	LX	LY	LZ	MA	MB	MC	MD	ME	MF	MG	MH	MI	MJ	MK	ML	MM	MN	MO	MP	MQ	MR	MS	MT	MV	MW	MX	MY	MZ	NA	NB	NC	ND	NE	NF	NG	NH	NI	NJ	NK	NL	NM	NN	NO	NP	NQ	NR	NS	NT	NV	NW	NX	NY	NZ	OA	OB	OC	OD	OE	OF	OG	OH	OI	OJ	OK	OL	OM	ON	OO	OP	OQ	OR	OS	OT	OV	OW	OX	OY	OZ	PA	PB	PC	PD	PE	PF	PG	PH	PI	PJ	PK	PL	PM	PN	PO	PP	PQ	PR	PS	PT	PV	PW	PX	PY	PZ	QA	QB	QC	QD	QE	QF	QG	QH	QI	QJ	QK	QL	QM	QN	QO	QP	QQ	QR	QS	QT	QV	QW	QX	QY	QZ	RA	RB	RC	RD	RE	RF	RG	RH	RI	RJ	RK	RL	RM	RN	RO	RP	RQ	RR	RS	RT	RV	RW	RX	RY	RZ	SA	SB	SC	SD	SE	SF	SG	SH	SI	SJ	SK	SL	SM	SN	SO	SP	SQ	SR	SS	ST	SV	SW	SX	SY	SZ	TA	TB	TC	TD	TE	TF	TG	TH	TI	TJ	TK	TL	TM	TN	TO	TP	TQ	TR	TS	TV	TW	TX	TY	TZ	UA	UB	UC	UD	UE	UF	UG	UH	UI	UJ	UK	UL	UM	UN	UO	UP	UQ	UR	US	UT	UV	UW	UX	UY	UZ	VA	VB	VC	VD	VE	VF	VG	VH	VI	VJ	VK	VL	VM	VN	VO	VP	VQ	VR	VS	VT	VV	VW	VX	VY	VZ	WA	WB	WC	WD	WE	WF	WG	WH	WI	WJ	WK	WL	WM	WN	WO	WP	WQ	WR	WS	WT	WV	WW	WX	WY	WZ	XA	XB	XC	XD	XE	XF	YG	YH	YI	YJ	YK	YL	YM	YN	YO	YP	YQ	YR	YS	YT	YV	YW	YX	YY	YZ	ZA	ZB	ZC	ZD	ZE	ZF	ZG	ZH	ZI	ZJ	ZK	ZL	ZM	ZN	ZO	ZP	ZQ	ZR	ZS	ZT	ZV	ZW	ZX	ZY	ZZ	AA	AB	AC	AD	AE	AF	AG	AH	AI	AJ	AK	AL	AM	AN	AO	AP	AQ	AR	AS	AT	AU	AV	AW	AX	AY	AZ	BA	BB	BC	BD	BE	BF	BG	BH	BI	BJ	BK	BL	BM	BN	BO	BP	BQ	BR	BS	BT	BV	BW	BX	BY	BZ	CA	CB	CC	CD	CE	CF	CG	CH	CI	CJ	CK	CL	CM	CN	CO	CP	CQ	CR	CS	CT	CU	CV	CW	CX	CY	CZ	DA	DB	DC	DD	DE	DF	DG	DH	DI	DJ	DK	DL	DM	DN	DO	DP	DQ	DR	DS	DT	DV	DW	DX	DY	DZ	EA	EB	EC	ED	EE	EF	EG	EH	EI	EJ	EK	EL	EM	EN	EO	EP	EQ	ER	ES	ET	EU	EV	EW	EX	EY	EZ	FA	FB	FC	FD	FE	FF	FG	FH	FI	FJ	FK	FL	FM	FN	FO	FP	FQ	FR	FS	FT	FV	FW	FX	FY	FZ	GA	GB	GC	GD	GE	GF	GG	GH	GI	GJ	GK	GL	GM	GN	GO	GP	GQ	GR	GS	GT	GV	GW	GX	GY	GZ	HA	HB	HC	HD	HE	HF	HG	HH	HI	HJ	HK	HL	HM	HN	HO	HP	HQ	HR	HS	HT	HV	HW	HX	HY	HZ	IA	IB	IC	ID	IE	IF	IG	IH	II	IJ	IK	IL	IM	IN	IO	IP	IQ	IR	IS	IT	IU	IV	IW	IX	IY	IZ	JA	JB	JC	JD	JE	JF	JG	JH	JI	IJ	JK	IL	IM	IN	IO	IP	IQ	IR	IS	IT	IU	IV	IW	IX	IY	IZ	KA	KB	KC	KD	KE	KF	KG	KH	KI	KJ	KK	KL	KM	KN	KO	KP	KQ	KR	KS	KT	KV	KW	KX	KY	KZ	LA	LB	LC	LD	LE	LF	LG	LH	LI	LJ	LK	LL	LM	LN	LO	LP	LQ	LR	LS	LT	LV	LW	LX	LY	LZ	MA	MB	MC	MD	ME	MF	MG	MH	MI	MJ	MK	ML	MM	MN	MO	MP	MQ	MR	MS	MT	MV	MW	MX	MY	MZ	NA	NB	NC	ND	NE	NF	NG	NH	NI	NJ	NK	NL	NM	NN	NO	NP	NQ	NR	NS	NT	NV	NW	NX	NY	NZ	OA	OB	OC	OD	OE	OF	OG	OH	OI	OJ	OK	OL	OM	ON	OO	OP	OQ	OR	OS	OT	OV	OW	OX	OY	OZ	PA	PB	PC	PD	PE	PF	PG	PH	PI	PJ	PK	PL	PM	PN	PO	PP	PQ	PR	PS	PT	PV	PW	PX	PY	PZ	QA	QB	QC	QD	QE	QF	QG	QH	QI	QJ	QK	QL	QM	QN	QO	QP	QQ	QR	QS	QT	QV	QW	QX	QY	QZ	RA	RB	RC	RD	RE	RF	RG	RH	RI	RJ	RK	RL	RM	RN	RO	RP	RQ	RR	RS	RT	RV	RW	RX	RY	RZ	SA	SB	SC	SD	SE	SF	SG	SH	SI	SJ	SK	SL	SM	SN	SO	SP	SQ	SR	SS	ST	SV	SW	SX	SY	SZ	TA	TB	TC	TD	TE	TF	TG	TH	TI	TJ	TK	TL	TM	TN	TO	TP	TQ	TR	TS	TV	TW	TX	TY	TZ	UA	UB	UC	UD	UE	UF	UG	UH	UI	UJ	UK	UL	UM	UN	UO	UP	UQ	UR	US	UT	UV	UW	UX	UY	UZ	VA	VB	VC	VD	VE	VF	VG	VH	VI	VJ	VK	VL	VM	VN	VO	VP	VQ	VR	VS	VT	VV	VW	VX	VY	VZ	WA	WB	WC	WD	WE	WF	WG	WH	WI	WJ	WK	WL	WM	WN	WO	WP	WQ	WR	WS	WT	WV	WW	WX	WY	WZ	XA	XB	XC	XD	XE	XF	YG	YH	YI	YJ	YK	YL	YM	YN	YO	YP	YQ	YR	YS	YT	YV	YW	YX	YY	YZ	ZA	ZB	ZC	ZD	ZE	ZF	ZG	ZH	ZI	ZJ	ZK	ZL	ZM	ZN	ZO	ZP	ZQ	ZR	ZS	ZT	ZV	ZW	ZX	ZY	ZZ	AA	AB	AC	AD	AE	AF	AG	AH	AI	AJ	AK	AL	AM	AN	AO	AP	AQ	AR	AS	AT	AU	AV	AW	AX	AY	AZ	BA	BB	BC	BD	BE	BF	BG	BH	BI	BJ	BK	BL	BM	BN	BO	BP	BQ	BR	BS	BT	BV	BW	BX	BY	BZ	CA	CB	CC	CD	CE	CF	CG	CH	CI	CJ	CK	CL	CM	CN	CO	CP	CQ	CR	CS	CT	CU	CV	CW	CX	CY	CZ	DA	DB	DC	DD	DE	DF	DG	DH	DI	DJ	DK	DL	DM	DN	DO	DP	DQ	DR	DS	DT	DV	DW	DX	DY	DZ	EA	EB	EC	ED	EE	EF	EG	EH	EI	EJ	EK	EL	EM	EN	EO	EP	EQ	ER	ES	ET	EU	EV	EW	EX	EY	EZ	FA	FB	FC	FD	FE	FF	FG	FH	FI	FJ	FK	FL	FM	FN	FO	FP	FQ	FR	FS	FT	FV	FW	FX	FY	FZ	GA	GB	GC	GD	GE	GF	GG	GH	GI	GJ	GK	GL	GM	GN	GO	GP	GQ	GR	GS	GT	GV	GW	GX	GY	GZ	HA	HB	HC	HD	HE	HF	HG	HH	HI	HJ	HK	HL	HM	HN	HO	HP	HQ	HR	HS	HT	HV	HW	HX	HY	HZ	IA	IB	IC	ID	IE	IF	IG	IH	II	IJ	IK	IL	IM	IN	IO	IP	IQ	IR	IS	IT	IU	IV	IW	IX	IY	IZ	JA	JB	JC	JD	JE	JF	JG	JH	JI	IJ	JK	IL	IM	IN	IO	IP	IQ	IR	IS	IT	IU	IV	IW	IX	IY	IZ	KA	KB	KC	KD	KE	KF	KG	KH	KI	KJ	KK	KL	KM	KN	KO	KP	KQ	KR	KS	KT	KV	KW	KX	KY	KZ	LA	LB	LC	LD	LE	LF	LG	LH	LI	LJ	LK	LL	LM	LN	LO	LP	LQ	LR	LS	LT	LV	LW	LX	LY	LZ	MA	MB	MC	MD	ME	MF	MG	MH	MI	MJ	MK	ML	MM	MN	MO	MP	MQ	MR	MS	MT	MV	MW	MX	MY	MZ	NA	NB	NC	ND	NE	NF	NG	NH	NI	NJ	NK	NL	NM	NN	NO	NP	NQ	NR	NS	NT	NV	NW	NX	NY	NZ	OA	OB	OC	OD	OE	OF	OG	OH	OI	OJ	OK	OL	OM	ON	OO	OP	OQ	OR	OS	OT	OV	OW	OX	OY	OZ	PA	PB	PC	PD	PE	PF	PG	PH	PI	PJ	PK	PL	PM	PN	PO	PP	PQ	PR	PS	PT	PV	PW	PX	PY	PZ	QA	QB	QC	QD	QE	QF	QG	QH	QI	QJ	QK	QL	QM	QN	QO	QP	QQ	QR	QS	QT	QV	QW	QX	QY	QZ	RA	RB	RC	RD	RE	RF	RG	RH	RI	RJ	RK	RL	RM	RN	RO	RP	RQ	RR	RS	RT	RV	RW	RX	RY	RZ	SA	SB	SC	SD	SE	SF	SG	SH	SI	SJ	SK	SL	SM	SN	SO	SP	SQ	SR	SS	ST	SV	SW	SX	SY	SZ	TA	TB	TC	TD	TE	TF	TG	TH	TI	TJ	TK	TL	TM	TN	TO	TP	TQ	TR	TS	TV	TW	TX	TY	TZ	UA	UB	UC	UD	UE	UF	UG	UH	UI	UJ	UK	UL	UM	UN	UO	UP	UQ	UR	US	UT	UV	UW	UX	UY	UZ	VA	VB	VC	VD	VE	VF	VG	VH	VI	VJ	VK	VL	VM	VN	VO	VP	VQ	VR	VS	VT	VV	VW	VX	VY	VZ	WA	WB	WC	WD	WE	WF	WG	WH	WI	WJ	WK	WL	WM	WN	WO	WP	WQ	WR	WS	WT	WV	WW	WX	WY	WZ	XA	XB	XC	XD	XE	XF	YG	YH	YI	YJ	YK	YL	YM	YN	YO	YP	YQ	YR	YS	YT	YV	YW	YX	YY	YZ	ZA	ZB	ZC	ZD	ZE	ZF	ZG	ZH	ZI	ZJ	ZK	ZL	ZM	ZN	ZO	ZP	ZQ	ZR	ZS	ZT	ZV	ZW	ZX	ZY	ZZ	AA	AB	AC	AD	AE	AF	AG	AH	AI	AJ	AK	AL	AM	AN	AO	AP	AQ	AR	AS	AT

If the value “-” is given, it means that the counter value is zero (0x0). The result is that only non-zero counters are displayed with their reported value.

For each drive cage, the error counters of the internal ports are provided, as well as the communication errors per disk drive. Of each disk drive, the physical position is reported.

The “Physical Disks” worksheet.

This worksheet contains information about the physical disk drives. The information provided in this worksheet is Physical Position, Loop Information, Drive Information, Capacity Info, Error Counters and Chunklet Info.

	A	B	C	D	F	G	H	I	J	K	L	M	N	O	P	R	S	T	U	V	W	X	Y	Z
1	Position				Loop										Disk Drive									
2					Loop A					Loop B														
3																								
4	ID	Ct	M	Re	Nc	Sl	Pc	Alp	St	Nc	Sl	Pc	Alp	St	Ac	Name	Model	Tyg	Sp	Firmware	SN	WWN	State	Detailed
5	0	0	0	0	0	2	1	0xe1	OK	1	2	1	0xe1	OK	A	Hitachi	HVPC0300GBFC15K	FC	15K	VCK1	JXWHY2PN	5000-cca0-1755-5908	Normal	Normal
6	1	0	1	0	0	2	1	0xe0	OK	1	2	1	0xe0	OK	B	Hitachi	HVPC0300GBFC15K	FC	15K	VCK1	JXWHARVJ	5000-cca0-1754-4580	Normal	Normal
7	2	0	2	0	0	2	1	0xdc	OK	1	2	1	0xdc	OK	A	Hitachi	HUA722010ZLA330	NL	7.2K	A3GF,1610	JK11A4B8KK3TTW	2210-000a-3300-cdb3	Normal	Normal
8	3	0	3	0	0	2	1	0xda	OK	1	2	1	0xda	OK	B	Hitachi	HVPC0300GBFC15K	FC	15K	VCK1	JXWGVJNM	5000-cca0-1753-6144	Normal	Normal
9	4	0	4	0	0	2	1	0xd9	OK	1	2	1	0xd9	OK	B	Hitachi	HVPC0300GBFC15K	FC	15K	VCK1	JXWX7KPM	5000-cca0-176e-b940	Normal	Normal
10	5	0	5	0	0	2	1	0xd6	OK	1	2	1	0xd6	OK	A	Hitachi	HVPC0300GBFC15K	FC	15K	VCK1	JXWHAYUJ	5000-cca0-1754-48e0	Normal	Normal
11	6	0	6	0	0	2	1	0xd5	OK	1	2	1	0xd5	OK	B	Hitachi	HUA722010ZLA330	NL	7.2K	A3GF,1610	JK11A4B8KL3JVVW	2210-000a-3300-cebf	Normal	Normal
12	7	0	7	0	0	2	1	0xd4	OK	1	2	1	0xd4	OK	A	Hitachi	HVPC0300GBFC15K	FC	15K	VCK1	JXWETYSM	5000-cca0-1751-77d0	Normal	Normal
13	8	0	8	0	0	2	1	0xd3	OK	1	2	1	0xd3	OK	A	Hitachi	HVPC0300GBFC15K	FC	15K	VCK1	JXWJKZBM	5000-cca0-1756-83bc	Normal	Normal
14	9	0	9	0	0	2	1	0xd2	OK	1	2	1	0xd2	OK	B	Hitachi	HVPC0300GBFC15K	FC	15K	VCK1	JXWGVZTM	5000-cca0-1753-64dc	Normal	Normal
15	10	0	10	0	0	2	1	0xd1	OK	1	2	1	0xd1	OK	A	Hitachi	HUA722010ZLA330	NL	7.2K	A3GF,1610	JK11A4B8KL3MWW	2210-000a-3300-cfd7	Normal	Normal
16	11	0	11	0	0	2	1	0xce	OK	1	2	1	0xce	OK	B	Hitachi	HVPC0300GBFC15K	FC	15K	VCK1	JXWGG4SM	5000-cca0-1752-a750	Normal	Normal
17	12	0	12	0	0	2	1	0xcd	OK	1	2	1	0xcd	OK	B	Hitachi	HVPC0300GBFC15K	FC	15K	VCK1	JXWGSZBJ	5000-cca0-1753-3ac8	Normal	Normal
18	13	0	13	0	0	2	1	0xcc	OK	1	2	1	0xcc	OK	A	Hitachi	HVPC0300GBFC15K	FC	15K	VCK1	JXWGVPM	5000-cca0-1753-638c	Normal	Normal
19	14	0	14	0	0	2	1	0xcb	OK	1	2	1	0xcb	OK	B	Hitachi	HUA722010ZLA330	NL	7.2K	A3GF,1610	JK11A4B8KJXVSV	2210-000a-3300-cf16	Normal	Normal
20	15	0	15	0	0	2	1	0xca	OK	1	2	1	0xca	OK	A	Hitachi	HVPC0300GBFC15K	FC	15K	VCK1	JXWEE6XM	5000-cca0-1750-c7dc	Normal	Normal

AB	AC	AD	AF	AG	AH	AI	AK	AL	AM	AN	AO	AP	AQ	AR	AS	AT	AU
Capacity (in GB)			Error Counters				Chunklets on Drive										
			Read		Write		Used		Normal				Spare				
Raw	Use	Free	Corr	UnC	Corr	UnC	OK	Fail	Free	Fail	UnA	UnIn	OK	Used	Free	UnUsed	
278	122	156	N/A	0	N/A	0	448	0	625	0	0	0	0	0	42	0	0
278	102	176	N/A	0	N/A	0	368	0	705	0	0	0	0	0	42	0	0
931	671	259	N/A	N/A	N/A	N/A	2556	0	1039	0	0	0	0	0	129	0	0
278	101	177	N/A	0	N/A	0	365	0	708	0	0	0	0	0	42	0	0
278	102	176	N/A	0	N/A	0	368	0	705	0	0	0	0	0	42	0	0
278	122	156	N/A	0	N/A	0	448	0	625	0	0	0	0	0	42	0	0
931	726	205	N/A	N/A	N/A	N/A	2775	0	820	0	0	0	0	0	129	0	0
278	122	156	N/A	0	N/A	0	448	0	625	0	0	0	0	0	42	0	0
278	122	156	N/A	0	N/A	0	447	0	626	0	0	0	0	0	42	0	0
278	101	177	N/A	11	N/A	0	365	0	708	0	0	0	0	0	42	0	0
931	671	259	N/A	N/A	N/A	N/A	2556	0	1039	0	0	0	0	0	129	0	0
278	102	176	N/A	0	N/A	0	368	0	705	0	0	0	0	0	42	0	0
278	102	176	N/A	0	N/A	0	367	0	706	0	0	0	0	0	42	0	0
278	122	156	N/A	0	N/A	0	448	0	625	0	0	0	0	0	42	0	0
931	725	205	N/A	N/A	N/A	N/A	2774	0	821	0	0	0	0	0	129	0	0

The above 2 pictures are, in the worksheet, adjacent to each other.

The “CPG” worksheet

This worksheet lists the CPGs (Common Provisioning Groups), which are reported by the system.

	A	B	C	D	E	F	G	H	I	J
1	Table Of Contents									
2										
3										
4	ID	Name	Domain	Raid	SetSize	HighAva	Dev	Speed	StepS	Params
5	0	CPGRAID5FCMATRIX01	-	R5	3+1 *	Cage *	FC	Not Set	128K *	-
6	2	CPGRAID5SSDMATRIX01	-	R5	3+1 *	Cage *	SSD	-	128K *	-
7	3	CPGRAID5FC01	-	R5	3+1 *	Cage *	FC	Not Set	128K *	-
8	5	CPGRAID5SSD01	-	R5	0	Cage *	SSD	-	128K *	-
9	6	CPGRAID6SATAMATRIX01	-	R6	Unknown (8	Cage *	NL	7.2 *	64	-
10	7	CPGRAID6SATA01	-	R6	Unknown (8	Port	NL	7.2 *	64	-
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										
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31										
32										
33										
34										

CPG Size Comparison

CPG Name	Color
CPGRAID5FCMATRIX01	Blue
CPGRAID5SSDMATRIX01	Red
CPGRAID5FC01	Yellow
CPGRAID5SSD01	Green
CPGRAID6SATAMATRIX01	Purple
CPGRAID6SATA01	Orange

The information listed per CPG is ID, Name, Domain, Raid, Set-Size, High Availability Mode, Device Type, Speed, Step-Size, other creation parameters, Limitations and Capacity information.

P	Q	R	S	T	U	W	X	Y	Z	AA	AB	AC	AD	AE	AF	AG	AH			
Snapshot Limits						Capacity Information														
Data			Admin			User Data			Data			Snapshot			Admin			Raw Allocated Space		
Grow	Warn	Limit	Grow	Warn	Limit	Total	Used	Free	Total	Used	Free	Total	Used	Free	Total	Used	Free			
8	-	-	16	-	-	537	358	178	0	0	0	0	0	0	1074	1074	0			
64	-	-	16	-	-	4674	4667	7	30.8	23.5	7.3	6	1.9	4.1	6292	6270.1	21.9			
64	-	-	16	-	-	0	0	0	0	0	0	0	0	0	0	0	0			
64	-	-	16	-	-	15658	15655	2	830.3	771.4	58.9	16	5.6	10.4	22033	21923.3	109.7			

If a “*” character is given with the value, it means that the user didn’t specify this value during the creation of the CPG, meaning the default value is used.

This worksheets lists all Logical Disks (LDs) and relevant information, like ID, Name, Domain, Primary Node, CPG, Raid, Step-Size, Set-Size, Availability (Requested and Actual), State, Usage, Flags, Creation DateTime and Creation Parameters.

U	V	W	X	Y	Z	AA
Logical Disk Usage Flags						
C=uses CPG, V=Used for Volume, P=contains Preserved data, F=First LD used for preserved data, SA=Snapshor Admin, SD=Snapshot Data,						
C	V	P	F	SD	SA	Log
						Y
						Y
						Y
						Y
		Y		Y		
		Y				
		Y				
		Y				
		Y				
		Y				
	Y					
	Y					
	Y					
	Y					
Y	Y					

- "P" means Preserved Data
- "BG" means Blocked Growth
- "WT" means Write Through
- "MV" means Mapped to VV


[illegible]

The “Virtual Volumes” worksheet

This worksheet lists the Virtual Volumes and related information, such as ID, Name, Domain, Size (User, SnapData, SnapAdm), Primary Node, Type, Provision Method, Virtual Volume Name, Presentation, Virtual Volume Tree, Creation DateTime, and CPG usage.

An example is given below.


1	2	A	B	C	E	F	G	H	I	J	K	L	N	O	P	Q
	1															
	2															
	3															
	4	ID	Name	Domain	Pri	Node Other	Type	Prox	Size	Virtual Volume WVN	Overview	State Detailed	Nr	Host	OS	LUN
	5	0	admin	-	0	1,2	Base	Full	10	5000-2ac0-0000-109b	Normal	Normal				
	6	16	PeopleSoft	-	3	2,1	Base	Cpvv	200	5000-2ac0-0010-109b	Normal	Normal	1	prima.pittsburghpa.local	--	0
	7	41	rcpy.2.4.1	-	1	0,2	Vcopy	Snp	--	5000-2ac0-0029-109b	Normal	Normal				
	8	39	rcpy.3.5.1	-	2	3,1	Vcopy	Snp	--	5000-2ac0-0027-109b	Normal	Normal				
	9	38	rcpy.4.6.1	-	3	2,1	Vcopy	Snp	--	5000-2ac0-0028-109b	Normal	Normal				
	10	37	rcpy.5.7.1	-	0	1,2	Vcopy	Snp	--	5000-2ac0-0025-109b	Normal	Normal				
	11	36	rcpy.6.8.1	-	1	0,2	Vcopy	Snp	--	5000-2ac0-0024-109b	Normal	Normal				
	12	35	rcpy.7.9.1	-	2	3,1	Vcopy	Snp	--	5000-2ac0-0023-109b	Normal	Normal				
	13	40	rcpy.8.16.1	-	3	2,1	Vcopy	Snp	--	5000-2ac0-0028-109b	Normal	Normal				
	14	34	rcpy.9.17.1	-	3	2,1	Vcopy	Snp	--	5000-2ac0-0022-109b	Normal	Normal				
+	15	32	srm.ph.prod	-	0	1,2	Base	Full	2	5000-2ac0-0020-109b	Normal	Normal	8	esx01.pittsburghpa.local	--	20
+	23	4	vmc.0	-	1	0,2	Base	Cpvv	2048	5000-2ac0-0004-109b	Normal	Normal	8	esx01.pittsburghpa.local	--	0
+	31	5	vmc.1	-	2	3,1	Base	Cpvv	2048	5000-2ac0-0005-109b	Normal	Normal	8	esx01.pittsburghpa.local	--	1
+	39	6	vmc.2	-	3	2,1	Base	Cpvv	2048	5000-2ac0-0006-109b	Normal	Normal	8	esx01.pittsburghpa.local	--	2
+	47	7	vmc.3	-	0	1,2	Base	Cpvv	2048	5000-2ac0-0007-109b	Normal	Normal	8	esx01.pittsburghpa.local	--	3
+	55	8	vmc.4	-	1	0,2	Base	Cpvv	2048	5000-2ac0-0008-109b	Normal	Normal	8	esx01.pittsburghpa.local	--	4
+	63	9	vmc.5	-	2	3,1	Base	Cpvv	2048	5000-2ac0-0009-109b	Normal	Normal	8	esx01.pittsburghpa.local	--	5
+	71	17	vmc.6	-	3	2,1	Base	Cpvv	2048	5000-2ac0-0011-109b	Normal	Normal	8	esx01.pittsburghpa.local	--	6
+	79	12	vmcnl.0	-	0	1,2	Base	Full	2048	5000-2ac0-000c-109b	Normal	Normal	16	esx01.pittsburghpa.local	--	7
+	95	13	vmcnl.1	-	1	0,2	Base	Full	2048	5000-2ac0-000d-109b	Normal	Normal	16	esx01.pittsburghpa.local	--	8
+	111	14	vmcnl.2	-	2	3,1	Base	Full	2048	5000-2ac0-000e-109b	Normal	Normal	16	esx01.pittsburghpa.local	--	9

Note that this worksheet uses compressed output. The output can be decompressed by clicking on the “+” sign () in front of the row. The output will then change to the following (for that specific row only)

15	32	srm.ph.prod	-	0.1.2	Base	Full	2	5000-2ac0-0020-109b	Normal	Normal	8	esx01.pittsburghpa.local	--	20
16	32	srm.ph.prod	-									esx02.pittsburghpa.local	--	20
17	32	srm.ph.prod	-									esx03.pittsburghpa.local	--	20
18	32	srm.ph.prod	-									esx04.pittsburghpa.local	--	20
19	32	srm.ph.prod	-									esx05.pittsburghpa.local	--	20
20	32	srm.ph.prod	-									esx06.pittsburghpa.local	--	20
21	32	srm.ph.prod	-									esx08.pittsburghpa.local	--	20
22	32	srm.ph.prod	-									mike_s16	--	20

In the example above, clicking on the "+" in front of row 15 lists the 8 (in Column "N") hosts, to which this virtual volume is presented under the LUN number specified in column Q.

The compressed output can be closed by clicking on the “-” sign in front of the row.

The compressed output of all rows can be opened by clicking on the "2" () in the upper left corner of the screen. By clicking on the "1" in the upper left corner, the compressed output is closed again.

The technique of compressed presentation, unfolding and folding is extensively used by the utility and can be observed on several worksheets.

The following additional information is presented per Virtual Volume:

S	T	U	V	W	X	Y
Virtual Volume Tree						
Physical Parent		Virtual Parent		Copy Of		Child ID
ID	Blocks	Parent	Base ID	RO	RW	
--	--	--	16	--	40	--
--	--	4	4	vmc.0	--	--
--	--	5	5	vmc.1	--	--
--	--	6	6	vmc.2	--	--
--	--	7	7	vmc.3	--	--
--	--	8	8	vmc.4	--	--
--	--	9	9	vmc.5	--	--
--	--	16	16	PeopleSoft	--	--
--	--	17	17	vmc.6	--	--
--	--	--	32	--	--	--
--	--	--	4	--	41	--
--	--	--	5	--	39	--
--	--	--	6	--	38	--
--	--	--	7	--	37	--
--	--	--	8	--	36	--
--	--	--	9	--	35	--
--	--	--	17	--	34	--
--	--	--	12	--	--	--
--	--	--	13	--	--	--
--	--	--	14	--	--	--

This portion of the worksheet lists the Virtual Volume Tree, meaning it'll list the IDs of the physical parents, virtual parents, Read Only Childs and Read/Write Childs. This information can be beneficial when studying issues with snapshots or remote copies.

The next part of the worksheet provides the reserved and used space (in MB) and Percentages for User Data, Snapshot Data and Snapshot Admin space.

AA	AB	AC	AD	AE	AF	AG	AH	AI	AJ	AK	AL	AM	AN
Size													
User					Snapshot					Admin		Total	
in MB		Percentage			in MB		Percentage			in MB		in MB	
Rsrvd	Used	Used	Warni	Limit	Rsrvd	Used	Used	Warni	Limit	Rsrvd	Used	Rsrvd	VSize
204800	204800	100	--	--	204800	204800	2.1	--	--	512	8	204800	213376
--	--	--	--	--	--	--	*1.0	--	--	--	*205	2097152	--
--	--	--	--	--	--	--	*0.2	--	--	--	*5	2097152	--
--	--	--	--	--	--	--	*0.7	--	--	--	*136	2097152	--
--	--	--	--	--	--	--	*1.3	--	--	--	*93	2097152	--
--	--	--	--	--	--	--	*1.7	--	--	--	*185	2097152	--
--	--	--	--	--	--	--	*4.0	--	--	--	*214	2097152	--
--	--	--	--	--	--	--	*2.1	--	--	--	*4	204800	--
--	--	--	--	--	--	--	*0.2	--	--	--	*37	2097152	--
2048	2048	100	--	--	2048	2048	0	--	--	0	0	2048	2048
2097152	2097152	100	--	--	2097152	2097152	2.4	--	--	1024	374	2097152	2150400
2097152	2097152	100	--	--	2097152	2097152	2.3	--	--	1024	123	2097152	2154368
2097152	2097152	100	--	--	2097152	2097152	3.5	--	--	1024	334	2097152	2176000
2097152	2097152	100	--	--	2097152	2097152	2.4	--	--	1024	244	2097152	2150784
2097152	2097152	100	--	--	2097152	2097152	3.3	--	--	1280	444	2097152	2172928
2097152	2097152	100	--	--	2097152	2097152	22.7	--	--	1280	616	2097152	2581760
2097152	2097152	100	--	--	2097152	2097152	0.4	--	--	512	57	2097152	2107904
2097152	2097152	100	--	--	2097152	2097152	0	--	--	0	0	2097152	2097152
2097152	2097152	100	--	--	2097152	2097152	0	--	--	0	0	2097152	2097152
2097152	2097152	100	--	--	2097152	2097152	0	--	--	0	0	2097152	2097152

AP	AQ	AR	AS	AT	AU	AV	AW	AX
CPG Distribution								
	FC S2		FC S4		NL S2		NL S4	
Creation DateTime	#LDs	Perc	#LDs	Perc	#LDs	Perc	#LDs	Perc
19-Aug-2011 08:46:36	14	0.98%	203	14.26%			1207	84.76%
13-Apr-2012 08:25:29								
13-Apr-2012 08:25:29								
13-Apr-2012 08:25:29								
13-Apr-2012 08:25:29								
13-Apr-2012 08:25:29								
13-Apr-2012 08:25:29								
13-Apr-2012 08:25:29								
19-Mar-2012 17:25:20	1	6.25%	3	18.75%			12	75.00%
03-Aug-2011 09:19:47	672	4.10%	4382	26.71%			11354	69.20%
03-Aug-2011 09:19:48	30	0.18%	6086	37.09%			10292	62.73%
03-Aug-2011 09:19:49	93	0.59%	4480	28.18%			11323	71.23%
03-Aug-2011 09:19:49	376	2.31%	2392	14.69%			13512	83.00%
03-Aug-2011 09:19:50	692	4.22%	7882	48.02%			7840	47.76%
03-Aug-2011 09:19:51	191	1.16%	5078	30.94%			11145	67.90%
03-Oct-2011 17:40:37	77	0.48%	1790	11.05%			14337	88.48%
08-Aug-2011 13:22:12	316	1.93%	1634	9.97%			14434	88.10%
08-Aug-2011 13:22:13	72	0.58%	932	7.47%			11476	91.96%
08-Aug-2011 13:22:14	185	1.44%	1146	8.91%			11533	89.65%

The part of the worksheet to the left, shows the distribution of the virtual volume over the available CPGs. It lists the number of LDs used in a specific CPG and calculates a percentage. This information can be beneficial

when investigating performance related issues.

The “Hosts & LUNS” worksheet

This worksheet lists the hosts and relevant information. Such information is Host ID, Name, Domain, Host Set, Operating System, Model, IP address, Persona, iSCSI information, HBAs and host ports, on which the HBAs are visible.

	1
	2
1	2

Also this worksheet uses compressed rows. It also uses compressed columns. Please note the "1"s and "2" in the upper left corner of the screen. The compressed info is presented in those parts of the worksheet, where "Presented VVs" and "HBA Info" is presented.

O	P	Q	S	T	U	AA	AB
Presented VVs			HBA Info				
			HBA #1		HBA #2		
NrLU	LUN	VV	NrHE	WWN	Vi	WWN	Vi
1	1	Adama_test_lun	2	5006-0b00-0069-b3f8	1	5006-0b00-0069-b3fa	1
18	0	EXS_LVL2	2	5001-4380-0634-ad2c	2	5001-4380-0634-ad2e	2
3	1	Alrai.1	2	5006-0b00-0039-b588	1	5006-0b00-0039-b5d0	1
3	2	Physics1.0	2	5001-4380-0634-ad30	2	5001-4380-0634-ad32	2
44	1	Prey.0	2	5006-0b00-00c9-7e94	1	5006-0b00-00c9-7e96	1
36	1	Apollo.1	4	5006-0b00-0069-b4a4	1	5006-0b00-0069-b4a6	1
18	0	EXS_LVL2	2	5001-4380-0634-acdc	2	5001-4380-0634-acde	2
121	0	Dharma.117	2	2100-00e0-8b14-5b3e	2	2100-00e0-8b14-b640	2
36	1	Athena.1	4	5006-0b00-0069-b570	1	5006-0b00-0069-b572	1
7	1	Physics3.1	2	5001-4380-0634-ad3c	2	5001-4380-0634-ad3e	2
7	1	Physics3.1	2	5001-4380-0634-ad38	2	5001-4380-0634-ad3a	2
102	0	Futurama.0	4	1000-0005-1efb-35a9	1	1000-0005-1efb-35b7	1
9	0	Sesame	2	5001-4380-0631-7330	1	5001-4380-0631-7478	1
91	0	Blizzard1.0	2	2100-001b-3285-292a	2	2100-001b-3285-c335	2
2	0	Braun.0	2	2100-00e0-8b86-1997	2	2100-00e0-8b86-a9d4	2
12	0	Bladerunner1.0	2	5001-4380-062e-60f0	2	5001-4380-062e-60f2	2
2	0	Texmex1	2	2100-001b-3291-5146	1	2100-001b-3291-aa3a	1
177	1	Cain.0	6	5006-0b00-0068-daec	1	5006-0b00-0068-daee	1
104	0	Shuttle.0	2	2100-0024-ff31-2cda	2	2100-0024-ff31-2d0e	2
104	0	Shuttle.0	2	2100-0024-ff31-2d50	2	2100-0024-ff31-2d60	2
2	8	Rofcopter.0	2	5001-4380-0634-ad0c	1	5001-4380-0634-ad0e	1
8	0	Curium.0	2	5001-4380-062e-52a0	1	5001-4380-062e-52a2	1
11	1	Data.1	2	5006-0b00-0037-5a2e	1	5006-0b00-0037-5a30	1
12	0	Bladerunner1.0	2	5001-4380-062d-eb3c	2	5001-4380-062d-eb3e	2
7	0	Interwebz	2	5001-4380-0634-ace0	2	5001-4380-0634-ace2	2

Column "O" gives the number of Virtual Volumes, which are presented to this server. Column "S" gives the number of HBAs, which are in this server. Columns "U" and "AB" lists the number of host ports, in which this HBA is logged into. Please see the following picture, which was created when clicking on the "+" sign in row 13 as well as the "2" to unfold the columns.

1
2

O		P	Q		S		T		U	V	W	X	Y	AA		AB	AC	AD	AE	AF											
Presented VVs										HBA Info																					
										HBA #1										HBA #2											
NrL	LUN	VV	NrH	WWN	V	P1	P2	P3	P4	WWN	V	P1	P2	P3	P4																
1	1	Adama_test_lun	2	5006-0b00-0069-b3f8	1	2:1	2:2	5:1	5:2	5006-0b00-0069-b3fa	1	2:1	2:2	5:1	5:2																
18	0	EXS_LVL2	2	5001-4380-0634-ad2c	2	2:1	2:2	5:1	5:2	5001-4380-0634-ad2e	2	2:1	2:2	5:1	5:2																
	6	Physics2.0			N0	Y	-	-	-		N0	-	-	-	-																
	7	Physics2.1			N1	-	-	-	-		N1	-	Y	-	-																
	8	Physics2.2			N2	-	-	Y	x		N2	-	-	-	x																
	9	Physics2.3			N3	x	-	-	-		N3	x	-	-	Y																
	10	Physics2.4			N4	-	-	-	-		N4	-	-	-	-																
	11	Physics2.5			N5	-	-	-	-		N5	-	-	-	-																
	12	Physics2.6			N6	-	-	x	x		N6	-	-	x	x																
	13	Physics2.7			N7	-	-	x	x		N7	-	-	x	x																
	14	Physics2.8																													
	15	Physics2.9																													
	16	Physics2.10																													
	17	Physics2.11																													
	18	Physics2.12																													
	19	Physics2.13																													
	20	Physics2.14																													
	21	Physics2																													
	22	Pysics2_0																													
3	1	Alrai.1	2	5006-0b00-0039-b588	1	2:1	2:2	5:1	5:2	5006-0b00-0039-b5d0	1	2:1	2:2	5:1	5:2																

As indicated in Column "O", this server has 18 LUNs presented to it. It also has 2 HBAs as per Column "S". Columns V-Y list the S:P ports, which are host ports in the cluster. Column "U" also contains the Node Number. This means that N0:2:1 is port 0:2:1. The meaning of this matrix is as follows:

- A "Y" means that the HBA is visible on that N:S:P
- A "-" means that the HBA is not visible on that N:S:P
- A "x" means that the N:S:P either does not exist or is not a host port.

In the example above, it means that HBA #1, with worldwide name 500-14380-0634-ad2c is visible on N:S:P 0:2:1 and 2:5:1 only, and that HBA #2, with worldwide name 5001-4380-0634-ad2e, is visible on N:S:P 1:2:2 and 3:5:2 only.

NOTE: Of a column "U" or "AB" contains a zero, it means that the HBA isn't logged in into the 3Par system. This could be a zoning issue.

The "Remote Copy" worksheet.

12	A	B	C	E	F	G	H	J	K	L	M	N	O	P	Q	R	S	T	U
Members																			
General Info																			
Remote																			
Copied																			
Local																			
Remote																			
Link Information																			
Versio																			
0																			
FC																			
Type																			
SysIO																			
None																			
Status																			
Down																			
Up																			
Up																			
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The “PD” worksheets

Some of the “PD” worksheets display the PD serial number. You may see some PD serial numbers with a green triangle in the upper left corner of the cell. This green triangle is a warning about the formatting of the information in the cell, this warning may be ignored.

We had to address some numeric formats that EXCEL automatically converts by specifying them as strings.

36	2	16	0	Sandisk	DOPE0480S5xnNMRI	SSD	100K	3P04	10000874	5001-1731-0070-29f0	Total number of Asc/Ascq's logged : 1
37	2	17	0	Sandisk	DOPE0480S5xnNMRI	SSD	100K	3P04	10001E56	5001-1731-0070-690c	Total number of Asc/Ascq's logged : 1
54	3	0	0	Sandisk	DOPE0480S5xnNMRI	SSD	100K	3P04	100030EE	5001-1731-0070-b004	Total number of Asc/Ascq's logged : 1
55	3	1	0	Sandisk	DOPE0480S5xnNMRI	SSD	100K	3P04	100022E3	5001-1731-0070-8508	Total number of Asc/Ascq's logged : 1
56	3	2	0	Sandisk	DOPE0480S5xnNMRI	SSD	100K	3P04	10000874	5001-1731-0070-29f0	Total number of Asc/Ascq's logged : 1
36	2	16	0	Sandisk	DOPE0480S5xnNMRI	SSD	100K	3P04	10000874	5001-1731-0070-29f0	Total number of Asc/Ascq's logged : 1
37	2	17	0	Sandisk	DOPE0480S5xnNMRI	SSD	100K	3P04	10001E56	5001-1731-0070-690c	Total number of Asc/Ascq's logged : 1
54	3	0	0	Sandisk	DOPE0480S5xnNMRI	SSD	100K	3P04	100030EE	5001-1731-0070-b004	Total number of Asc/Ascq's logged : 1
55	3	1	0	Sandisk	DOPE0480S5xnNMRI	SSD	100K	3P04	100022E3	5001-1731-0070-8508	Total number of Asc/Ascq's logged : 1
56	3	2	0	Sandisk	DOPE0480S5xnNMRI	SSD	100K	3P04	10000874	5001-1731-0070-29f0	Total number of Asc/Ascq's logged : 1

In the screen snippet above a couple of the cells have been highlighted as examples.

The "PD Spare Chunklets" worksheet

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T
List of Worksheets																			
Position				Usage					Logical Disk				From		To				
ID	C	N	R	Spare Ch	Valid	State	Clean	Usage	LD Id	LD Name	LD Chunklet	PD Id	Chunklet	PD Id	Chunklet				
0	5	9	2	1455	Valid	Normal	Y	LD	424	corp-exchange-log1.usr.1	87	42	1139	-	-				
0	5	9	2	1456	Valid	Normal	Y	LD	1572	NAVF2_CIFS_DATA24.usr.0	259	42	2718	-	-				
0	5	9	2	1457	Valid	Normal	Y	LD	1120	ESX_CORP_04.usr.0	89	42	2604	-	-				
0	5	9	2	1458	Valid	Normal	Y	LD	1216	NA_KVM_PROD_01.usr.0	110	42	28	-	-				
0	5	9	2	1459	Valid	Normal	Y	LD	1596	NAVF2_CIFS_DATA27.usr.0	288	42	381	-	-				
0	5	9	2	1460	Valid	Normal	Y	LD	1618	LTDB_DATA_A_01.usr.6	11	42	1448	-	-				
0	5	9	2	1461	Valid	Normal	Y	LD	1124	ESX_CORP_05.usr.0	257	42	2629	-	-				
0	5	9	2	1462	Valid	Normal	Y	LD	1045	NA_DATA_20.usr.0	88	42	1945	-	-				
0	5	9	2	1469	Valid	Normal	Y	LD	1480	NAVF2_CIFS_DATA1.usr.0	279	42	1797	-	-				
0	5	9	2	1491	Valid	Normal	Y	LD	1552	NAVF2_CIFS_DATA19.usr.0	279	42	2496	-	-				
0	5	9	2	1492	Valid	Normal	Y	LD	1540	NAVF2_CIFS_DATA16.usr.0	290	42	2430	-	-				
0	5	9	2	1582	Valid	Normal	Y	LD	1033	NA_DATA_17.usr.0	502	42	1354	-	-				
0	5	9	2	1583	Valid	Normal	Y	LD	1332	NA_DATA_32.usr.0	245	42	1596	-	-				
0	5	9	2	1857	Valid	Normal	Y	LD	1065	NA_DATA_25.usr.0	158	42	2058	-	-				
0	5	9	2	1858	Valid	Normal	Y	LD	1496	NAVF2_CIFS_DATA5.usr.0	158	42	2154	-	-				
0	5	9	2	1860	Valid	Normal	Y	LD	798	tp-3-sd-0.0	68	42	1385	-	-				
0	5	9	2	1865	Valid	Normal	Y	LD	1580	NAVF2_CIFS_DATA26.usr.0	288	42	38	-	-				
0	5	9	2	1888	Valid	Normal	Y	LD	498	File-Data01.usr.0	335	42	1051	-	-				
0	5	9	2	1889	Valid	Normal	Y	LD	1588	NAVF2_CIFS_DATA29.usr.0	288	42	95	-	-				
0	5	9	2	1890	Valid	Normal	Y	LD	1532	NAVF2_CIFS_DATA14.usr.0	158	42	2354	-	-				
0	5	9	2	1891	Valid	Normal	Y	LD	1584	NAVF2_CIFS_DATA28.usr.0	288	42	67	-	-				
0	5	9	2	1892	Valid	Normal	Y	LD	1500	NAVF2_CIFS_DATA6.usr.0	414	42	2181	-	-				
0	5	9	2	1893	Valid	Normal	Y	LD	1508	NAVF2_CIFS_DATA8.usr.0	502	42	2227	-	-				
0	5	9	2	1894	Valid	Normal	Y	LD	1025	NA_DATA_15.usr.0	322	42	1026	-	-				
0	5	9	2	1895	Valid	Normal	Y	LD	1312	NA_CORP_EXCH12.usr.0	421	42	882	-	-				
0	5	9	2	1896	Valid	Normal	Y	LD	1061	NA_DATA_24.usr.0	457	42	2041	-	-				
0	5	9	2	1897	Valid	Normal	Y	LD	1077	NA_DATA_28.usr.0	468	42	2402	-	-				
0	5	9	2	2768	Valid	Normal	Y	LD	1037	NA_DATA_18.usr.0	478	42	1908	-	-				
0	5	9	2	2769	Valid	Normal	Y	LD	1516	NAVF2_CIFS_DATA10.usr.0	313	42	2268	-	-				
0	5	9	2	2770	Valid	Normal	Y	LD	1520	NAVF2_CIFS_DATA11.usr.0	245	42	2289	-	-				
0	5	9	2	2771	Valid	Normal	Y	LD	1524	NAVF2_CIFS_DATA12.usr.0	625	42	2329	-	-				
0	5	9	2	2772	Valid	Normal	Y	LD	1536	NAVF2_CIFS_DATA15.usr.0	257	42	2378	-	-				
2	0	0	2	1453	Valid	Normal	Y	LD	1576	NAVF2_CIFS_DATA25.usr.0	372	42	2742	-	-				

This worksheet lists all PDs, which have spare chunklets actively used to hold user data of other PDs, for which user data is reconstructed.

Note 1: If sparing is not active, this worksheet is not displayed as it would be empty.

Note 2: Only actively used chunklets are displayed. Spare chunklets, which are not used, are not displayed.

The “EventLog” worksheet

Another useful worksheet is the “EventLog” worksheet. It’s different compared to the other worksheets, as it lists the events, listed in the output of the various “showeventlog” commands. The iNex utility currently supports the following 3 outputs:

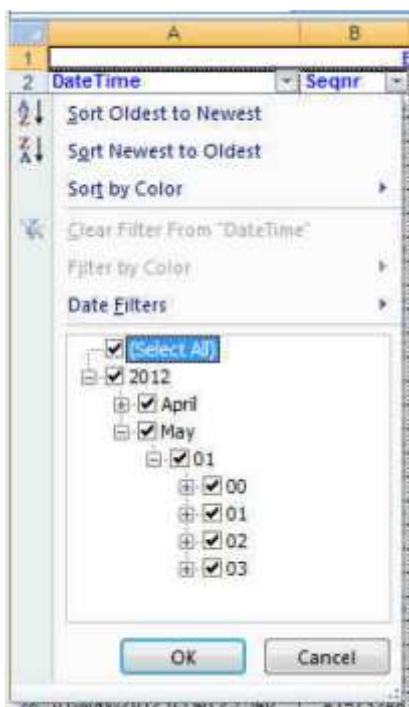
1. showeventlog -d debug -oneline
2. showeventlog -d -fprefix_events_al
3. showeventlog -d -fprefix_events_nd

The utility will process the output of the above commands and generate one or more spreadsheets (EventLog, EventLog2, EventLog3, etc) based upon the number of events. The events are displayed in reversed time order, meaning that the last, most current, event is listed in row 3 of the “EventLog” worksheet.

Event Information										Message Objects									
Date/Time	Seq#	LC	Class	Severity	Type	Comp	Seq	Att	Port	Object1	Object2	Object3	Object4	Object5	Message	Object6	Object7	Object8	Object9
01-May-2012 03:48:38.428	10797630	OL	Notify	Debug	Notification	sw_port:4.2.2	4	4	4.2.2						SDT LUN INQUIRY to lun 0, loop_id 0x0, host_name (WWN 5001430000344D9E), exchng_id 0x006 27533 inquiries suppressed				
01-May-2012 03:48:37.619	10797635	OL	Notify	Debug	Notification	sw_port:5.5.2	3	3	5.5.2						sdformat (page 0) LUN (WWN 50002AC0038712F4) host (loop_id 0x0) reads lun 6 part 4.2.1 part count 3 and offset 1				
01-May-2012 03:48:34.270	13665183	OL	Notify	Debug	Notification	sw_port:5.5.2	3	3	5.5.2						PC LUN INQUIRY to lun 0, loop_id 0x0, host 5001430000203062, exchng_id 0x020				
01-May-2012 03:48:34.280	26728257	OL	Notify	Debug	Notification	sw_port:2.5.1	2	2	2.5.1						SDT LUN INQUIRY to lun 0, loop_id 0x0, host 0x0042320cxxxx (WWN 5001430000203062), exchng_id 0x042 0 inquiries suppressed				
01-May-2012 03:48:33.761	10797632	OL	Info	Info	Scale inquiry		4								Inquiry page 0x00 info request for VV 1056				
01-May-2012 03:48:33.748	10797631	OL	Info	Info	Scale inquiry		4								Inquiry page 0x00 info request for VV 1054				
01-May-2012 03:48:33.758	10797629	OL	Info	Info	Scale inquiry		4								Inquiry page 0x00 info request for VV 1052				
01-May-2012 03:48:33.758	10797627	OL	Info	Info	Scale inquiry		4								Inquiry page 0x00 info request for VV 1050				
01-May-2012 03:48:33.710	10797630	OL	Info	Info	Scale inquiry		4								Inquiry page 0x00 info request for VV 1048				
01-May-2012 03:48:33.790	10797623	OL	Info	Info	Scale inquiry		4								Inquiry page 0x00 info request for VV 1046				
01-May-2012 03:48:33.886	10797622	OL	Info	Info	Scale inquiry		4								Inquiry page 0x00 info request for VV 1044				
01-May-2012 03:48:33.180	13665182	OL	Notify	Debug	Notification	sw_port:5.5.2	3	3	5.5.2						PC LUN INQUIRY to lun 0, loop_id 0x0, host 500143000030004C, exchng_id 0x003				
01-May-2012 03:48:33.768	41573254	OL	Notify	Debug	Notification	sw_port:0.2.2	0	0	0.2.2						PC LUN INQUIRY to lun 0, loop_id 0x0, host 500143000030004C, exchng_id 0x074				
01-May-2012 03:48:29.686	14855864	OL	Info	Info	Scale inquiry		1								Inquiry page 0x00 info request for VV 048				
01-May-2012 03:48:28.770	14855863	OL	Debug	Debug	Host error		1	1	1.2.2						SCSI status 0x10 (Reservation conflict) Host.Disk02.101ca (WWN 2100000000000572) LUN: 11 LUN WWN:50002ac000031294 VV:0 CD				
01-May-2012 03:48:28.390	41573252	OL	Notify	Debug	Notification	sw_port:0.2.1	0	0	0.2.1						PC LUN INQUIRY to lun 0, loop_id 0x0, host 50000000000000140E, exchng_id 0x048				

Per event, the following information is provided:

- Date and Time (including millisecond) of the occurrence of the event.
- Event sequence number
- File in which the event is encountered:
 - “OL” means encountered while processing the output of “showeventlog -d debug -oneline”
 - “ND” means encountered while processing the output of “showeventlog -d -fprefix_events_nd”
 - “AL” means encountered while processing the output of “showeventlog -d -fprefix_events_al”.
- Event Class as specified by the event output
- Event Severity (Debug, Info, Degraded, Minor, Major, Warning, Critical)
- Event Type as specified by the event output.
- Component which logged the event
- Node which logged the event.
- Affected Node.
- N:S:P related to the event.
- Objects related to the event. This can be VV, LD, PD, Host, Rcpy, etc
- The Event text itself.



To allow a quick sort on date and time, the event date and time are part of the "Auto Filter" setting, which provides the capability to zoom into a specific day → Hour → minute with just a few mouse clicks. The picture to the left will appear if one clicks on the down arrow in the "DateTime" column.

By unchecking the check-box "Select All" and then subsequently checking the check-box in front on the Month, Day and Hour, one will only see the events which occurred during that hour on that specific day. One can further refine by clicking on the "+" sign in front of the hour and refine to minutes, seconds and microseconds.

NOTE: The information presented in this series of Eventlog worksheets is dependent on the "Log Window" setting in the Graphical User Interface as well as the "window" option of the Command Line Interface. The iNex utility determines the creation time of the "showsys" output within the decompressed InSplore and uses that time to calculate the time window, during which events are processed.

Dependant on the event severity, the event can be color coded.

The “Alerts” worksheet

Table of contents		A		B		C		D		E		F		G		H		I	
Date/Time	Count	State	ID	Msg Code	Severity	Type	Component	Alert Information	Alert										
15-Jan-2012 23:46:36.000	73	New	0xc19d007	0xc19d007	Degraded	BIOS IDE xtg entry	fw_bios 4	BIOS log entry stored in fr_...	BIOS log entry stored in fr_...										
15-Jan-2012 21:43:38.000	45	New	0xc01800c	0xc01800c	Degraded	CFG free space limit	fw_bios 4	Free space allows CPG CPGRUDS6MATR001 to grow to 7087-104 MB, limit 7169000 MB, warn: 6656000 MB	Free space allows CPG CPGRUDS6MATR001 to grow to 7087-104 MB, limit 7169000 MB, warn: 6656000 MB										
11-Jan-2012 12:26:45.000	68	New	0xc027012	0xc027012	Informational	CFG space used status	sw_sp7 CPGRUDS6SAT01	CPG CPGRUDS6SAT01 50 and/or user space over 85% used (1179G used out of 1254G total)	CPG CPGRUDS6SAT01 50 and/or user space over 85% used (1179G used out of 1254G total)										
04-Jan-2012 12:16:03.000	67	New	0xc027012	0xc027012	Informational	CFG space used status	sw_sp7 CPGRUDS6SAT01	CPG CPGRUDS6SAT01 50 and/or user space over 85% used (1127G used out of 1166G total)	CPG CPGRUDS6SAT01 50 and/or user space over 85% used (1127G used out of 1166G total)										
20-Jan-2012 11:15:27.000	60	New	0xc027012	0xc027012	Informational	CFG space used status	sw_sp7 CPGRUDS6SAT01	CPG CPGRUDS6SAT01 50 and/or user space over 85% used (1126G used out of 1166G total)	CPG CPGRUDS6SAT01 50 and/or user space over 85% used (1126G used out of 1166G total)										
26-Jan-2012 22:49:48.000	10	New	0xc19d015	0xc19d015	Minor	Node PCIe Comitable Error	fw_node 5	Node 5: Corruptable PCIe error count limit exceeded	Node 5: Corruptable PCIe error count limit exceeded										
16-Mar-2012 09:14:44.000	37	New	0xc00a00a	0xc00a00a	Minor	Task failed	sw_sbx-4083	Task 4083 (lpsr_tune, sd_name vol_50, SPCMS0501_BB00) has failed failure in blocking V.I/O. Please see task status for details.	Task 4083 (lpsr_tune, sd_name vol_50, SPCMS0501_BB00) has failed failure in blocking V.I/O. Please see task status for details.										
16-Mar-2012 09:14:43.000	31	New	0xc00a00a	0xc00a00a	Minor	Task failed	sw_sbx-4083	Task 4083 (lpsr_tune, sd_name vol_50, SPCMS0501_BB00) has failed failure in blocking V.I/O. Please see task status for details.	Task 4083 (lpsr_tune, sd_name vol_50, SPCMS0501_BB00) has failed failure in blocking V.I/O. Please see task status for details.										
11-Mar-2012 03:52:27.000	29	New	0xc04200e	0xc04200e	Degraded	Slot PCIe Limit Status	fw_node 4 fw_slot0x1	Node 4 PCI Slot 1 PCIe Limit with speed is Degraded	Node 4 PCI Slot 1 PCIe Limit with speed is Degraded										
22-Dec-2011 13:22:04.000	6	New	0xc02900e	0xc02900e	Degraded	Component state change	sw_port 1 i3_fw_slot	Node 1 PCI Slot 1 Degraded (Receiver Power Low - Check FC Cable)	Node 1 PCI Slot 1 Degraded (Receiver Power Low - Check FC Cable)										
22-Dec-2011 12:20:38.000	9	New	0xc19d015	0xc19d015	Minor	Node PCIe Comitable Error	fw_node 1	Node 1: Corruptable PCIe error count limit exceeded	Node 1: Corruptable PCIe error count limit exceeded										

This worksheet lists the outstanding alerts. If there are outstanding alerts, then the name of this worksheet will be highlighted.

Per alert, the Date and Time, Alert identifier, Alert state, Message Code, Severity, Type, Component and Message Text are provided.

The “Captured” worksheet

Another useful worksheet is the “Captured” worksheet. This worksheets contains all captured log entries.

Event Information						
Date/Time	Col	Severity	File	Log	Line	Text
30-Apr-2012 21:42:52.000	---	Warning	0	Debug	1	kernel_end_request: IO error, dev vv_admin_0, sector 146448
30-Apr-2012 21:42:52.000	---	Warning	0	Debug	2	kernel_end_request: IO error, dev vv_admin_0, sector 10227728
30-Apr-2012 21:43:17.000	---	Warning	0	Debug	3	kernel_end_request: IO error, dev vv_admin_0, sector 25706392
30-Apr-2012 21:43:17.000	---	Warning	0	Debug	4	kernel_end_request: IO error, dev vv_admin_0, sector 5180
30-Apr-2012 21:47:17.000	---	Warning	0	Debug	5	kernel_end_request: IO error, dev vv_admin_0, sector 0
30-Apr-2012 21:47:17.000	---	Warning	0	Debug	6	kernel_end_request: IO error, dev vv_admin_0, sector 0
30-Apr-2012 21:55:17.000	---	Warning	0	Debug	7	kernel_end_request: IO error, dev vv_admin_0, sector 0
30-Apr-2012 21:55:17.000	---	Warning	0	Debug	8	kernel_end_request: IO error, dev vv_admin_0, sector 0
30-Apr-2012 22:01:17.000	---	Warning	0	Debug	9	kernel_end_request: IO error, dev vv_admin_0, sector 0
30-Apr-2012 22:01:17.000	---	Warning	0	Debug	10	kernel_end_request: IO error, dev vv_admin_0, sector 0
30-Apr-2012 22:07:17.000	---	Warning	0	Debug	11	kernel_end_request: IO error, dev vv_admin_0, sector 0
30-Apr-2012 22:07:17.000	---	Warning	0	Debug	12	kernel_end_request: IO error, dev vv_admin_0, sector 0
30-Apr-2012 22:13:17.000	---	Warning	0	Debug	13	kernel_end_request: IO error, dev vv_admin_0, sector 0
30-Apr-2012 22:13:17.000	---	Warning	0	Debug	14	kernel_end_request: IO error, dev vv_admin_0, sector 0
30-Apr-2012 22:19:17.000	---	Warning	0	Debug	15	kernel_end_request: IO error, dev vv_admin_0, sector 0
30-Apr-2012 22:19:17.000	---	Warning	0	Debug	16	kernel_end_request: IO error, dev vv_admin_0, sector 0
30-Apr-2012 22:25:17.000	---	Warning	0	Debug	17	kernel_end_request: IO error, dev vv_admin_0, sector 0
30-Apr-2012 22:25:17.000	---	Warning	0	Debug	18	kernel_end_request: IO error, dev vv_admin_0, sector 0
30-Apr-2012 22:31:17.000	---	Warning	0	Debug	19	kernel_end_request: IO error, dev vv_admin_0, sector 0
30-Apr-2012 22:31:17.000	---	Warning	0	Debug	20	kernel_end_request: IO error, dev vv_admin_0, sector 0
30-Apr-2012 22:37:17.000	---	Warning	0	Debug	21	kernel_end_request: IO error, dev vv_admin_0, sector 0
30-Apr-2012 22:37:17.000	---	Warning	0	Debug	22	kernel_end_request: IO error, dev vv_admin_0, sector 0
30-Apr-2012 22:43:18.000	---	Warning	0	Debug	23	kernel_end_request: IO error, dev vv_admin_0, sector 0
30-Apr-2012 22:43:18.000	---	Warning	0	Debug	24	kernel_end_request: IO error, dev vv_admin_0, sector 0

Per captured piece of info, the following info is provided:

- 1) Date and Time stamp of the captured information
- 2) The message code (reserved for future use).
- 3) The capture severity.
- 4) The node which produced this piece of captured information.
- 5) The file in which this piece of captured information was encountered. The file is a hyperlink to that file.
- 6) The line number within that file, where the captured info was encountered.

The entries, which must be captured and from which log-file, can be specified in the %INEX_HOME%/Defs/capture_definitions.txt file.

Below is an example of how a capture_definitions.txt file may look like:

```
#
# This file lists the filenames, which need to be searched for the specified
# strings. They will show up in the "Interesting" worksheet of the output file.
# The syntax per line is as follows:
# <filename> <code> <text>      with
#   <filename>:  the path of the filename(s) to be scanned. Note that the <filename>
#                 can be a Perl regular expression, thus allowing multiple files to
#                 be specified.
#   <code>:      this is a event code, which will be injected in the event logs
worksheet
#   <text>:      regular expression composing the text to be searched for.
#
# -----
#
# Search for strings in /var/log/messages file for all nodes
\S+.node\d+.\S+/var/log/messages      ----   error      panic stack trace
#
# Search for strings in /var/log/debug file for all nodes
\S+.node\d+.\S+/var/log/debug          ----   info       kernel: Loading TPD InformOS
\S+.node\d+.\S+/var/log/debug          ----   info       kernel: Caching limit for
powerfail
\S+.node\d+.\S+/var/log/debug          ----   info       kernel: rm\S+:
\S+.node\d+.\S+/var/log/debug          ----   warning     I\O error
#
# Search for strings in /var/log/syslog files for all nodes
\S+.node\d+.\S+/var/log/syslog.\d+     ----   info       CM Error:
\S+.node\d+.\S+/var/log/syslog         ----   info       CM Error:

# Search for strings in /var/log/tpd/sysmgr files for all nodes
\S+.node\d+.\S+/var/log/tpd/sysmgr.\d+ ----   critical   EXIT Process
\S+.node\d+.\S+/var/log/tpd/sysmgr     ----   critical   EXIT Process

# Search for strings in /var/log/tpd/tpdsrv files for all nodes
\S+.node\d+.\S+/var/log/tpd/tpdsrv     ----   critical   The following PD
\S+.node\d+.\S+/var/log/tpd/tpdsrv     ----   critical   The following PD

InSplor_log.\S+                        ----   info       getSysdata

\S+.node\d+.\S+/uptime.out             ----   info       \S+:
```

The syntax “\S+.node\d+.\S+/var/log/debug” means that the /var/log/debug logs of all nodes will be searched for the specified pattern.

If a code is specified, the utility will generate an entry in the “Analysis” worksheet with the specified code. This usage is intended to capture rare events. This is a future development.

The utility will only list entries, which are captured from within a pre-defined time window from the mtime() of the file. Per default, the time-window is 7days, but can be overruled with the optional “win[dow]=<nrdays>” parameter on the command line, the “Log Window” option in the GUI, as well as the “MonitorWindow = <nrdays>” keyword in the config/inex.ini file.

The “Port N:S:P LESB” worksheet

This series of worksheets lists the LESB of ports, which are “disk” or “host” ports. This type of worksheet also uses the compressed data form.

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S
1	Port 2:3:3, WWN: 2233-0002-ac09-1446, Type: Host, SID: 11-50-00																		
2	LESB Counters																		
3	Date Time	Name	WWN	Alpa	SID	Li	Loss S	Loss S	Prim S	InvWo	InvCRC	List of encountered host/device names							
4	08-Jun-2012 11:05:49	Total									4								
26	07-Jun-2012 12:26:37	Total									81								
48	06-Jun-2012 12:15:04	Total									87								
70	05-Jun-2012 12:03:28	Total									63								
92	04-Jun-2012 11:51:49	Total									65								
114	03-Jun-2012 11:40:18	Total									134								
136	02-Jun-2012 11:28:42	Total									139								
158	01-Jun-2012 11:17:02	Total					1			3	399								
180	31-May-2012 11:05:29	Total								-1	250								
202	30-May-2012 10:53:54	Total								-2	11685								
224	29-May-2012 10:42:18	Total									410								
246	28-May-2012 10:30:46	Total									934								
268	27-May-2012 10:19:18	Total									985								
290	26-May-2012 10:07:36	Total								11	307								
312	25-May-2012 09:55:51	Total					1			12	1390								
334	24-May-2012 09:44:23	Total									957								
356	23-May-2012 09:32:55	Total									776								
378	22-May-2012 09:21:27	Total									1043								
400	21-May-2012 09:10:00	Total									102								
422	20-May-2012 08:58:35	Total									337								
444	19-May-2012 08:47:07	Total									732								
466	18-May-2012 08:35:40	Total									2049								
488	17-May-2012 08:24:16	Total									1905								

The initial screen lists the total number of errors for that specific port on the capture time.

A “-” character means the error counter has the same value as with the previous capture time. The result is that only differences between 2 subsequent captures stand out.

By clicking on the “+” sign in front of the row, the information about the error counters at that specific time are presented.

26	07-Jun-2012 12:26:37	Total																	81
27	07-Jun-2012 12:26:37	Port 2_3_3																	
28	07-Jun-2012 12:26:37	Host16	x						x										
29	07-Jun-2012 12:26:37	Host2	x						x										
30	07-Jun-2012 12:26:37	esxt05																	
31	07-Jun-2012 12:26:37	esxt3																	
32	07-Jun-2012 12:26:37	esxt9																	
33	07-Jun-2012 12:26:37	w2008rtappl4																	
34	07-Jun-2012 12:26:37	w2008rtbks1																	81
35	07-Jun-2012 12:26:37	w2008rtctcps1																	
36	07-Jun-2012 12:26:37	w2008rtbdb1																	
37	07-Jun-2012 12:26:37	w2008rtex1																	
38	07-Jun-2012 12:26:37	w2008rtfs1																	
39	07-Jun-2012 12:26:37	w2008rtfs3																	
40	07-Jun-2012 12:26:37	w2008rthv1																	
41	07-Jun-2012 12:26:37	w2008rthv3																	
42	07-Jun-2012 12:26:37	w2008rthv5																	
43	07-Jun-2012 12:26:37	w2008rthv6																	
44	07-Jun-2012 12:26:37	w2008rtspdb1																	
45	07-Jun-2012 12:26:37	w2k3rtev1																	
46	07-Jun-2012 12:26:37	w2k3rtsanbks1																	

One can then review the error counters of the port itself, or of the connected servers. Also here, a “-” sign indicates there’s no difference to the previous sample. In the example above, the server “w2008rtbks1” reported 81 additional CRC errors compared to the previous sample.

One can now also review the WWN and Alpa (for disks) or SID (for Hosts). If there’s a “-” in column “C”, “D” or “E”, it means there’s no change compared to the previous sample. A “x” means the host / disk was not present in this sample.

A special case is the last reported sample, which is on row 4. When unfolding this row, a table occurs with observed hosts and hyperlinks, if possible, if those hosts are still part of the configuration.

Port 2:3:3, WWN: 2233-0002-ac08-1446, Type: Host, SID: 11-50-00														
LESB Counters														
4	DateTime	Name	WWN	Alpa	SID	Li	LossS	Loss	PrimS	InvWor	InvCRC			
5	08-Jun-2012 11:06:49	Port2_3_3	-	-	-	-	-	-	-	-	-			
6	08-Jun-2012 11:06:49	Host16	X	X	-	-	-	-	-	-	-			
7	08-Jun-2012 11:06:49	Host12	X	X	-	-	-	-	-	-	-			
8	08-Jun-2012 11:06:49	esxrt05	-	-	-	-	-	-	-	-	-			
9	08-Jun-2012 11:06:49	esxrt3	-	-	-	-	-	-	-	-	-			
10	08-Jun-2012 11:06:49	esxrt9	-	-	-	-	-	-	-	-	-			
11	08-Jun-2012 11:06:49	w2008rtappl4	-	-	-	-	-	-	-	-	-			
12	08-Jun-2012 11:06:49	w2008rtbks1	-	-	-	-	-	-	-	-	-			
13	08-Jun-2012 11:06:49	w2008rtcbps1	-	-	-	-	-	-	-	-	-			
14	08-Jun-2012 11:06:49	w2008rtde1	-	-	-	-	-	-	-	-	-			
15	08-Jun-2012 11:06:49	w2008rtex1	-	-	-	-	-	-	-	-	-			
16	08-Jun-2012 11:06:49	w2008rtfs1	-	-	-	-	-	-	-	-	-			
17	08-Jun-2012 11:06:49	w2008rtfs3	-	-	-	-	-	-	-	-	-			
18	08-Jun-2012 11:06:49	w2008rtfv1	-	-	-	-	-	-	-	-	-			
19	08-Jun-2012 11:06:49	w2008rtfv3	-	-	-	-	-	-	-	-	-			
20	08-Jun-2012 11:06:49	w2008rtfv5	-	-	-	-	-	-	-	-	-			
21	08-Jun-2012 11:06:49	w2008rtfv6	-	-	-	-	-	-	-	-	-			
22	08-Jun-2012 11:06:49	w2008rtspds1	-	-	-	-	-	-	-	-	-			
23	08-Jun-2012 11:06:49	w2k3rtdev1	-	-	-	-	-	-	-	-	-			
24	08-Jun-2012 11:06:49	w2k3rtsanbks1	-	-	-	-	-	-	-	-	-			

In the columns A-E of row 1 and 2, the following info is presented:

- The N:S:P of the port
- The WWN of the port
- The port type (host or disk)
- For disks: The alpa. For hosts: The SID.

This info is a hyperlink back to the port information, as part of the "Ports" worksheet.

The “Tasks” worksheet

This worksheet lists the tasks, which have been discovered, while processing the InSplore, in the “\pr_mnt\tasks_data” directory of the master node. Per task, the following information is listed:

- Task Number
- Date and time of the task. This date and time can be a start or completion time, dependant on the value in the “State” column.
- Duration time of the task. Only listed upn task completion. Note that the duration is calculated by subtracting the start time from the completion time.
- State, which is either “started” or “completed”.
- Object, which lists the object (CPG, LD, RCP, etc) for which the task is executed.
- Text, which usually is the completion text of the task.

Task Information						
TaskNr	DateTime	Duration	State	Function	Object	Text
3	9728 10-Sep-2012 14:27:02.000	00:00:02	Completed	remove_expired_vvs		Completed scheduled task.
4	9728 10-Sep-2012 14:27:00.000		Started	remove_expired_vvs		-
5	9725 10-Sep-2012 14:03:03.000	00:56:03	Completed	check_slow_disk		Completed scheduled task.
6	9726 10-Sep-2012 13:27:01.000	00:00:01	Completed	remove_expired_vvs		Completed scheduled task.
7	9726 10-Sep-2012 13:27:00.000		Started	remove_expired_vvs		-
8	9725 10-Sep-2012 13:07:00.000		Started	check_slow_disk		-
9	9723 10-Sep-2012 13:03:03.000	00:56:03	Completed	check_slow_disk		Completed scheduled task.
10	9724 10-Sep-2012 12:27:00.000		Started	remove_expired_vvs		-
11	9724 10-Sep-2012 12:27:00.000	00:00:00	Completed	remove_expired_vvs		Completed scheduled task.
12	9723 10-Sep-2012 12:07:00.000		Started	check_slow_disk		-
13	9721 10-Sep-2012 12:03:03.000	00:56:03	Completed	check_slow_disk		Completed scheduled task.
14	9722 10-Sep-2012 11:27:01.000	00:00:01	Completed	remove_expired_vvs		Completed scheduled task.
15	9722 10-Sep-2012 11:27:00.000		Started	remove_expired_vvs		-
16	9721 10-Sep-2012 11:07:00.000		Started	check_slow_disk		-
17	9719 10-Sep-2012 10:36:38.000	00:29:38	Completed	check_slow_disk		Failed Could not complete task.
18	9720 10-Sep-2012 10:27:01.000	00:00:01	Completed	remove_expired_vvs		Completed scheduled task.
19	9720 10-Sep-2012 10:27:00.000		Started	remove_expired_vvs		-
20	9719 10-Sep-2012 10:07:00.000		Started	check_slow_disk		-
21	9716 10-Sep-2012 10:03:03.000	00:56:03	Completed	check_slow_disk		Completed scheduled task.
22	9718 10-Sep-2012 09:41:14.000	00:01:09	Completed	defrag2	defrag_tsm_gdc_0002	Finished snapshot usage data collection process.
23	9718 10-Sep-2012 09:40:05.000		Started	defrag2	defrag_tsm_gdc_0002	-
24	9717 10-Sep-2012 09:27:01.000	00:00:01	Completed	remove_expired_vvs		Completed scheduled task.
25	9717 10-Sep-2012 09:27:00.000		Started	remove_expired_vvs		-
26	9716 10-Sep-2012 09:07:00.000		Started	check_slow_disk		-
27	9715 10-Sep-2012 09:06:16.000	00:01:12	Completed	defrag2	defrag_tsm_gdc_0002	Finished snapshot usage data collection process.
28	9715 10-Sep-2012 09:05:04.000		Started	defrag2	defrag_tsm_gdc_0002	-
29	9713 10-Sep-2012 09:03:04.000	00:56:04	Completed	check_slow_disk		Completed scheduled task.
30	9714 10-Sep-2012 08:27:01.000		Started	remove_expired_vvs		-
31	9714 10-Sep-2012 08:27:01.000	00:00:00	Completed	remove_expired_vvs		Completed scheduled task.
32	9713 10-Sep-2012 08:07:00.000		Started	check_slow_disk		-
33	9707 10-Sep-2012 08:03:10.000	00:58:10	Completed	check_slow_disk		Completed scheduled task.
34	9712 10-Sep-2012 07:40:12.000	00:01:05	Completed	defrag2	defrag_tsm_gdc_0002	Finished snapshot usage data collection process.
35	9711 10-Sep-2012 07:40:12.000	00:01:05	Completed	defrag2	defrag_tsm_gdc_0002	Finished snapshot usage data collection process.
36	9712 10-Sep-2012 07:45:07.000		Started	defrag2	defrag_tsm_gdc_0002	-
37	9711 10-Sep-2012 07:45:07.000		Started	defrag2	defrag_tsm_gdc_0002	-
38	9710 10-Sep-2012 07:27:01.000	00:00:01	Completed	remove_expired_vvs		Completed scheduled task.
39	9710 10-Sep-2012 07:27:00.000		Started	remove_expired_vvs		-
40	9709 10-Sep-2012 07:16:12.000	00:01:04	Completed	defrag2	defrag_tsm_gdc_0002	Finished snapshot usage data collection process.
41	9709 10-Sep-2012 07:15:08.000		Started	defrag2	defrag_tsm_gdc_0002	-
42	9708 10-Sep-2012 07:11:15.000	00:01:10	Completed	defrag2	defrag_tsm_gdc_0002	Finished snapshot usage data collection process.
43	9708 10-Sep-2012 07:10:05.000		Started	defrag2	defrag_tsm_gdc_0002	-

Note that on this worksheet also the “OpenFile” macro can be used.

The “SAN Ports” worksheet

This worksheet lists the known, from the InServ point of view, devices on both FC fabrics. Devices are server HBAs, as well as the host and rcfc ports of the InServ itself and remote rcfc ports of other InServ storage systems. Per device, the following info is provided:

- Indication if the entry is present in the “showportdev -all” output.
- Indication if the entry is present in the “showportdev -ns” output.
- Indication if the entry differs between the files mentioned above.
- The “SID” (domain and port on the FC switch) of the device.
- The WWN of the device (typically a port WWN for a server).
- The type of the device (host, local host port, local rcfc port, remote rcfc port). Hyperlinks are provided to the definition of the device elsewhere in the spreadsheet.
- Persona Nr and Persona ID of the device (server HBAs only).
- The host port(s) on which the device is discovered.

List of Worksheets							InServ observed FC switch ports							Persona																	Initiators								
SID	-	ad	-	ns	-	Diff	-	Port WWN (sid)	-	Node WWN (sid)	-	Type	-	Name	-	N	-	ID	-	3	-	4	-	4	-	3	-	3	-	4	-	4	-	3	-	3	-	HostPort	
0a-04-00	Y	Y	Y	N				5006-0000-00c2-6220		5006-0000-00c2-6220		host		agthys07		11	VMware			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
0a-04-10	Y	Y	Y	N				5006-0000-00c2-6234		5006-0000-00c2-6235		host		agthys09		11	VMware			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
0a-05-00	Y	Y	Y	N				5006-0000-00c2-6230		5006-0000-00c2-6231		host		agthys08		11	VMware			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
0a-12-00	Y	Y	Y	N				2021-0002-ac00-25d7		2021-0002-ac00-25d7		remote		Remote RCFC Port 0.2.1 of other InServ		-				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
0a-01-00	Y	Y	Y	N				1000-8c7c-8214-50a		2000-8c7c-8214-50a		host		apps0003		2	Generic-ALLUA			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
0a-02-00	Y	Y	Y	N				1000-8c7c-8214-50a		2000-8c7c-8214-50a		host		apps0002		2	Generic-ALLUA			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
0a-03-00	Y	Y	Y	N				1000-8c7c-8214-50a		2000-8c7c-8214-50a		host		apps0001		2	Generic-ALLUA			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
0a-05-01	Y	Y	Y	N				5006-0000-00c2-6234		5006-0000-00c2-6235		host		agthys09		11	VMware			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
0a-0a-00	Y	Y	Y	N				2011-0002-ac00-25e3		2011-0002-ac00-25e3		host		Host Port 0.1.1 of this InServ		-				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
0a-0b-00	Y	Y	Y	N				2011-0002-ac00-25e3		2011-0002-ac00-25e3		host		Host Port 1.1.1 of this InServ		-				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
0a-0c-00	Y	Y	Y	N				2011-0002-ac00-25e3		2011-0002-ac00-25e3		host		Host Port 2.1.1 of this InServ		-				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
0a-10-00	Y	Y	Y	N				2011-0002-ac00-25e3		2011-0002-ac00-25e3		host		Host Port 3.1.1 of this InServ		-				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
0a-12-00	Y	Y	Y	N				2021-0002-ac00-25e3		2011-0002-ac00-25e3		rcfc		RCFC Port 0.2.1 of this InServ		-				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
32-04-00	Y	Y	Y	N				5006-0000-00c2-6220		5006-0000-00c2-6221		host		agthys07		11	VMware			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
32-04-10	Y	Y	Y	N				5006-0000-00c2-6230		5006-0000-00c2-6231		host		agthys08		11	VMware			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
32-05-00	Y	Y	Y	N				5006-0000-00c2-6232		5006-0000-00c2-6233		host		agthys09		11	VMware			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
32-12-00	Y	Y	Y	N				2021-0002-ac00-25d7		2021-0002-ac00-25d7		remote		Remote RCFC Port 1.2.1 of other InServ		-				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
33-01-00	Y	Y	Y	N				1000-8c7c-8214-50d		2000-8c7c-8214-50d		host		apps0003		2	Generic-ALLUA			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
33-02-00	Y	Y	Y	N				1000-8c7c-8214-50d		2000-8c7c-8214-50d		host		apps0002		2	Generic-ALLUA			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
33-03-00	Y	Y	Y	N				1000-8c7c-8214-50d		2000-8c7c-8214-50d		host		apps0001		2	Generic-ALLUA			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
33-05-01	Y	Y	Y	N				5006-0000-00c2-6236		5006-0000-00c2-6237		host		agthys09		11	VMware			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
33-0a-00	Y	Y	Y	N				2012-0002-ac00-25e3		2012-0002-ac00-25e3		host		Host Port 0.1.2 of this InServ		-				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
33-0c-00	Y	Y	Y	N				2012-0002-ac00-25e3		2012-0002-ac00-25e3		host		Host Port 1.1.2 of this InServ		-				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
33-0e-00	Y	Y	Y	N				2012-0002-ac00-25e3		2012-0002-ac00-25e3		host		Host Port 2.1.2 of this InServ		-				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
33-10-00	Y	Y	Y	N				2012-0002-ac00-25e3		2012-0002-ac00-25e3		host		Host Port 3.1.2 of this InServ		-				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
33-12-00	Y	Y	Y	N				2012-0002-ac00-25e3		2012-0002-ac00-25e3		rcfc		RCFC Port 1.2.1 of this InServ		-				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	

Per host port, the number of devices (initiators) is listed. This to facilitate InForm OS upgrades, which has restrictions to the number of initiators per host port as well as the type of initiators.

The “Memory” worksheet

This worksheet lists the memory usage per node during the time period captured by the event logs.

List of Worksheets		High Level Memory Usage Indicators										Detailed Memory Usage Indicators													
Date/Time	Node	MemTot	MemUse	SwapUse	SlabMem	Active	AnonPag	Bounce	Buffers	Cached	CommitB	CommitU	Dirty	Inactive	Mapped	MemFree	MemTot	HP5_Usr	PageTab	Slab					
13-Mar-2013 05:58:31.910	2	3.9	<div><div></div></div>	10.9	1.3	1005388	192224	0	218968	452624	4119318	0	76	443552	8893	652620	4044364	0	3052	1389203					
13-Mar-2013 05:59:25.380	0	3.9	<div><div></div></div>	0.0	1.2	1000672	42272	0	200380	384412	4119318	0	4	135412	13064	1146088	4044364	0	2348	1215264					
13-Mar-2013 05:10:15.810	3	3.9	<div><div></div></div>	0.0	1.3	1128968	43824	0	223972	1023112	4119318	0	8	163348	13044	827584	4044364	0	2272	1379340					
13-Mar-2013 05:03:52.110	1	3.9	<div><div></div></div>	0.0	1.2	1004024	43612	0	208972	867968	4119318	0	4	135836	13064	1138096	4044364	0	2324	1217692					
13-Mar-2013 04:58:31.910	2	3.9	<div><div></div></div>	10.9	1.3	743476	502588	0	218388	451384	4119318	0	66	442984	8889	917036	4044364	0	7348	1384812					
13-Mar-2013 04:59:25.380	0	3.9	<div><div></div></div>	0.0	1.2	1000504	42272	0	200360	384388	4119318	0	8	135528	13064	1145436	4044364	0	2348	1216182					
13-Mar-2013 04:10:15.810	3	3.9	<div><div></div></div>	0.0	1.3	1128968	43824	0	223944	1023072	4119318	0	12	162784	13044	826584	4044364	0	2272	1379916					
13-Mar-2013 04:03:52.110	1	3.9	<div><div></div></div>	0.0	1.2	1003940	43912	0	208932	867028	4119318	0	4	135840	13064	1135412	4044364	0	2324	1217690					
13-Mar-2013 03:58:31.910	2	3.9	<div><div></div></div>	10.9	1.3	691876	444036	0	262448	453044	4119318	0	68	436184	8896	904748	4044364	0	7248	1384896					
13-Mar-2013 03:38:25.380	0	3.9	<div><div></div></div>	0.0	1.2	1000440	42272	0	208352	384336	4119318	0	16	135544	13064	1144488	4044364	0	2348	1215960					
13-Mar-2013 03:10:15.800	3	3.9	<div><div></div></div>	0.0	1.3	1127944	43824	0	223920	1023040	4119318	0	4	162940	13044	826506	4044364	0	2272	1381428					
13-Mar-2013 03:03:52.100	1	3.9	<div><div></div></div>	0.0	1.2	1003816	43912	0	208886	867900	4119318	0	4	135896	13064	1136408	4044364	0	2324	1217690					
13-Mar-2013 02:54:31.900	2	3.9	<div><div></div></div>	10.9	1.3	626008	389936	0	196860	451312	4119318	0	68	432352	10972	1042100	4044364	0	4324	1389048					
13-Mar-2013 02:36:25.370	0	3.9	<div><div></div></div>	0.0	1.2	1000504	42272	0	208320	384300	4119318	0	4	135008	13064	1140924	4044364	0	2348	1218944					
13-Mar-2013 02:10:15.800	3	3.9	<div><div></div></div>	0.0	1.3	1127964	43824	0	223900	1023008	4119318	0	4	163068	13044	826256	4044364	0	2272	1380668					
13-Mar-2013 02:03:52.100	1	3.9	<div><div></div></div>	0.0	1.2	1003736	43912	0	208880	866968	4119318	0	4	136840	13064	1135300	4044364	0	2324	1217944					
13-Mar-2013 01:58:31.890	2	3.9	<div><div></div></div>	10.9	1.3	608312	374376	0	191100	449432	4119318	0	72	428524	8884	1066664	4044364	0	5884	1387052					
13-Mar-2013 01:36:25.370	0	3.9	<div><div></div></div>	0.0	1.2	1000192	42272	0	208276	384272	4119318	0	12	135852	13064	1144408	4044364	0	2348	1216996					
13-Mar-2013 01:10:15.800	3	3.9	<div><div></div></div>	0.0	1.3	1126416	43824	0	223872	1022976	4119318	0	24	164260	13044	820776	4044364	0	2272	1385644					
13-Mar-2013 01:03:52.900	1	3.9	<div><div></div></div>	0.0	1.2	1003676	43912	0	208880	866932	4119318	0	4	136056	13064	1135796	4044364	0	2324	1218508					
13-Mar-2013 00:58:31.890	2	3.9	<div><div></div></div>	10.9	1.3	627272	395428	0	198340	446160	4119318	0	156	421476	8888	1046440	4044364	0	8544	1382416					
13-Mar-2013 00:30:25.370	0	3.9	<div><div></div></div>	0.0	1.2	1000064	42272	0	208240	384236	4119318	0	12	135716	13064	1146000	4044364	0	2348	1216160					
13-Mar-2013 00:10:15.790	3	3.9	<div><div></div></div>	0.0	1.3	1126016	43824	0	223844	1022804	4119318	0	8	164456	13044	821468	4044364	0	2272	1384016					
13-Mar-2013 00:03:52.900	1	3.9	<div><div></div></div>	0.0	1.2	1003572	43912	0	208868	866908	4119318	0	4	136128	13064	1135300	4044364	0	2324	1218476					
12-Mar-2013 23:58:31.890	2	3.9	<div><div></div></div>	10.9	1.3	621732	392188	0	191282	443936	4119318	0	48	416152	8888	1058020	4044364	0	8112	1393540					
12-Mar-2013 23:39:25.360	0	3.9	<div><div></div></div>	0.0	1.2	999936	42272	0	208200	384200	4119318	0	8	135756	13064	1147636	4044364	0	2348	1215520					
12-Mar-2013 23:10:15.790	3	3.9	<div><div></div></div>	0.0	1.3	1124288	43824	0	223804	1022752	4119318	0	16	166884	13044	824876	4044364	0	2272	1381640					
12-Mar-2013 23:03:52.800	1	3.9	<div><div></div></div>	0.0	1.2	1003484	43912	0	208840	866868	4119318	0	8	136168	13064	1136300	4044364	0	2324	1218112					
12-Mar-2013 22:58:31.880	2	3.9	<div><div></div></div>	10.9	1.3	603432	428486	0	173620	427932	4119318	0	28	398528	12700	1048124	4044364	0	7228	1389348					
12-Mar-2013 22:39:25.380	0	3.9	<div><div></div></div>	0.0	1.2	996808	42272	0	208188	384132	4119318	0	12	135888	13064	1146456	4044364	0	2348	1215936					
12-Mar-2013 22:10:15.780	3	3.9	<div><div></div></div>	0.0	1.3	1123808	43824	0	223736	1022688	4119318	0	16	166848	13044	821060	4044364	0	2272	1385636					

Per node, the following is specified:

- 1) Timestamp of the entry
- 2) Node number
- 3) High level memory utilization indicators, such as Total Memory (GB), %Memory Used, %Swap Space Used and Slab Memory Used (GB).
- 4) Detailed memory utilization indicators, which may differ per InFormOS release.

The “<Port> SAS Domain” worksheet

This worksheet lists all devices present in the SAS domain related to a specific port.

List of Worksheets									Device Handles					Next Device on SAS				
Name	DevWWN	SASWWN	Phy	Par	Dev	Att	Link		Name	DevWWN	SASWWN	Phy		Name	DevWWN	SASWWN	Phy	
sas-root	5000-2acf-f700-26e3	5000-2ac0-0100-26e3	0	-	0x01	0x79	6Gbps		exp79	5005-0cc1-0230-567f	5005-0cc1-0230-567f	8		exp79	5005-0cc1-0230-567f	5005-0cc1-0230-567f	9	
sas-root	5000-2acf-f700-26e3	5000-2ac0-0100-26e3	1	-	0x01	0x79	6Gbps		exp79	5005-0cc1-0230-567f	5005-0cc1-0230-567f	9		exp79	5005-0cc1-0230-567f	5005-0cc1-0230-567f	10	
sas-root	5000-2acf-f700-26e3	5000-2ac0-0100-26e3	2	-	0x01	0x79	6Gbps		exp79	5005-0cc1-0230-567f	5005-0cc1-0230-567f	10		exp79	5005-0cc1-0230-567f	5005-0cc1-0230-567f	11	
sas-root	5000-2acf-f700-26e3	5000-2ac0-0100-26e3	3	-	0x01	0x79	6Gbps		exp79	5005-0cc1-0230-567f	5005-0cc1-0230-567f	11		exp79	5005-0cc1-0230-567f	5005-0cc1-0230-567f		
exp79	5005-0cc1-0230-567f	5005-0cc1-0230-567f	0	0x01	0x79	-	n/a		-	-	-	-		-	-	-	-	
exp79	5005-0cc1-0230-567f	5005-0cc1-0230-567f	1	0x01	0x79	-	n/a		-	-	-	-		-	-	-	-	
exp79	5005-0cc1-0230-567f	5005-0cc1-0230-567f	2	0x01	0x79	-	n/a		-	-	-	-		-	-	-	-	
exp79	5005-0cc1-0230-567f	5005-0cc1-0230-567f	3	0x01	0x79	-	n/a		-	-	-	-		-	-	-	-	
exp79	5005-0cc1-0230-567f	5005-0cc1-0230-567f	4	0x01	0x79	0xe8	6Gbps		expe8	5005-0cc1-0ea2-55bf	5005-0cc1-0ea2-55bf	8		expe8	5005-0cc1-0ea2-55bf	5005-0cc1-0ea2-55bf	9	
exp79	5005-0cc1-0230-567f	5005-0cc1-0230-567f	5	0x01	0x79	0xe8	6Gbps		expe8	5005-0cc1-0ea2-55bf	5005-0cc1-0ea2-55bf	9		expe8	5005-0cc1-0ea2-55bf	5005-0cc1-0ea2-55bf	10	
exp79	5005-0cc1-0230-567f	5005-0cc1-0230-567f	6	0x01	0x79	0xe8	6Gbps		expe8	5005-0cc1-0ea2-55bf	5005-0cc1-0ea2-55bf	10		expe8	5005-0cc1-0ea2-55bf	5005-0cc1-0ea2-55bf	11	
exp79	5005-0cc1-0230-567f	5005-0cc1-0230-567f	7	0x01	0x79	0xe8	3Gbps		expe8	5005-0cc1-0ea2-55bf	5005-0cc1-0ea2-55bf	11		exp79	5000-2acf-f700-26e3	5000-2ac0-0100-26e3	0	
exp79	5005-0cc1-0230-567f	5005-0cc1-0230-567f	8	0x01	0x79	0x01	6Gbps		exp79	5000-2acf-f700-26e3	5000-2ac0-0100-26e3	1		exp79	5000-2acf-f700-26e3	5000-2ac0-0100-26e3	2	
exp79	5005-0cc1-0230-567f	5005-0cc1-0230-567f	9	0x01	0x79	0x01	6Gbps		exp79	5000-2acf-f700-26e3	5000-2ac0-0100-26e3	2		exp79	5000-2acf-f700-26e3	5000-2ac0-0100-26e3	3	
exp79	5005-0cc1-0230-567f	5005-0cc1-0230-567f	10	0x01	0x79	0x01	6Gbps		exp79	5005-0cc1-0230-567f	5005-0cc1-0230-567f	12		exp79	5005-0cc1-0230-567f	5005-0cc1-0230-567f	13	
exp79	5005-0cc1-0230-567f	5005-0cc1-0230-567f	11	0x01	0x79	0x01	6Gbps		exp79	5005-0cc1-0230-567f	5005-0cc1-0230-567f	14		exp79	5005-0cc1-0230-567f	5005-0cc1-0230-567f	15	
exp79	5005-0cc1-0230-567f	5005-0cc1-0230-567f	12	0x01	0x79	0x7b	6Gbps		exp79	5005-0cc1-0230-567f	5005-0cc1-0230-567f	16		exp79	5005-0cc1-0230-567f	5005-0cc1-0230-567f	17	
exp79	5005-0cc1-0230-567f	5005-0cc1-0230-567f	13	0x01	0x79	0x7c	6Gbps		exp79	5005-0cc1-0230-567f	5005-0cc1-0230-567f	18		exp79	5005-0cc1-0230-567f	5005-0cc1-0230-567f	19	
exp79	5005-0cc1-0230-567f	5005-0cc1-0230-567f	14	0x01	0x79	0x7d	6Gbps		exp79	5005-0cc1-0230-567f	5005-0cc1-0230-567f	20		exp79	5005-0cc1-0230-567f	5005-0cc1-0230-567f	21	
exp79	5005-0cc1-0230-567f	5005-0cc1-0230-567f	15	0x01	0x79	0x7e	6Gbps		exp79	5005-0cc1-0230-567f	5005-0cc1-0230-567f	22		exp79	5005-0cc1-0230-567f	5005-0cc1-0230-567f	23	
exp79	5005-0cc1-0230-567f	5005-0cc1-0230-567f	16	0x01	0x79	0x7f	6Gbps		exp79	5005-0cc1-0230-567f	5005-0cc1-0230-567f	24		exp79	5005-0cc1-0230-567f	5005-0cc1-0230-567f	25	
exp79	5005-0cc1-0230-567f	5005-0cc1-0230-567f	17	0x01	0x79	0x80	6Gbps		exp79	5005-0cc1-0230-567f	5005-0cc1-0230-567f	26		exp79	5005-0cc1-0230-567f	5005-0cc1-0230-567f	27	
exp79	5005-0cc1-0230-567f	5005-0cc1-0230-567f	18	0x01	0x79	0x81	6Gbps		exp79	5005-0cc1-0230-567f	5005-0cc1-0230-567f	28		exp79	5005-0cc1-0230-567f	5005-0cc1-0230-567f	29	
exp79	5005-0cc1-0230-567f	5005-0cc1-0230-567f	19	0x01	0x79	0x82	6Gbps		exp79	5005-0cc1-0230-567f	5005-0cc1-0230-567f	29		exp79	5005-0cc1-0230-567f	5005-0cc1-0230-567f		
exp79	5005-0cc1-0230-567f	5005-0cc1-0230-567f	20	0x01	0x79	0x83	6Gbps		exp79	5005-0cc1-0230-567f	5005-0cc1-0230-567f	29		exp79	5005-0cc1-0230-567f	5005-0cc1-0230-567f		
exp79	5005-0cc1-0230-567f	5005-0cc1-0230-567f	21	0x01	0x79	0x84	6Gbps		exp79	5005-0cc1-0230-567f	5005-0cc1-0230-567f	29		exp79	5005-0cc1-0230-567f	5005-0cc1-0230-567f		
exp79	5005-0cc1-0230-567f	5005-0cc1-0230-567f	22	0x01	0x79	0x85	6Gbps		exp79	5005-0cc1-0230-567f	5005-0cc1-0230-567f	29		exp79	5005-0cc1-0230-567f	5005-0cc1-0230-567f		
exp79	5005-0cc1-0230-567f	5005-0cc1-0230-567f	23	0x01	0x79	0x86	6Gbps		exp79	5005-0cc1-0230-567f	5005-0cc1-0230-567f	29		exp79	5005-0cc1-0230-567f	5005-0cc1-0230-567f		
exp79	5005-0cc1-0230-567f	5005-0cc1-0230-567f	24	0x01	0x79	-	n/a		-	-	-	-		-	-	-	-	
exp79	5005-0cc1-0230-567f	5005-0cc1-0230-567f	25	0x01	0x79	-	n/a		-	-	-	-		-	-	-	-	
exp79	5005-0cc1-0230-567f	5005-0cc1-0230-567f	26	0x01	0x79	0x87	6Gbps		pd14	5000-cca0-162a-e257	5000-cca0-162a-e256	1		pd13	5000-cca0-1629-8e07	5000-cca0-1629-8e06	1	
exp79	5005-0cc1-0230-567f	5005-0cc1-0230-567f	27	0x01	0x79	0x88	6Gbps		pd13	5000-cca0-1629-8e07	5000-cca0-1629-8e06	1		pd12	5000-cca0-1629-b64f	5000-cca0-1629-b64e	1	
exp79	5005-0cc1-0230-567f	5005-0cc1-0230-567f	28	0x01	0x79	0x89	6Gbps		pd12	5000-cca0-1629-b64f	5000-cca0-1629-b64e	1		pd15	5000-cca0-1627-5bd3	5000-cca0-1627-5bd2	1	
exp79	5005-0cc1-0230-567f	5005-0cc1-0230-567f	29	0x01	0x79	0x8a	6Gbps		pd15	5000-cca0-1627-5bd3	5000-cca0-1627-5bd2	1						

This worksheet will facilitate troubleshooting back-end related issues in a system with a SAS back-end, such as the StoreServ7000. This worksheet is only generated for systems with a SAS back-end.

The "<Port> SAS PEL" worksheet

This worksheet provides a timeline of the error counters, present in the SAS domain related to a specific port.

Initially, this worksheet is displayed in compressed mode, as given in the picture below.

1	2	A	B	C	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W
1		List of Worksheets			PEL Counters																		
3		DateTime	Name	Port WWN	F4	Thrott	HardA	Flags	Loop I	Port E	SCSI I	PEL VI	InvOC	RunDE	LossO	PhyRF	InvOC	RunDE	LossO	PhyRF			
4	+	22-Feb-2013 02:37:01	Total										701	653	10	4							
114		21-Feb-2013 02:37:01	Total										46	45	3	4							
217	+	20-Feb-2013 02:37:01	Total										13	13	1	4							
309	+	19-Feb-2013 02:37:00	Total										13	13	1	4							
401	+	18-Feb-2013 02:37:01	Total										13	13	1	4							
493	+	17-Feb-2013 02:37:00	Total										13	13	1	4							
585	+	16-Feb-2013 02:37:01	Total										16	14	1	4							
679	+	15-Feb-2013 02:37:00	Total										54	48	2	4							
789																							
790																							
791																							
792																							
793																							
794																							
795																							
796																							
797																							

Note that the counters are the sum of the counters seen for all devices during that sample period. Detailed info about the counters per device can be found by clicking on the "+" sign, thus expanding the view of the time period.

1	2	A	B	C	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W
1		List of Worksheets			PEL Counters																		
3		DateTime	Name	Port WWN	F4	Thrott	HardA	Flags	Loop I	Port E	SCSI I	PEL VI	InvOC	RunDE	LossO	PhyRF	InvOC	RunDE	LossO	PhyRF			
4		22-Feb-2013 02:37:01	Total										701	653	10	4							
5	+	22-Feb-2013 02:37:01	Port 0_1	5000-2ac0-0100-29e3	-	0x00	0x00	0x1	-	-	-	Y	-	-	-	4	-	-	-	-	-	-	-
6		22-Feb-2013 02:37:01	pd0	5000-cca0-1625-0272	-	0x00	0x00	-	0x1	0x1	0x1	Y	-	-	-	-	-	-	-	-	-	-	-
7		22-Feb-2013 02:37:01	pd1	5000-cca0-1629-87a2	-	0x00	0x00	-	0x2	0x2	0x2	Y	-	-	-	-	-	-	-	-	-	-	-
8		22-Feb-2013 02:37:01	pd9	5000-cca0-1627-8412	-	0x00	0x00	-	0x3	0x3	0x3	Y	-	-	-	-	-	-	-	-	-	-	-
9		22-Feb-2013 02:37:01	pd8	5000-cca0-1627-84b6	-	0x00	0x00	-	0x4	0x4	0x4	Y	-	-	-	-	-	-	-	-	-	-	-
10		22-Feb-2013 02:37:01	pd7	5000-cca0-162a-8446	-	0x00	0x00	-	0x5	0x5	0x5	Y	-	-	-	-	-	-	-	-	-	-	-
11		22-Feb-2013 02:37:01	pd10	5000-cca0-1629-8cde	-	0x00	0x00	-	0x6	0x6	0x6	Y	-	-	-	-	-	-	-	-	-	-	-
12		22-Feb-2013 02:37:01	pd6	5000-cca0-1627-4aaa	-	0x00	0x00	-	0x7	0x7	0x7	Y	-	-	-	-	-	-	-	-	-	-	-
13		22-Feb-2013 02:37:01	pd5	5000-cca0-1629-89c2	-	0x00	0x00	-	0x8	0x8	0x8	Y	-	-	-	-	-	-	-	-	-	-	-
14		22-Feb-2013 02:37:01	pd4	5000-cca0-1629-01ba	-	0x00	0x00	-	0x9	0x9	0x9	Y	-	-	-	-	-	-	-	-	-	-	-
15		22-Feb-2013 02:37:01	pd3	5000-cca0-1629-89cd	-	0x00	0x00	-	0xa	0xa	0xa	Y	-	-	-	-	-	-	-	-	-	-	-
16		22-Feb-2013 02:37:01	pd11	5000-cca0-1627-6146	-	0x00	0x00	-	0xb	0xb	0xb	Y	-	-	-	-	-	-	-	-	-	-	-
17		22-Feb-2013 02:37:01	pd2	5000-cca0-1625-1252	-	0x00	0x00	-	0xc	0xc	0xc	Y	-	-	-	-	-	-	-	-	-	-	-
18		22-Feb-2013 02:37:01	pd14	5000-cca0-162a-e256	-	0x00	0x00	-	0xd	0xd	0xd	Y	-	-	-	-	-	-	-	-	-	-	-
19		22-Feb-2013 02:37:01	pd13	5000-cca0-1629-8e0d	-	0x00	0x00	-	0xe	0xe	0xe	Y	-	-	-	-	-	-	-	-	-	-	-
20		22-Feb-2013 02:37:01	pd12	5000-cca0-1629-b64e	-	0x00	0x00	-	0xf	0xf	0xf	Y	-	-	-	-	-	-	-	-	-	-	-
21		22-Feb-2013 02:37:01	pd15	5000-cca0-1627-5ba2	-	0x00	0x00	-	0x10	0x10	0x10	Y	-	-	-	-	-	-	-	-	-	-	-
22		22-Feb-2013 02:37:01	pd17	5000-cca0-1626-c2a8	-	0x00	0x00	-	0x11	0x11	0x11	Y	-	-	-	-	-	-	-	-	-	-	-
23		22-Feb-2013 02:37:01	pd16	5000-cca0-1629-8385	-	0x00	0x00	-	0x12	0x12	0x12	Y	-	-	-	-	-	-	-	-	-	-	-
24		22-Feb-2013 02:37:01	cdge0	5005-0cc1-0230-567a	-	0x00	0x00	-	0x13	0x13	0x13	Y	-	-	-	-	-	-	-	-	-	-	-
25		22-Feb-2013 02:37:01	pd18	5000-cca0-1622-7ab2	-	0x00	0x00	-	0x14	0x14	0x14	Y	-	-	-	-	-	-	-	-	-	-	-
26		22-Feb-2013 02:37:01	pd19	5000-cca0-1626-217a	-	0x00	0x00	-	0x15	0x15	0x15	Y	20	19	1	-	-	-	-	-	-	-	-
27		22-Feb-2013 02:37:01	pd29	5000-cca0-162a-f0de	-	0x00	0x00	-	0x16	0x16	0x16	Y	100	81	1	-	-	-	-	-	-	-	-
28		22-Feb-2013 02:37:01	pd25	5000-cca0-162c-344a	-	0x00	0x00	-	0x17	0x17	0x17	Y	-	-	-	-	-	-	-	-	-	-	-
29		22-Feb-2013 02:37:01	pd25	5000-cca0-162b-e042	-	0x00	0x00	-	0x18	0x18	0x18	Y	315	289	1	-	-	-	-	-	-	-	-
30		22-Feb-2013 02:37:01	pd28	5000-cca0-1625-1b1e	-	0x00	0x00	-	0x19	0x19	0x19	Y	-	-	-	-	-	-	-	-	-	-	-
31		22-Feb-2013 02:37:01	pd24	5000-cca0-161c-98da	-	0x00	0x00	-	0x1a	0x1a	0x1a	Y	-	-	-	-	-	-	-	-	-	-	-
32		22-Feb-2013 02:37:01	pd23	5000-cca0-1626-943a	-	0x00	0x00	-	0x1b	0x1b	0x1b	Y	-	-	-	-	-	-	-	-	-	-	-
33		22-Feb-2013 02:37:01	pd22	5000-cca0-161f-7d92	-	0x00	0x00	-	0x1c	0x1c	0x1c	Y	-	-	-	-	-	-	-	-	-	-	-
34		22-Feb-2013 02:37:01	pd21	5000-cca0-1626-d28a	-	0x00	0x00	-	0x1d	0x1d	0x1d	Y	26	26	1	-	-	-	-	-	-	-	-
35		22-Feb-2013 02:37:01	pd20	5000-cca0-1626-901a	-	0x00	0x00	-	0x1e	0x1e	0x1e	Y	122	115	1	-	-	-	-	-	-	-	-
36		22-Feb-2013 02:37:01	pd20	5000-cca0-1612-9802	-	0x00	0x00	-	0x1f	0x1f	0x1f	Y	-	-	-	-	-	-	-	-	-	-	-
37		22-Feb-2013 02:37:01	pd32	5000-cca0-1627-dfb6	-	0x00	0x00	-	0x20	0x20	0x20	Y	-	-	-	-	-	-	-	-	-	-	-
38		22-Feb-2013 02:37:01	pd31	5000-cca0-1626-ac9d	-	0x00	0x00	-	0x21	0x21	0x21	Y	21	21	1	-	-	-	-	-	-	-	-
39		22-Feb-2013 02:37:01	pd30	5000-cca0-162c-cb52	-	0x00	0x00	-	0x22	0x22	0x22	Y	-	-	-	-	-	-	-	-	-	-	-
40		22-Feb-2013 02:37:01	pd33	5000-cca0-162e-dc8a	-	0x00	0x00	-	0x23	0x23	0x23	Y	40	40	1	-	-	-	-	-	-	-	-
41		22-Feb-2013 02:37:01	pd35	5000-cca0-1626-b002	-	0x00	0x00	-	0x24	0x24	0x24	Y	13	13	1	-	-	-	-	-	-	-	-
42		22-Feb-2013 02:37:01	pd34	5000-cca0-162c-0572	-	0x00	0x00	-	0x25	0x25	0x25	Y	-	-	-	-	-	-	-	-	-	-	-
43		22-Feb-2013 02:37:01	pd36	5000-cca0-1607-0d1a	-	0x00	0x00	-	0x26	0x26	0x26	Y	-	-	-	-	-	-	-	-	-	-	-

The “SR AO Config and Events” worksheet

This worksheet provides information of System Reporter (SR) and Adaptive Optimization (AO) configuration data, as well as scheduled jobs and events in the various showeventlog outputs which are related to SR or AO.

The first section lists the AO Configs, assuming there are present in the InSplore. It lists the AO config name, as well as the Id, Mode and Tier 0/1/2 characteristics like CPG and Warning and Limit.

List of Worksheets											
AO Configurations			Tier 0			Tier 1			Tier 2		
Config Name	Id	Mode	CPG	Warning	Limit	CPG	Warning	Limit	CPG	Warning	Limit
AO_CFG_DFLT	1	---	-	NL_r6	---	---	---	---	FC_r1	---	---
ESX_Data01_AO	3	---	-	ESX_Data0	---	---	---	---	ESX_Data01_Silv	---	---
ESX_Data02_AO	4	---	-	ESX_Data0	---	---	---	---	ESX_Data02_Silv	---	---
HyperVData20_AO	5	---	-	HyperVData	---	---	---	---	HyperVData20_Si	---	---
HyperVData21_AO	6	---	-	HyperVData	---	---	---	---	HyperVData21_Si	---	---
HyperVERPOnline20_AO	7	---	-	HyperVERP	---	---	---	---	HyperVERPOnline	---	---
HyperVERPOnline21_AO	8	---	-	HyperVERP	---	---	---	---	HyperVERPOnline	---	---
HyperVData22_AO	9	---	-	HyperVData	---	---	---	---	HyperVData22_Si	---	---
ESX_C50_Data01_AO	10	---	-	ESX_C50_	---	---	---	---	ESX_C50_Data0	---	---

The next section lists the configuration of System Reporter, if present in the InSplore. It lists

SR Configuration			
SR Node	Total(GB)	Used(GB)	Percentage
1	61.9	10.7	19%
Table	Count	Total Used (GB)	
aomoves	3	0.014	
baddb	0	0	
daily	2	0.057	
hires	7	8.051	
hourly	3	1.319	
ldrg	24	0.575	
perfsample	4	0.001	
srmain	1	0	
system	1	0	

the active SR Node, as well as the total amount of allocated space on the /sr_mnt filesystem. It also provides an overview of allocated space per database table.

The third section on this worksheet lists the scheduled tasks, which may or may not contain scheduled AO runs.

Schedules												
Schedule Name	Alert	Hidden	System	Paused	Active	Min	Hour	DOB	Month	DOW	Created By	NextRunTime
check_alone_dss	N	N	Y	N	Y	7	*	*	*	*	3parsec	sample_slowlss 840 3360
remove_expired_vss	N	N	Y	N	Y	27	*	*	*	*	3parsec	removew -f -expired
move_back_chuisset	N	N	Y	N	Y	17	2	*	*	*	3parsec	movebackcd -f partial -p 10_0
sample	N	N	Y	N	Y	17	3	*	*	*	3parsec	sample 365
FC20_Snap	Y	N	N	Y	Y	0	*	*	*	*	3paradm	creates -exp 34h @vname@ துவக்குகிறது துவக்குகிறது setFC20
Snap	Y	N	N	Y	Y	24	*	*	*	*	3paradm	creates -exp 34h @vname@ துவக்குகிறது துவக்குகிறது setSnap
VMWare_CSO_Snap	Y	N	N	Y	Y	16	*	*	*	*	3paradm	creates -exp 24h @vname@ துவக்குகிறது துவக்குகிறது setVMWare_CSO
VMWare_HCDI_Snap	Y	N	N	Y	Y	33	*	*	*	*	3paradm	creates -exp 24h @vname@ துவக்குகிறது துவக்குகிறது setVMWare_HCDI
ESX_CSO_Data01_AO	Y	N	N	Y	Y	0	17	*	*	1,2,3,4	3paradm	startao -btsecs -36000 -maxrun 11 ESX_CSO_Data01_AO
ESX_CSO_Data02_AO	Y	N	N	Y	Y	0	17	*	*	1,2,3,4	3paradm	startao -btsecs -36000 -maxrun 12 ESX_CSO_Data02_AO
ESX_Data01_AO	Y	N	N	Y	Y	0	17	*	*	1,2,3,4	3paradm	startao -btsecs -36000 -maxrun 11 ESX_Data01_AO
ESX_Data02_AO	Y	N	N	Y	Y	0	17	*	*	1,2,3,4	3paradm	startao -btsecs -36000 -maxrun 12 ESX_Data02_AO
ESX_Data03_AO	Y	N	N	Y	Y	0	17	*	*	1,2,3,4	3paradm	startao -btsecs -36000 -maxrun 11 ESX_Data03_AO
ESX_Data04_AO	Y	N	N	Y	Y	0	17	*	*	1,2,3,4	3paradm	startao -btsecs -36000 -maxrun 12 ESX_Data04_AO
ESX_Data05_AO	Y	N	N	Y	Y	0	17	*	*	1,2,3,4	3paradm	startao -btsecs -36000 -maxrun 11 ESX_Data05_AO
FileCluster_Data01_AO	Y	N	N	Y	Y	0	17	*	*	1,2,3,4	3paradm	startao -btsecs -36000 -maxrun 12 FileCluster_Data01_AO
FileCluster_Data02_AO	Y	N	N	Y	Y	0	17	*	*	1,2,3,4	3paradm	startao -btsecs -36000 -maxrun 11 FileCluster_Data02_AO
FileCluster_Data03_AO	Y	N	N	Y	Y	0	17	*	*	1,2,3,4	3paradm	startao -btsecs -36000 -maxrun 12 FileCluster_Data03_AO

The last section on this worksheet lists the events related to SR and AO, as found in the various showeventlog outputs.

SR AO related events									
Date/Time	Seqnr	LogType	Class	Severity	Type	Comp	Reporting Affected	Message	
06-Aug-2013 19:00:01.500	78397	NO	Notify	Info	CU comm/sw_cli		1	[3paradm super all (0 0)] -1 127.127.0.2 21744) [startao -btsecs -43200 -etsecs -7200 -maxrun 10 FileCluster_Data07_AO] 0	
06-Aug-2013 19:00:01.360	78395	NO	Notify	Info	CU comm/sw_cli		1	[3paradm super all (0 0)] -1 127.127.0.2 21734) [startao -btsecs -43200 -etsecs -7200 -maxrun 10 FileCluster_Data09_AO] 0	
06-Aug-2013 19:00:01.330	78394	NO	Notify	Info	CU comm/sw_cli		1	[3paradm super all (0 0)] -1 127.127.0.2 21737) [startao -btsecs -43200 -etsecs -7200 -maxrun 10 FileCluster_Data10_AO] 0	
06-Aug-2013 19:00:01.280	78393	NO	Notify	Info	CU comm/sw_cli		1	[3paradm super all (0 0)] -1 127.127.0.2 21725) [startao -btsecs -43200 -etsecs -7200 -maxrun 10 FileCluster_Data08_AO] 0	
06-Aug-2013 18:00:00.890	75085	NO	Notify	Info	CU comm/sw_cli		1	[3paradm super all (0 0)] -1 127.127.0.2 21044) [startao -btsecs -39600 -etsecs -3600 -maxrun 11 FileCluster_Data04_AO] 0	
06-Aug-2013 18:00:00.870	75084	NO	Notify	Info	CU comm/sw_cli		1	[3paradm super all (0 0)] -1 127.127.0.2 21041) [startao -btsecs -39600 -etsecs -3600 -maxrun 11 FileCluster_Data05_AO] 0	
07-Aug-2013 19:00:00.590	481931	NO	Notify	Info	CU comm/sw_cli		1	[3paradm super all (0 0)] -1 127.127.0.2 21331) [startao -btsecs -43200 -etsecs -7200 -maxrun 10 FileCluster_Data09_AO] 0	
07-Aug-2013 19:00:00.570	481929	NO	Notify	Info	CU comm/sw_cli		1	[3paradm super all (0 0)] -1 127.127.0.2 21330) [startao -btsecs -43200 -etsecs -7200 -maxrun 10 FileCluster_Data07_AO] 0	
07-Aug-2013 19:00:00.530	481927	NO	Notify	Info	CU comm/sw_cli		1	[3paradm super all (0 0)] -1 127.127.0.2 21310) [startao -btsecs -43200 -etsecs -7200 -maxrun 10 FileCluster_Data10_AO] 0	
07-Aug-2013 19:00:00.520	481926	NO	Notify	Info	CU comm/sw_cli		1	[3paradm super all (0 0)] -1 127.127.0.2 21301) [startao -btsecs -43200 -etsecs -7200 -maxrun 10 FileCluster_Data09_AO] 0	
07-Aug-2013 18:00:01.030	485401	NO	Notify	Info	CU comm/sw_cli		1	[3paradm super all (0 0)] -1 127.127.0.2 18222) [startao -btsecs -39600 -etsecs -3600 -maxrun 11 FileCluster_Data04_AO] 0	
07-Aug-2013 18:00:01.010	485399	NO	Notify	Info	CU comm/sw_cli		1	[3paradm super all (0 0)] -1 127.127.0.2 18231) [startao -btsecs -39600 -etsecs -3600 -maxrun 11 FileCluster_Data05_AO] 0	
07-Aug-2013 17:00:03.410	478322	NO	Notify	Info	CU comm/sw_cli		1	[3paradm super all (0 0)] -1 127.127.0.2 14892) [startao -btsecs -36000 -maxrun 12 FileCluster_Data03_AO] 0	
07-Aug-2013 17:00:03.330	478321	NO	Notify	Info	CU comm/sw_cli		1	[3paradm super all (0 0)] -1 127.127.0.2 14897) [startao -btsecs -36000 -maxrun 12 FileCluster_Data01_AO] 0	
07-Aug-2013 17:00:02.990	478319	NO	Notify	Info	CU comm/sw_cli		1	[3paradm super all (0 0)] -1 127.127.0.2 14890) [startao -btsecs -36000 -maxrun 12 ESX_Data01_AO] 0	
07-Aug-2013 17:00:02.940	478317	NO	Notify	Info	CU comm/sw_cli		1	[3paradm super all (0 0)] -1 127.127.0.2 14892) [startao -btsecs -36000 -maxrun 12 FileCluster_Data02_AO] 0	

The “SR AO Logs” worksheet

This worksheet lists the events, as found in the SR and AO logs, if part of the InSplore. Note that the most recent entry is displayed first. The worksheet lists the Date and Time of the event, the related node, the file it was encountered and the actual text.

	DateTime	Node	File	Text
	09-Aug-2013 12:12:39.000	1	ldrgsampler	Waiting 5 minutes for /sr_mnt/srdata/ to be available
	09-Aug-2013 12:12:39.000	1	srsampler	Waiting 5 minutes for /sr_mnt/srdata/ to be available
	09-Aug-2013 12:10:02.000	0	srsampler	DEBUG: db size (MiB): 168.8
	09-Aug-2013 12:10:02.000	0	srsampler	End hires sample iteration (2 secs)
	09-Aug-2013 12:10:01.000	0	srsampler	sample_statlun rows:529 tcur:1 hires.tins:0 (1 secs)
	09-Aug-2013 12:10:01.000	0	srsampler	sample_statld rows:395 tcur:0 hires.tins:0 (0 secs)
	09-Aug-2013 12:10:01.000	0	srsampler	sample_statpd rows:96 tcur:0 hires.tins:0 (0 secs)
	09-Aug-2013 12:10:01.000	0	srsampler	sample_statport rows:14 tcur:0 hires.tins:0 (0 secs)
	09-Aug-2013 12:10:01.000	0	srsampler	sample_statqos rows:0 tcur:0 hires.tins:0 (0 secs)
	09-Aug-2013 12:10:00.000	0	srsampler	Start sample iteration for time: Fri Aug 09 12:10:00 CEST 2013 (1376043000)
	09-Aug-2013 12:10:00.000	0	srsampler	sample_cpinspace rows:72 tget:0 tcomp:0 tins:0 (0 secs)
	09-Aug-2013 12:10:00.000	0	srsampler	sample_pdspace rows:96 tget:0 tcomp:0 tins:0 (0 secs)
	09-Aug-2013 12:10:00.000	0	srsampler	sample_wspspace rows:214 tget:0 tcomp:0 tins:0 (0 secs)
	09-Aug-2013 12:10:00.000	0	srsampler	sample_ldspace rows:395 tget:0 tcomp:0 tins:0 (0 secs)
	09-Aug-2013 12:10:00.000	0	srsampler	sample_statcpu rows:16 tcur:0 hires.tins:0 (0 secs)
	09-Aug-2013 12:10:00.000	0	srsampler	sample_statcmp rows:2 tcur:0 hires.tins:0 (0 secs)
	09-Aug-2013 12:10:00.000	0	srsampler	sample_statlink rows:10 tcur:0 hires.tins:0 (0 secs)
	09-Aug-2013 12:07:39.000	1	ldrgsampler	Waiting 5 minutes for /sr_mnt/srdata/ to be available
	09-Aug-2013 12:07:39.000	1	srsampler	Waiting 5 minutes for /sr_mnt/srdata/ to be available
	09-Aug-2013 12:05:02.000	0	srsampler	sample_statport rows:14 tcur:1 hires.tins:0 (1 secs)
	09-Aug-2013 12:05:02.000	0	srsampler	sample_statqos rows:0 tcur:0 hires.tins:0 (0 secs)
	09-Aug-2013 12:05:02.000	0	srsampler	DEBUG: db size (MiB): 168.3
	09-Aug-2013 12:05:02.000	0	srsampler	End hires sample iteration (2 secs)
	09-Aug-2013 12:05:01.000	0	srsampler	sample_statlun rows:513 tcur:1 hires.tins:0 (1 secs)
	09-Aug-2013 12:05:01.000	0	srsampler	sample_statld rows:395 tcur:0 hires.tins:0 (0 secs)
	09-Aug-2013 12:05:01.000	0	srsampler	sample_statpd rows:96 tcur:0 hires.tins:0 (0 secs)
	09-Aug-2013 12:05:00.000	0	srsampler	Start sample iteration for time: Fri Aug 09 12:05:00 CEST 2013 (1376042700)
	09-Aug-2013 12:05:00.000	0	srsampler	sample_cpinspace rows:72 tget:0 tcomp:0 tins:0 (0 secs)
	09-Aug-2013 12:05:00.000	0	srsampler	sample_pdspace rows:96 tget:0 tcomp:0 tins:0 (0 secs)
	09-Aug-2013 12:05:00.000	0	srsampler	sample_wspspace rows:221 tget:0 tcomp:0 tins:0 (0 secs)
	09-Aug-2013 12:05:00.000	0	srsampler	sample_ldspace rows:395 tget:0 tcomp:0 tins:0 (0 secs)
	09-Aug-2013 12:05:00.000	0	srsampler	sample_statcpu rows:16 tcur:0 hires.tins:0 (0 secs)
	09-Aug-2013 12:05:00.000	0	srsampler	sample_statcmp rows:2 tcur:0 hires.tins:0 (0 secs)
	09-Aug-2013 12:05:00.000	0	srsampler	sample_statlink rows:10 tcur:0 hires.tins:0 (0 secs)
	09-Aug-2013 12:03:16.000	0	ldrgsampler	LDs=386 regs(usr)=275580 regs(snp)=8254 regs(adm)=2064 regs(none)=0 getcall_secs=0.5 insertrows_secs=192.1
	09-Aug-2013 12:03:16.000	0	ldrgsampler	End sample iteration (196 secs)
	09-Aug-2013 12:02:39.000	1	ldrgsampler	Waiting 5 minutes for /sr_mnt/srdata/ to be available

The “PD AscAscq” worksheet

This worksheet lists all PDs, for which an asc/ascq is observed in the various showeventlog output formats.

Initially, the worksheet is presented in compressed format, like given below. This format lists the PDs as well as the number of asc/ascqs logged against that PD.

1	2	3	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S
	1		List of Worksheets																		
	2		Position				Drive Information										Error Information				
	3																				
	4		ID	Ci	M	Ri	Name	Model	Ty	Sp	Firmware	Serial	WWN	ASC	ASCQ	Chunk	Count				
+	5	0	0	0	0		Hitachi	HCBRE0900GBAS10K	FC	10K	3P00	KPV6T3NF	5000-cca0-220c-530f	Total number of Asc/Ascq's logged : 135							
+	15	18	1	0	0		Hitachi	HCBRE0900GBAS10K	FC	10K	3P00	KPV6S9GF	5000-cca0-220c-46db	Total number of Asc/Ascq's logged : 1030							
+	57	19	1	1	0		Hitachi	HCBRE0900GBAS10K	FC	10K	3P00	KPV6W0RF	5000-cca0-220c-7eaf	Total number of Asc/Ascq's logged : 7							
+	68	20	1	2	0		Hitachi	HCBRE0900GBAS10K	FC	10K	3P00	KPV6SJNF	5000-cca0-220c-4a57	Total number of Asc/Ascq's logged : 905							
+	107	21	1	3	0		Hitachi	HCBRE0900GBAS10K	FC	10K	3P00	KPV7PJMF	5000-cca0-220d-fdc7	Total number of Asc/Ascq's logged : 10							
+	118	22	1	4	0		Hitachi	HCBRE0900GBAS10K	FC	10K	3P00	KPV7PA5F	5000-cca0-220d-faa7	Total number of Asc/Ascq's logged : 543							
+	152	23	1	5	0		Hitachi	HCBRE0900GBAS10K	FC	10K	3P00	KPV7NHBF	5000-cca0-220d-ee27	Total number of Asc/Ascq's logged : 13							
+	165	24	1	6	0		Hitachi	HCBRE0900GBAS10K	FC	10K	3P00	KPV6T2LF	5000-cca0-220c-528b	Total number of Asc/Ascq's logged : 844							

The view can be expanded to medium level detail (by pressing the “2”, see highlight in picture below), which will list the different asc/ascqs logged against a drive, as well as the number of events per asc/ascq.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100	101	102	103	104	105	106	107	108	109	110	111	112	113	114	115	116	117	118	119	120	121	122	123	124	125	126	127	128	129	130	131	132	133	134	135	136	137	138	139	140	141	142	143	144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159	160	161	162	163	164	165	166	167	168	169	170	171	172	173	174	175	176	177	178	179	180	181	182	183	184	185	186	187	188	189	190	191	192	193	194	195	196	197	198	199	200	201	202	203	204	205	206	207	208	209	210	211	212	213	214	215	216	217	218	219	220	221	222	223	224	225	226	227	228	229	230	231	232	233	234	235	236	237	238	239	240	241	242	243	244	245	246	247	248	249	250	251	252	253	254	255	256	257	258	259	260	261	262	263	264	265	266	267	268	269	270	271	272	273	274	275	276	277	278	279	280	281	282	283	284	285	286	287	288	289	290	291	292	293	294	295	296	297	298	299	300	301	302	303	304	305	306	307	308	309	310	311	312	313	314	315	316	317	318	319	320	321	322	323	324	325	326	327	328	329	330	331	332	333	334	335	336	337	338	339	340	341	342	343	344	345	346	347	348	349	350	351	352	353	354	355	356	357	358	359	360	361	362	363	364	365	366	367	368	369	370	371	372	373	374	375	376	377	378	379	380	381	382	383	384	385	386	387	388	389	390	391	392	393	394	395	396	397	398	399	400	401	402	403	404	405	406	407	408	409	410	411	412	413	414	415	416	417	418	419	420	421	422	423	424	425	426	427	428	429	430	431	432	433	434	435	436	437	438	439	440	441	442	443	444	445	446	447	448	449	450	451	452	453	454	455	456	457	458	459	460	461	462	463	464	465	466	467	468	469	470	471	472	473	474	475	476	477	478	479	480	481	482	483	484	485	486	487	488	489	490	491	492	493	494	495	496	497	498	499	500	501	502	503	504	505	506	507	508	509	510	511	512	513	514	515	516	517	518	519	520	521	522	523	524	525	526	527	528	529	530	531	532	533	534	535	536	537	538	539	540	541	542	543	544	545	546	547	548	549	550	551	552	553	554	555	556	557	558	559	560	561	562	563	564	565	566	567	568	569	570	571	572	573	574	575	576	577	578	579	580	581	582	583	584	585	586	587	588	589	590	591	592	593	594	595	596	597	598	599	600	601	602	603	604	605	606	607	608	609	610	611	612	613	614	615	616	617	618	619	620	621	622	623	624	625	626	627	628	629	630	631	632	633	634	635	636	637	638	639	640	641	642	643	644	645	646	647	648	649	650	651	652	653	654	655	656	657	658	659	660	661	662	663	664	665	666	667	668	669	670	671	672	673	674	675	676	677	678	679	680	681	682	683	684	685	686	687	688	689	690	691	692	693	694	695	696	697	698	699	700	701	702	703	704	705	706	707	708	709	710	711	712	713	714	715	716	717	718	719	720	721	722	723	724	725	726	727	728	729	730	731	732	733	734	735	736	737	738	739	740	741	742	743	744	745	746	747	748	749	750	751	752	753	754	755	756	757	758	759	760	761	762	763	764	765	766	767	768	769	770	771	772	773	774	775	776	777	778	779	780	781	782	783	784	785	786	787	788	789	790	791	792	793	794	795	796	797	798	799	800	801	802	803	804	805	806	807	808	809	810	811	812	813	814	815	816	817	818	819	820	821	822	823	824	825	826	827	828	829	830	831	832	833	834	835	836	837	838	839	840	841	842	843	844	845	846	847	848	849	850	851	852	853	854	855	856	857	858	859	860	861	862	863	864	865	866	867	868	869	870	871	872	873	874	875	876	877	878	879	880	881	882	883	884	885	886	887	888	889	890	891	892	893	894	895	896	897	898	899	900	901	902	903	904	905	906	907	908	909	910	911	912	913	914	915	916	917	918	919	920	921	922	923	924	925	926	927	928	929	930	931	932	933	934	935	936	937	938	939	940	941	942	943	944	945	946	947	948	949	950	951	952	953	954	955	956	957	958	959	960	961	962	963	964	965	966	967	968	969	970	971	972	973	974	975	976	977	978	979	980	981	982	983	984	985	986	987	988	989	990	991	992	993	994	995	996	997	998	999	1000	1001	1002	1003	1004	1005	1006	1007	1008	1009	1010	1011	1012	1013	1014	1015	1016	1017	1018	1019	1020	1021	1022	1023	1024	1025	1026	1027	1028	1029	1030	1031	1032	1033	1034	1035	1036	1037	1038	1039	1040	1041	1042	1043	1044	1045	1046	1047	1048	1049	1050	1051	1052	1053	1054	1055	1056	1057	1058	1059	1060	1061	1062	1063	1064	1065	1066	1067	1068	1069	1070	1071	1072	1073	1074	1075	1076	1077	1078	1079	1080	1081	1082	1083	1084	1085	1086	1087	1088	1089	1090	1091	1092	1093	1094	1095	1096	1097	1098	1099	1100	1101	1102	1103	1104	1105	1106	1107	1108	1109	1110	1111	1112	1113	1114	1115	1116	1117	1118	1119	1120	1121	1122	1123	1124	1125	1126	1127	1128	1129	1130	1131	1132	1133	1134	1135	1136	1137	1138	1139	1140	1141	1142	1143	1144	1145	1146	1147	1148	1149	1150	1151	1152	1153	1154	1155	1156	1157	1158	1159	1160	1161	1162	1163	1164	1165	1166	1167	1168	1169	1170	1171	1172	1173	1174	1175	1176	1177	1178	1179	1180	1181	1182	1183	1184	1185	1186	1187	1188	1189	1190	1191	1192	1193	1194	1195	1196	1197	1198	1199	1200	1201	1202	1203	1204	1205	1206	1207	1208	1209	1210	1211	1212	1213	1214	1215	1216	1217	1218	1219	1220	1221	12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This view can be further expanded, and then the list of chunklets, to which the asc/ascqs are logged against, can be reviewed.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	
			List of Worksheets																											
			Position				Drive Information										Error Information													
			ID	Ci	M	Ri	Name	Model	Typ	Sp	Firmware	Serial	WWN	ASC	ASCQ	Chunk	Count													
			5	0	0	0	Hitachi	HCBRE0900GBAS10K	FC	10K	3P00	KPV6T3NF	5000-cca0-220c-530f	Total number of Asc/Ascq's logged : 135																
			6	0	0	0	Hitachi	HCBRE0900GBAS10K	FC	10K	3P00	KPV6T3NF	5000-cca0-220c-530f	Total number of Asc/Ascq's 0x290x1 logged : 3. Description: Power on occurred																
			7	0	0	0	Hitachi	HCBRE0900GBAS10K	FC	10K	3P00	KPV6T3NF	5000-cca0-220c-530f	0x29	0x1	0	3													
			8	0	0	0	Hitachi	HCBRE0900GBAS10K	FC	10K	3P00	KPV6T3NF	5000-cca0-220c-530f	Total number of Asc/Ascq's 0x350x4 logged : 3. Description: Enclosure services transfer refused																
			9	0	0	0	Hitachi	HCBRE0900GBAS10K	FC	10K	3P00	KPV6T3NF	5000-cca0-220c-530f	0x35	0x4	0	3													
			10	0	0	0	Hitachi	HCBRE0900GBAS10K	FC	10K	3P00	KPV6T3NF	5000-cca0-220c-530f	Total number of Asc/Ascq's 0x40x1 logged : 1. Description: Logical unit is in process of becoming ready																
			11	0	0	0	Hitachi	HCBRE0900GBAS10K	FC	10K	3P00	KPV6T3NF	5000-cca0-220c-530f	0x4	0x1	0	1													
			12	0	0	0	Hitachi	HCBRE0900GBAS10K	FC	10K	3P00	KPV6T3NF	5000-cca0-220c-530f	Total number of Asc/Ascq's 0x4b0x4 logged : 128. Description: Nak received																
			13	0	0	0	Hitachi	HCBRE0900GBAS10K	FC	10K	3P00	KPV6T3NF	5000-cca0-220c-530f	0x4b	0x4	0	128													
			15	18	1	0	0	Hitachi	HCBRE0900GBAS10K	FC	10K	3P00	KPV6S9GF	5000-cca0-220c-46db	Total number of Asc/Ascq's logged : 1030															
			16	18	1	0	0	Hitachi	HCBRE0900GBAS10K	FC	10K	3P00	KPV6S9GF	5000-cca0-220c-46db	Total number of Asc/Ascq's 0x100x1 logged : 149. Description: Logical block guard check failed															
			17	18	1	0	0	Hitachi	HCBRE0900GBAS10K	FC	10K	3P00	KPV6S9GF	5000-cca0-220c-46db	0x10	0x1	2	5												
			18	18	1	0	0	Hitachi	HCBRE0900GBAS10K	FC	10K	3P00	KPV6S9GF	5000-cca0-220c-46db	0x10	0x1	4	3												
			19	18	1	0	0	Hitachi	HCBRE0900GBAS10K	FC	10K	3P00	KPV6S9GF	5000-cca0-220c-46db	0x10	0x1	5	11.3												
			20	18	1	0	0	Hitachi	HCBRE0900GBAS10K	FC	10K	3P00	KPV6S9GF	5000-cca0-220c-46db	0x10	0x1	6	10												
			21	18	1	0	0	Hitachi	HCBRE0900GBAS10K	FC	10K	3P00	KPV6S9GF	5000-cca0-220c-46db	0x10	0x1	9	2												
			22	18	1	0	0	Hitachi	HCBRE0900GBAS10K	FC	10K	3P00	KPV6S9GF	5000-cca0-220c-46db	0x10	0x1	12	8												
			23	18	1	0	0	Hitachi	HCBRE0900GBAS10K	FC	10K	3P00	KPV6S9GF	5000-cca0-220c-46db	0x10	0x1	13	3												
			24	18	1	0	0	Hitachi	HCBRE0900GBAS10K	FC	10K	3P00	KPV6S9GF	5000-cca0-220c-46db	0x10	0x1	17	3												
			25	18	1	0	0	Hitachi	HCBRE0900GBAS10K	FC	10K	3P00	KPV6S9GF	5000-cca0-220c-46db	0x10	0x1	18	1												

10. CFI database

From V1.22 of the utility onwards, a copy of the central CFI database is automatically downloaded and can be used for local reference. This is done if all of the following conditions are met:

1. The last update attempt was more than 24 hours ago. For this condition, the tool verifies the last modification time of the log\get_cfldb.log file and compares that with the current date and time.
2. The IP address of the computer on which the utility operates, indicates that we're connected to the HP IntraNet, meaning the IP address needs to be in the 15:0:0:0 or 16:0:0:0 network.



The local copy can be found in the %INEX_HOME%\databases\cfi.db file, which is a SQLite database.

The database will be used in future version for automated detection of known issues, like node crashes and will refer to relevant CFI's, ERT cases and, if applicable, Engineering cases.

Important Note: The CFI Database or any of its derivatives, as further discussed in this chapter, are considered "HP Internal, Need to know required". Under no circumstances they can be handed to external parties, like customers, partners, etc.

NOTE: The following steps describe the creation of a Microsoft Excel worksheet, which will allow the user to view the contents of the local CFI database. It is not required for the function of the iNex tool, so is considered to be optional. Also, Once the spreadsheet is generated, a simple "Refresh" within Excel is required.

Together with the CFI database, a Microsoft Excel spreadsheet can be generated, which uses the SQLite database as "External Data Source". To be able to look at the most recent data, it is required to install the SQLite ODBC driver. This driver is available in 32-bit as well as 64-bit versions and can be found in the %INEX_HOME%\DSNs\Windows\SQLite for Windows platform and the %INEX_HOME%\DSNs\Linux\SQLite directory for the Linux platform. These drivers can also be downloaded from <http://www.ch-werner.de/sqliteodbc/>

Name	Date modified	Type	Size
 sqliteodbc.exe	7/21/2014 18:14	Application	4,044 KB
 sqliteodbc_w64.exe	7/21/2014 18:14	Application	1,808 KB

Based on the bitness (32-bit or 64-bit) version of your Microsoft Office package, you will need to install the sqliteodbc.exe (for 32-bit Microsoft Office) or sqliteodbc_w64.exe (for 64-bit Microsoft Office).

The bitness of Microsoft Office can be determined by opening any Office Application → File → Help. A picture like to the right should be displayed. The bitness of Office is listed in the line containing the "Version".



Product Activated

Microsoft Office Professional Plus 2010

This product contains Microsoft Access, Microsoft Excel, Microsoft SharePoint Workspace, Microsoft OneNote, Microsoft Outlook, Microsoft PowerPoint, Microsoft Publisher, Microsoft Word, Microsoft InfoPath.

[Change Product Key](#)

About Microsoft Word

Version: 14.0.6123.5001 (32-bit)

[Additional Version and Copyright Information](#)

Part of Microsoft Office Professional Plus 2010

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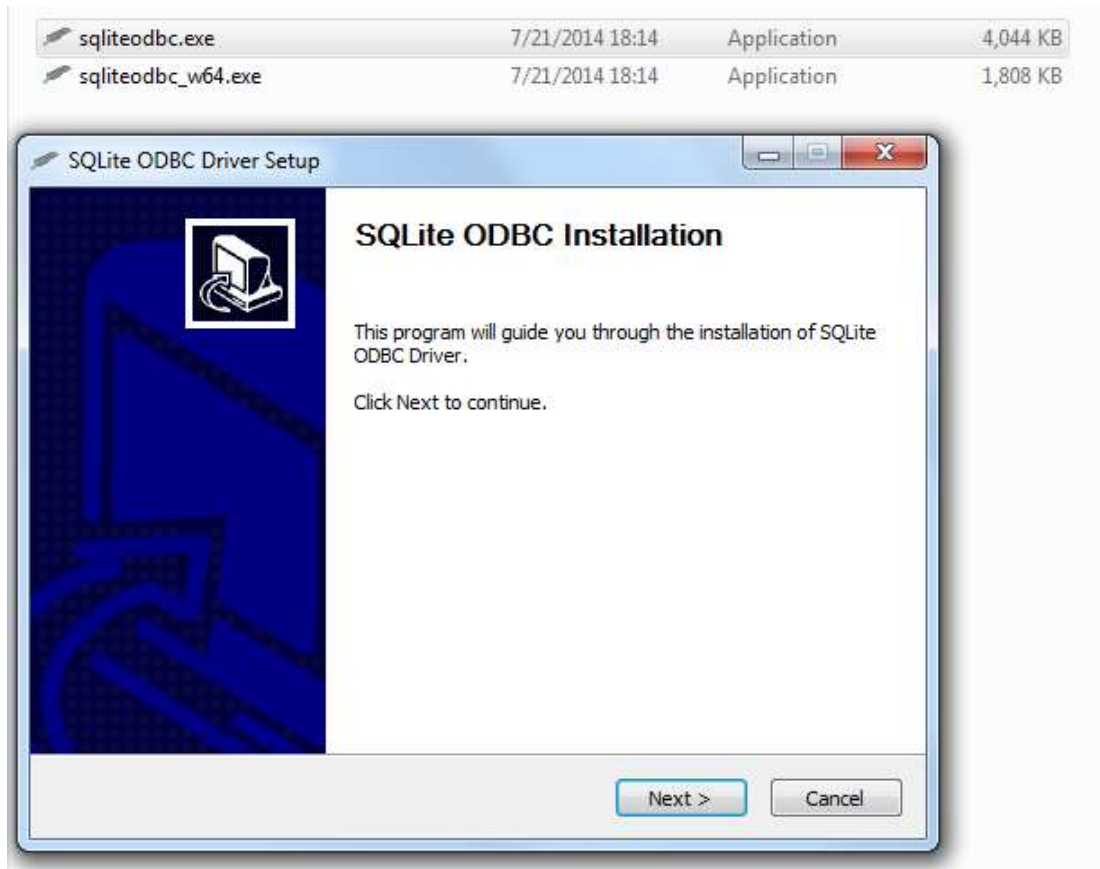
[Microsoft Customer Services and Support](#)

Product ID: 02260-018-0000106-48403

[Microsoft Software License Terms](#)

Note that HP-IT per default installs the 32-bit version of Microsoft Office.

In this example, we use the 32-bit version for installation. Make *sure* you use "Run as Administrator".



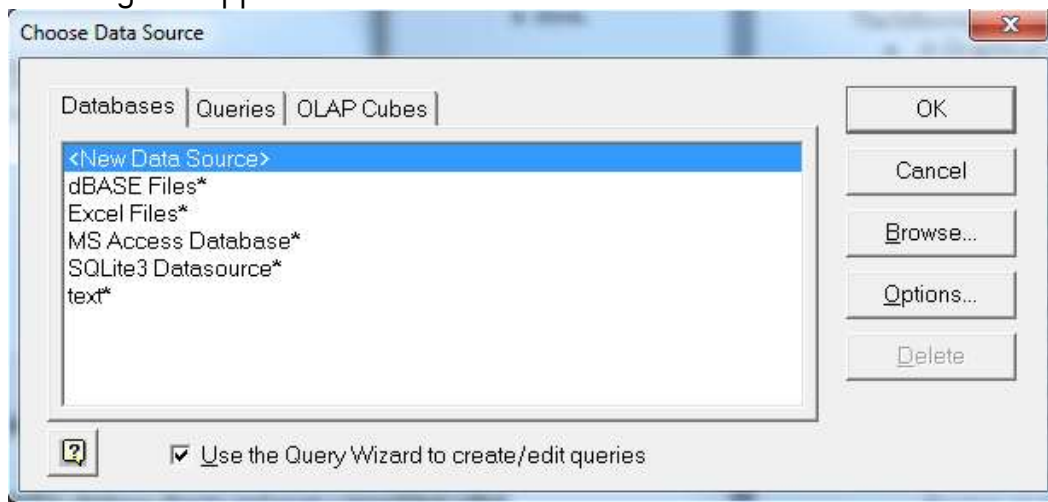
Just accept all default values and close the window once the

installation is done.

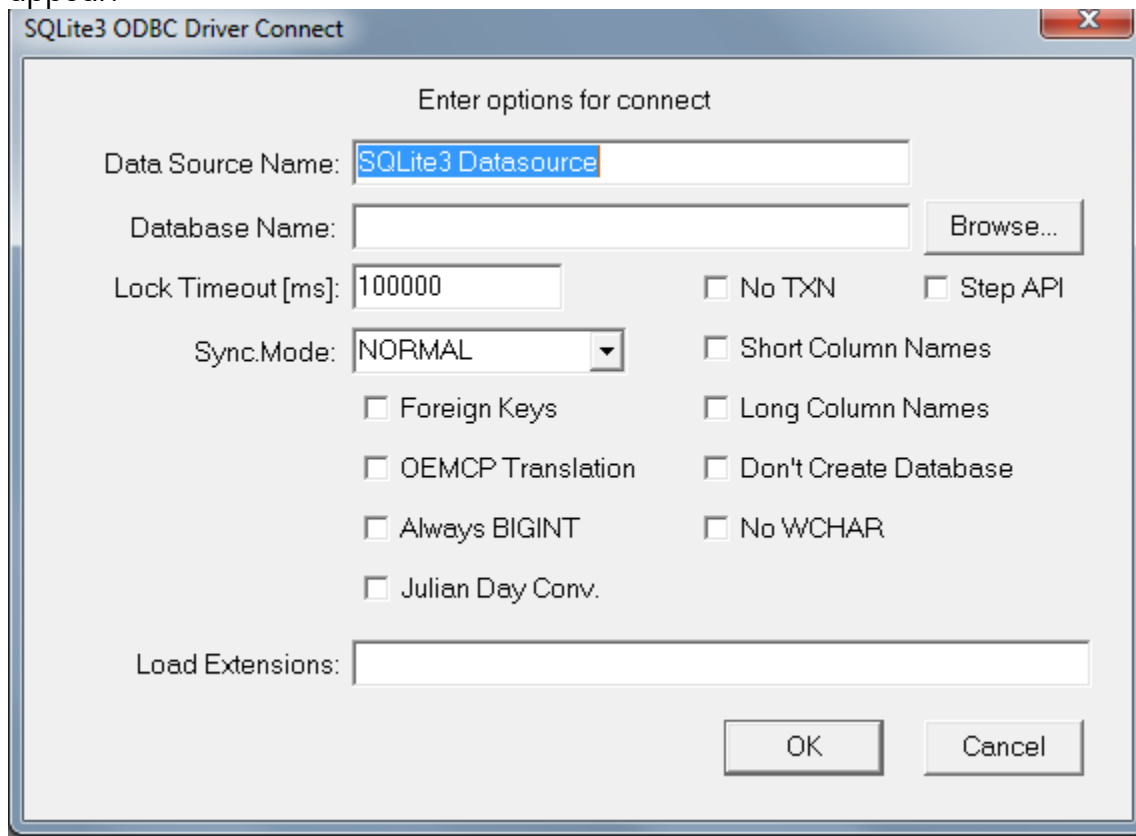
Perform the following steps:

1. Go to the %INEX_HOME%\databases directry and create a spreadsheet called "CFI_database.xlsx".

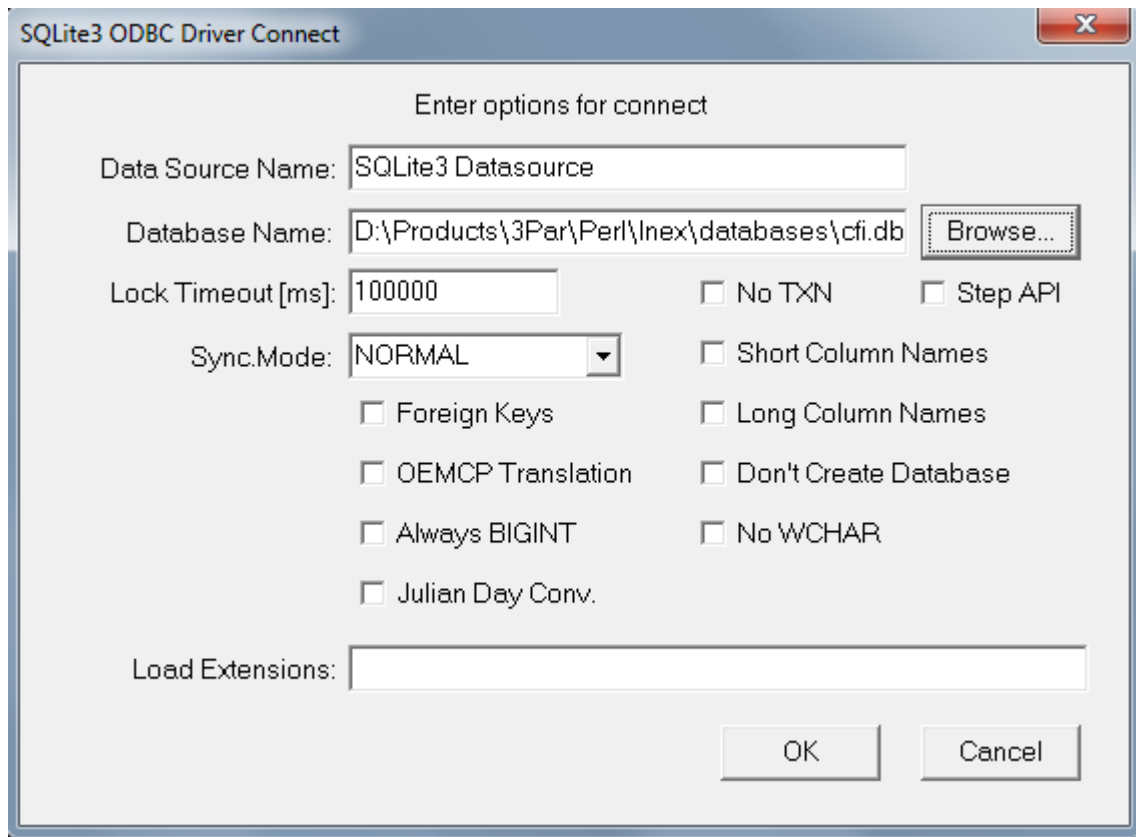
2. Open the "CFI_database.xlsx" spreadsheet.
3. Select "Data → External Data From Other Sources → From Microsoft Query". The following will appear:



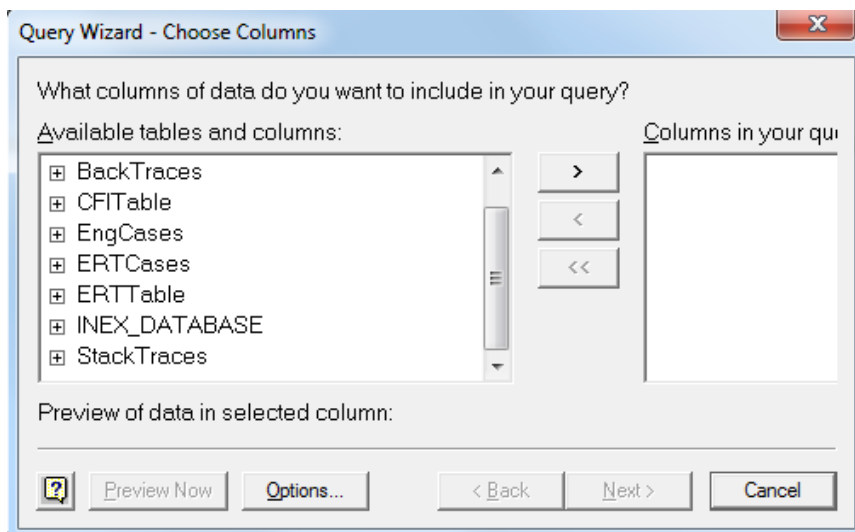
4. Select the "SQLite3 DataSource" and click "OK". The following screen will appear:



5. Use the "Browse" button to browse to the %INEX_HOME%\databases\cfi.db file.
6. Click OK.



7. A new window will appear showing the table which exist in the database. The important tables are:



Advisories, which lists the advisories issued for the different CFIs

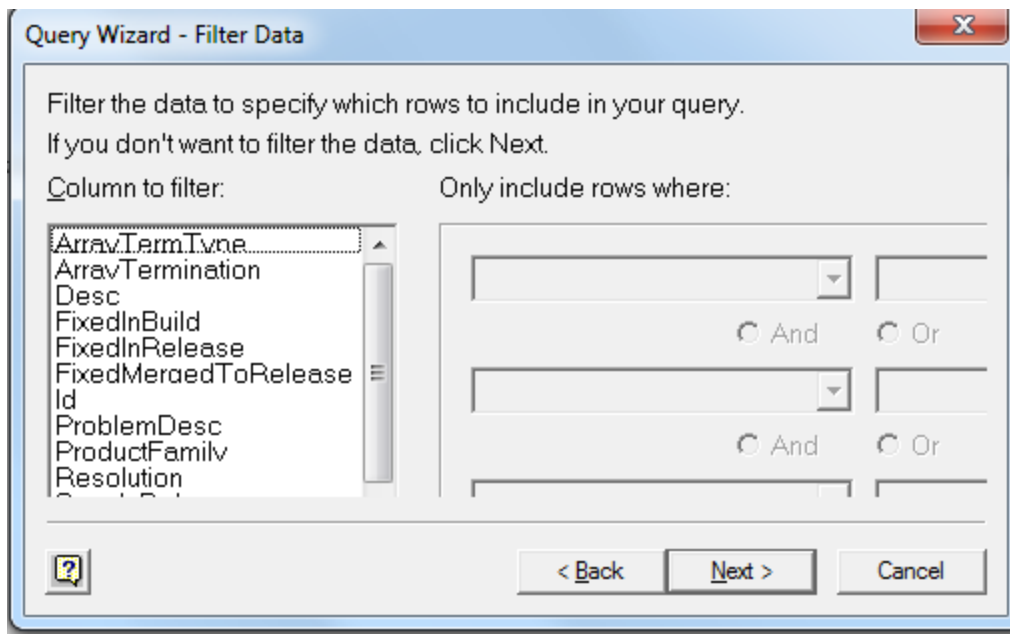
CFITable. This is the main table listing all 3PAR and HDD CFI's.

EngCases. This table lists all cases raised by ERT towards Engineering in relation to the CFIs.

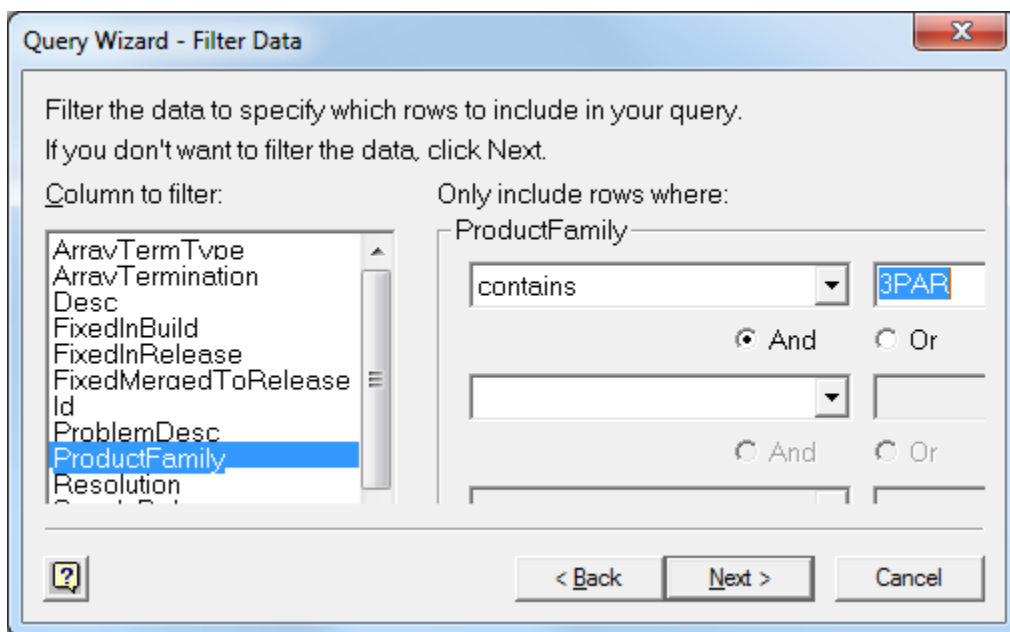
ERTCases. This table lists all GR8 and Sudden Impact cases, which are related to CFIs.

StackTraces. This table lists all stack traces, which are listed in the CFIs.

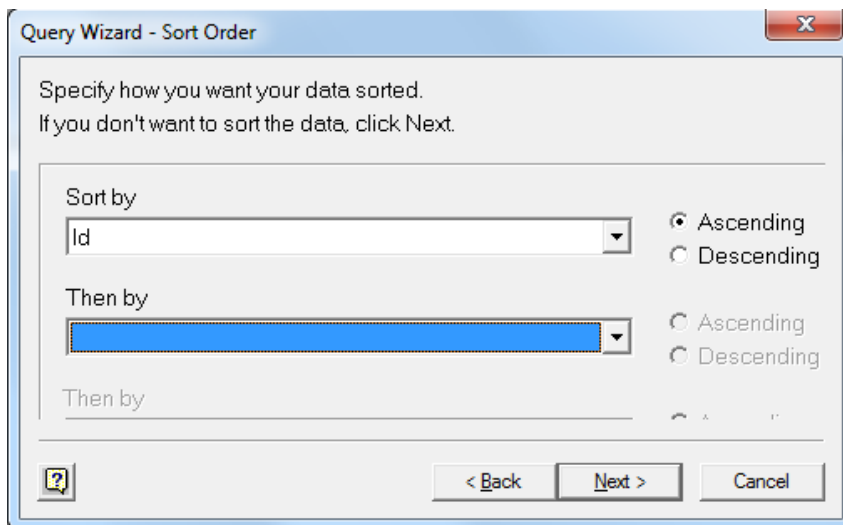
Select "CFITable", and click the ">" button, then click "Next".



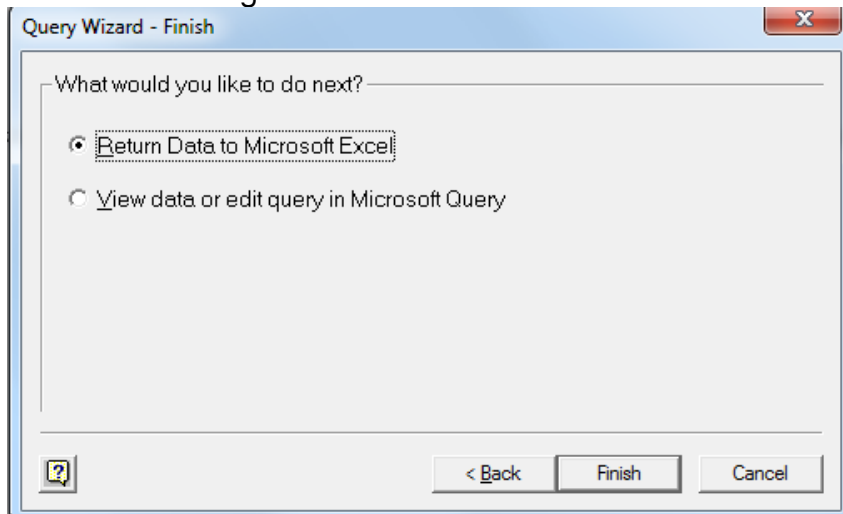
Select "ProductFamily" and use "contains" as filter. The value must be "3PAR".



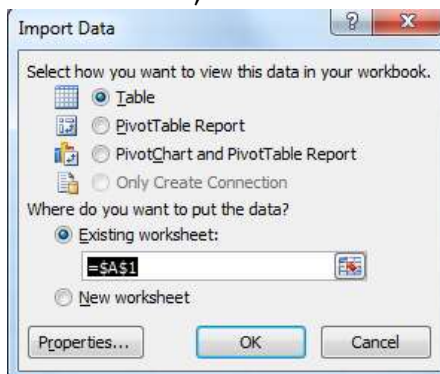
Click “Next”. The following screen will appear. Assure that the list will be sorted on the Id field. This field contains the CFI number.



Select “Next” to get to the next screen:



Click “Finish”, and the next window will appear.



Select “OK” to accept the placement of the data and worksheet will appear.

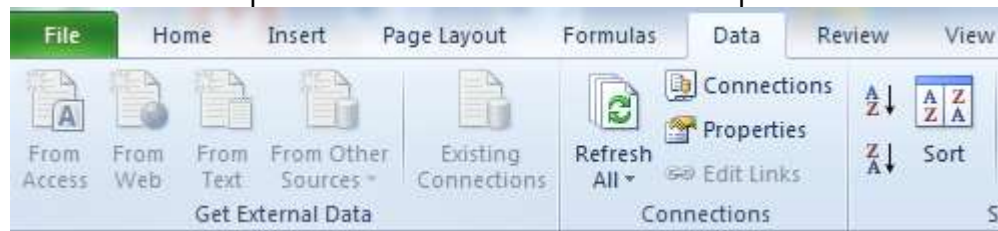
1	A	B	C	D	E	F	G
1	Alert/Event type	Alert/Event details	Event	Event ID	Event Release	Event Manager/Type/Source	Event ID
2	Single Controller - Automatic Recovery		1 This defect is being opened to track an ongoing issue on customer systems (V-Class) where a		Sweep		3396
3			0 Core example:fwcore.120728.060751.3-6343-1: Firmware core dump for 3PAR FC844x taken a		3.1.1 MU5		3393
4			0 3PAR OS versions 3.1.2 MU1 and older may incorrectly CPG Growth parameters after a symm		3.1.2 MU2		3364.2
5			0 After powering up 2 T-Class 3PAR's with only 1/2 the power on, the controller node hot-plu				3365
6	Single Controller - Automatic Recovery		1 Corefile summary shows 'tpid: CM: no heartbeat from self for 300 seconds'		3.1.3 GA		3366
7	Single Controller - Automatic Recovery		1 Node panic and some of the hosts lost access to the Infini				3367
8			0 Example: Event id: 1263003 Node 0 Cust Alert - Yes, Sec Alert - Yes Severity: Degraded Exam		3.1.2GA		3368
9			0 OSS is experiencing several cases where a failing PD will fail and generate an alert, and later		3.1.2GA		3369
10			0 Customer is on Inform OS 3.1.1 MU1 & 3.1.2.0 MU1 This bug is logged as a general information n		SR3.1		3370
11			0 After migrating the data warehouse Solaris LUNs from a T400 running 2.3.1 to a V800 running 3.1.2.220		3.1.2GA		3371
12			0 The Recoverymanager from Easthanger loses connection to the Exchange server when multipl				3401
13			0 Cust has 40 policy to move mission critical app luns on FC disk to SSD. It moves on average 1		SR3.1		3402 *
14			0 11_Disk/Cage Issues/Version 3.1.13. Date and time of customer issue occurrence: is this for th				3403
15			0 CPU Utilization very high on master causing insert to appear unresponsive. Host access rec		3.1.1 MU2		3407
16			0 Customer updated to IMC version 4.2.1.3 and realize that the Rfler component is not working		MC4.3.0		3408
17			0 The customer got no response to cli command then 2 out of 7 hosts have lost access to thei				3410
18			0 Chunklet relocation failed, because of PD 215 (drive error bit) ch 40 failed and PD 381 ch 40				3411
19			0 There seems to be at least 2 problems here: 1. The tuners task is sometimes exiting with an		3.1.1 MU3		3412
20			0 Seeing a long TOC update when 'Target Qlength Above Threshold' occurred. Seeing huge xvt		3.1.1 MU5		3413
21			0 tpttcl is core dumping due to getstatvfs not being able to allocate enough memory. This is		3.1.2GA		3414

You now successfully imported the first table into the spreadsheet. Note that this worksheet only contains the 3PAR related CFIs. If instead of filtering on “3PAR” in the “ProductFamily” column the value “HDD” is used, the worksheet will only list the HDD related CFI’s.

The other tables can be easily added (to new worksheets in the same spreadsheet) by using the repeating this process for each table. Start at “Data → External Data From Other Sources → From Microsoft Query”

At the end, you can format the spreadsheet to your personal preferences.

Note that it is possible to refresh the data (say once per 2 days) without the need to create a new spreadsheet. Use the “Refresh All” option in the “Data” tab.



It is also possible (and recommended) to create a shortcut on the Desktop to this spreadsheet to facilitate easy access.

11. Mapping Information Database

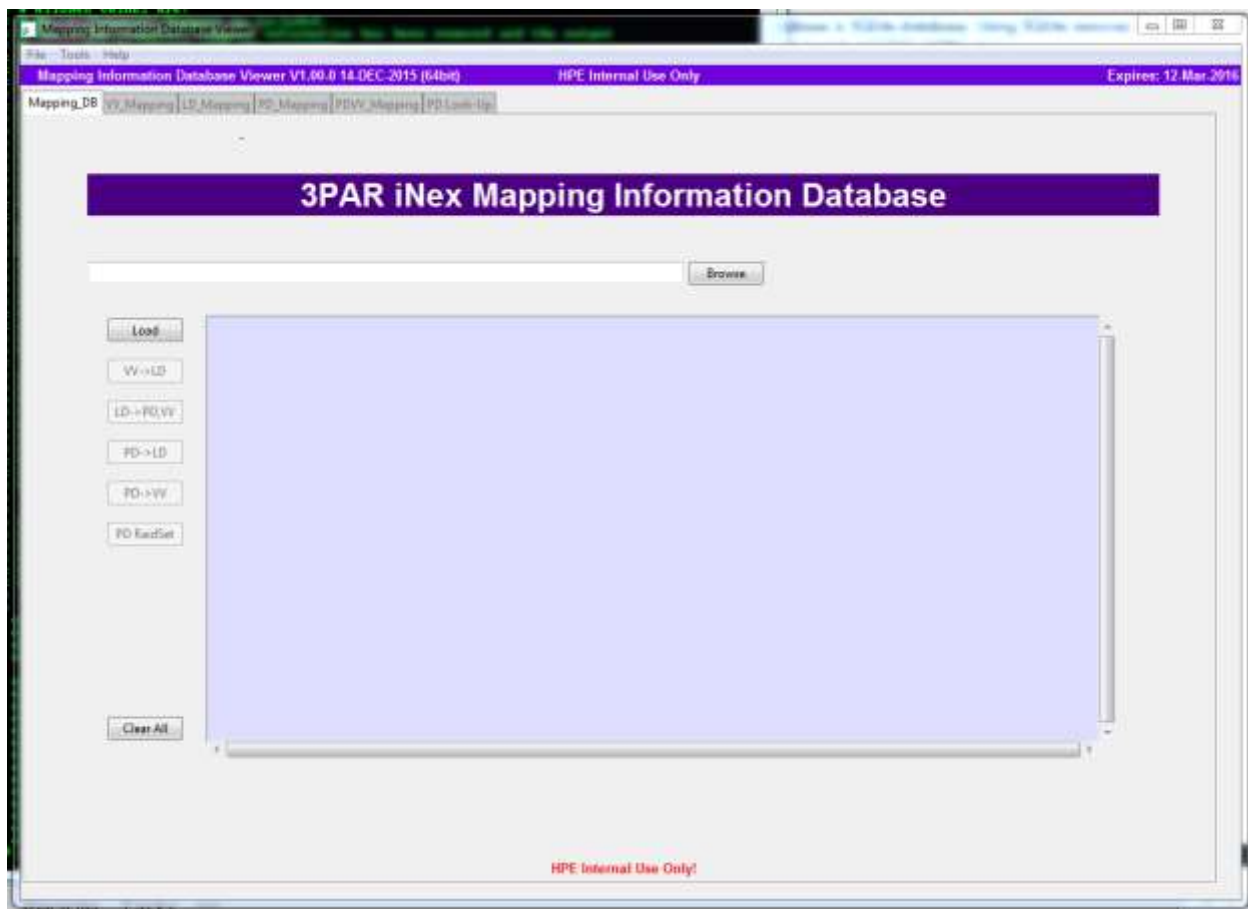
The INEX mapping information database is SQLite database. Using SQLite removes issues regarding the use of 32 or 64 bit MS ACCESS ODBC drivers.

With V1.26-4 of INEX a new tool is being provided to access and view the data in the mapping information database. The use of MS ACCESS is no longer going to be supported for viewing the mapping information database.

The new viewer is located in the \tools subdirectory of your INEX installation directory and is named: `inex_mapinfoviewer.exe`. You can start the application either from the CLI or a desktop shortcut. The desktop shortcut should be setup in the same manner as the one for INEX itself, just substitute the executable names. If you choose to execute the viewer from the CLI please ensure that your default is the INEX installation directory.

This new viewer has a similar look and feel to what we had through the MS ACCESS interface. The first advantage to this new viewer is that you will not have to create an instance of MS ACCESS database for each SQLite database in order to view the data. To begin processing a mapping information SQLite database you can drag and drop the name of the file from WINDOWS EXPLORER into the entry box or use the "Browse" button to locate and select a file. Once you have selected a file, click the "Load" button which will check the various tables for their existence and whether they contain data. Then based upon table and data availability the various option buttons will be enabled.

With V1.26-5 the various table interactions are now solely based upon row selection. The row selection method was chosen to help keep the data in the other tables current. This approach was taken to help with the "extract" feature now available in the viewer.



Below is a description of the data displayed for each button/tab:

VV->LD/VV_Mapping	The VV_Mapping tab lets you display the various LDs that a VV uses are displayed as well as the breakdown of the VV areas on the LDs.
LD->PD,VV/LD_Mapping	The LD_Mapping tab displays the LD chunklets and PDs that an LD is built on. You can also see which VVs are associated with the LD and the VV's areas on the LD.
PD->LD/PD_Mapping	The PD_Mapping tab allows you to look at the PD chunklets and LDs and its chunklets associated with the PD.
PD->VV/PDVV_Mapping	The PDVV_Mapping tab allows you to look at the chunklets of a PD and its associated VV information.
PD RAIDSet	This tab allows you to specify a PD and chunklet combination and display the other PD and its chunklets that make up the raid set.

12. Crash Footprint Recognition

Crash Footprint Recognition was introduced with iNex V1.24. In V1.25, the parsing algorithms were improved to better match known crash footprints.

The goal of this endeavor is to help reduce the time it takes to resolve a problem, especially where crash dumps are involved. It is very important to understand that Crash Footprint Recognition is not crash dump analysis! iNex will not analyze the crash dump per se. iNex will make a best effort to match the crash signature with those crash footprints that have already been cataloged. Currently, iNex has access to two (2) crash footprint repositories:

1. The CFI database.
2. A Lab Unique Crash Signature Database.

iNex uses three criterion when searching for a crash footprint match:

1. The PANIC string.
2. The HP 3PAR OS Version.
3. The "trace". There are 3 traces we use and they are listed in the order of preference:
 - a. Stack Trace
 - b. Back Trace
 - c. Call Trace

This information should come from a crash text file most of the time. Why the crash text file? Because it is available to us the earliest after a crash. The next optional source of crash information would be the associated analysis.x file from the crashdump, where "x" is an integer number. The contents of the analysis.x file contains the same information as the crash text file. But due to the fact that the analysis.x file is contained with the crashdump compressed file, it will not be available until the crashdump is available. There are other sources for the 3 crash criterion that those with advanced experience dealing with crashdump files would know how to retrieve.

13. INEX RC Tool

The INEX RC tool is a command line tool to enhance debugging RC, Remote Copy. The tool works with data from either single or multiple InSplores targeting RC data specifically. The tool then presents this RC data via spreadsheets to the user.

Below is the command line help:

```
tools\inex_rc.exe [<options>] <Directory> [<Directory> [<Directory>]]
```

Utility to capture and merge log data of one or more HP 3PAR systems in a Remote Copy relationship.

<Directory> The directory containing the decompressed inspire. Note that in the same directory containing <Directory> the subdirectory 'csv' must be located. This 'csv' directory is system specific. In case multiple systems need to be processed, a space separated list of directories can be specified.

<options> Optional list of options to influence processing.

<code>--target <target></code>	Specifies that only entries related to the specified target will be captured.
<code>--rcgroup <rcgroup></code>	Specifies that only entries related to the specified RCgroup will be captured.
<code>--basevv <vvname></code>	Specifies that only entries related to the specified BaseVV will be captured.
<code>-- help</code>	Displays this help and command line information.
<code>--host <hostname></code>	Specifies that all entries, including non RC related, related to the specified host will be captured.
<code>--deltas <3parsn>:<mm:ss.sss></code>	Specifies the time difference in minutes, seconds and 10 milliseconds from system <3parsn> to other systems specified with this parameter.
<code>--brief</code>	Specifies that only entries, which could be directly linked to target, RClint, RCgroup, BaseVV, RC snapshot or Host will be captured.
<code>--nobrief</code> (default).	Specifies that all RC related entries will be captured
<code>--grep</code>	Specifies that a Unix command script containing grep commands must be generated. (Not implemented yet)
<code>--nogrep</code>	Specifies that no Unix command script containing grep commands must be generated. Default.
<code>--xlsm</code>	Specifies that the output must be placed in a Microsoft Excel spreadsheet (default).
<code>--noxlsm</code>	Specifies that a Microsoft Excel spreadsheet must not be generated. (Not implemented yet)
<code>--threads <integer></code>	Specifies the number of threads used by the program. Default is the number of CPUs - 1

--start <date>[:hh[:mm[:ss]]] Specifies a start date and optional time for the data capturing process. The start time is 00:00:00 of the specified date if the time is omitted.

--end <date>[:hh[:mm[:ss]]] Specifies an end date and optional time for the data capturing process. The end time is 23:59:59 of the specified date if the time is omitted.

The options target, rcgroup, basevv, deltas and host can be either specified multiple times or one time using a comma seperated list.

Example: '--rcgroup rcp_esx --rcgroup rcp_windows' has the same effect as '--rcgroup rcp_esx,rcp_windows'

Example invocation:

```
tools\inex_rc.exe --start 7-jan-2016:09:00 --end 7-jan-2016:12:00 --host
mfaprd01,mfaprd02,mfbprd01,mfbprd02 --delta 1687753:0 --delta 1687778:1:57.070 --
rcgroup CW.PR
D.DB-Clu D:\Customers\HvS\PeerPersistence\1687753\InSplore.mfa3pr01-
1687753.20160107.1222 D:\Customers\HvS\PeerPersistence\1687778\InSplore.mfb3pr01-
1687778.20160107.12
23
```

Which causes the tool to process the data from 7-Jan-2016 between 09:00 - 12:00. It will list entries only related to RCGroup 'CW.PR.DB-Clu' as well as entries which cannot be expanded. Additionally, the tool will include entries related to servers 'mfaprd01', 'mfaprd02', 'mfbprd01', and 'mfbprd02'. The delta in time between the systems is 1 minute, 57 seconds and 70 milliseconds, with system 1687778 being behind in time, meaning the 01:57.080 needs to be added to the time mentioned in the entries of that system.

14. Fixes and enhancements

Fixes and Enhancements in V1.01

The following issues are addressed in V1.01:

- Small issues encountered during GUI testing and auto-update.

The following features were added to V1.01

- A Graphical User Interface is added to the utility.
- A mechanism is added for daily checks on new versions of the utility ("auto-update").

Fixes and Enhancements in V1.02

The following issues are addressed in V1.02:

- Unexpected CPG attributes could lead to an endless loop, forcing the user to kill the program. This type of CPG attributes is now listed in the "Parameters" column on the "CPG" worksheet.
- On the "Nodes" worksheet, the Eeprom messages were listed in reverse time-sorted order.
- If the number of CPGs was high (> 100), restrictions of Microsoft Excel would be hit, causing the spreadsheet creation to be unsuccessful. This occurred during the creation of the "Virtual Volumes" worksheet. The behavior has now been changed that only the CPG which fit on the worksheet are listed. The full CPG list is still listed on the "CPG" worksheet.
- On 64-bit Windows platforms, the 7-zip utility is per default installed in a different directory as indicated by the environment variable "%ProgramFiles%", which points to "C:\Program Files (x86)". From this release onwards, iNex will verify if the decompression utility exists in either the "C:\Program Files (x86)" or "C:\Program Files" directories.
- A new Visual Basic macro is now available, which allows a captured file to be opened with your favorite text editor. The macro will bring you directly to the indicated line. Note that the macro only works on the "Captured Log Data" worksheet.

The following features were added to V1.02

- The “Overview” worksheet was added to this release.
- The “Alerts” worksheet was added to this release.
- The following additional files within the InSplore were added:
 - showalert_-d.out
 - checkhealth*.out
- Additional strings were provided to be captured.

Fixes and Enhancements in V1.03

The following issues are addressed in V1.03:

- On the “CPG” worksheet, the setsize for Raid6 CPGs was incorrectly displayed if specified upon creation time of the CPG.
- On the “Captured Log” worksheet, if the pathname of the captured file contained one or more spaces, the “OpenFile” macro did not open the captured file correctly.
- On the “Nodes” worksheet, the characteristics of the InternalHDD weren’t displayed correctly for systems running InformOS V3.1 or higher.
- On the “Cage Data” worksheet, some information wasn’t correctly displayed for F-Class systems, when a cage was in an unexpected state.
- On the “Remote Copy” worksheet, unexpected status’s weren’t highlighted.
- On the “Port LESB” worksheets, the errors logged by the port itself weren’t taken into account.

The following features were added to V1.03

- The following additional files within the InSplore were added:
 - df-k.out per node. The information is added in the Node column on the “Nodes” worksheet. In case the utilization of a file system exceeds 75%, an analysis event is generated.
 - showrsv_-l_scsi2.out. This information is added into the new “Reserved” column on the “Virtual Volumes” spreadsheet. If there is an outstanding reservation, the value of “Yes” is displayed, which also is a hyperlink to the corresponding entry in the SCSI-2 Reservation Table, which is also on the “Virtual Volumes” worksheet.
 - showrsv_-l_scsi3.out. This information is added into the new “Reserved” column on the “Virtual Volumes” spreadsheet. If there is an outstanding reservation, the value of “Persistent” is displayed, which also is a hyperlink to the corresponding entry in the SCSI-3 Reservation Table, which is also on the “Virtual Volumes” worksheet.

- The “EventLog” worksheet has been enhanced with hyperlinks to the definition of the objects, used in the event.
- Checks for proper balancing of PDs across the nodes. The check performed are:
 - Type of PD (FC, NL, SSD) is the same across all node-pairs?
- Checks for proper balancing of cages across the nodes.
- Check for proper balancing of LDs across nodes and node-pairs. The checks performed are:
 - Number of LD served by node-pair is, within boundaries, the same as on other node-pairs.
 - Number of LD served by one controller is, within boundaries, the same as on the other node in the same node-pair.
- Output format changed from “xls” format (Office 97-2003) to “xlsm” (Office 2007-2010). Result is that the output files are typically 75% smaller in size.
- Output of the “shownodeenv.out” file is now displayed per node. If no issues are discovered per node, the word “Normal” within a green box is displayed. If issues are discovered, the word “Warning” within a yellow box is displayed and the components with issues are displayed in compressed mode.
- Latent support for the P7x00 systems. The “Cage Comms” worksheet will be empty in this release.
- The “Tasks” worksheet is introduced. This worksheet lists all active and completed tasks, with the start- and end-time, object related to the task and the function of the task. The “OpenFile” macro is enhanced and also supports this worksheet, meaning one can directly open the “tasks_detail_xxxx” file and jump to the line containing the end result.
- The “Overview” worksheet has been extended with a quick overview of the distribution of objects across the nodes. See the following example.

Object Distribution	Node0	Node1	Node4	Node5	Total
Number of FC PDs (15K)	32	32	16	16	48
Number of NL PDs (7.2K)	16	16	16	16	32
Number of SSD PDs (150K)	16	16	16	16	32
Connected cages	0, 1, 2, 3	0, 1, 2, 3	4, 5, 6, 7	4, 5, 6, 7	8
Number of LDs	16	21	19	19	75
Number of VVs	-	-	-	-	1063
Number of Hosts	90	74	90	75	329
Number of HBAs	90	74	90	75	0
Number of Remote Copy Sets	-	-	-	-	25
Number of replicated VVs	-	-	-	-	541

○

Fixes and Enhancements in V1.04

The following issues are addressed in V1.04:

- The “Tasks” worksheet was empty and the worksheet after the “Tasks” worksheet had no “AutoFilter” enabled. The issue was caused by the utility not properly reading information from the “tasks_detail_xxxx” files in some rare cases.
- When opening the Excel spreadsheet, error messages from Microsoft Excel appear. The messages are like *"Excel found unreadable content in <filename>. do you want to recover the contents of this workbook? If you trust the source of this workbook, click Yes."*

If one clicks “Yes” afterwards, the file is eventually opened with another window listing the following messages:

Removed Feature: Hyperlinks from /xl/worksheets/sheet17.xml part

Removed Feature: Hyperlinks from /xl/worksheets/sheet18.xml part

Repaired Records: Cell information from /xl/worksheets/sheet15.xml part

Repaired Records: Cell information from /xl/worksheets/sheet16.xml part

Repaired Records: Cell information from /xl/worksheets/sheet17.xml part

Repaired Records: Cell information from /xl/worksheets/sheet18.xml part

Repaired Records: Cell information from /xl/worksheets/sheet19.xml part

Repaired Records: Cell information from /xl/worksheets/sheet21.xml part

The error is caused by the spreadsheet generating library. However, a code-change in the utility caused this error to go away.

- If there were more than 10000 different timestamps on the “Events” worksheet, then not all timestamps were part of the “AutoFilter” functionality.
- In the “LogicalDisks” and “Virtual volumes” worksheets, the high-level state of a LD / VV wasn’t always filled in, especially on InForm OS V2.3.1
-

There are no enhancements in V1.04.

Fixes and Enhancements in V1.05

The following issues are addressed in V1.05:

- The “Cage Data” worksheet, when generated for DC4 type, so T- or V-series, did not always display each magazine in a cage.
- If already one or more sub-directories were present in the directory containing the compressed InSplore(s), then unpredictable results were produced.

When opening the Excel spreadsheet, error messages from Microsoft Excel appear. The messages are like *“Excel found unreadable content in <filename>. do you want to recover the contents of this workbook? If you trust the source of this workbook, click Yes”*

The worksheet which got corrected was the “Cage Data” worksheet.

- If the user did not specify the “CustomersDirectory” keyword in the “inex.ini” file, the spreadsheet would not get generated.
- During the translation of “P7x00” systems, additional, non-present, nodes were reported on the “Nodes” worksheet.

There are no enhancements in V1.05.

Fixes and Enhancements in V1.06

The following issues are addressed in V1.06:

- The “Events” worksheet did not always have a hyperlink to the task, to which the event was related.
- In rare cases, the application may terminate with “Out of memory” errors in the %INEX_HOME%/log/inex_stderr.log file. Code changes have been implemented to reduce the likelihood of re-occurrence. If this issue re=occurs, the only work-around is to translate the InSplore again, but then with a smaller translation window (for example: 3 instead of 7(default) days)

The following enhancements are implemented in V1.06:

- The “/var/opt/tpd/scsi_db” file is now processed. The data is used to analyze the firmware levels of cage and disk drives. If they’re not current, a warning message will be present in the “Analysis” section
- The following files are included in the list of files to be processed:
 - “checkhealth_svc_quiet_detail_node.out”.
 - “showportdev” subdirectory.
- The worksheet “SAN Ports” is now included. The worksheet lists all encountered SAN Ports, and per port the device type and WWN of the connected device. For HBAs, it is also listed to which host port they’re logged into.

- The “read_evtlog” utility is introduced in this release. The utility will process all “evtlog.*.debug” files.

Fixes and Enhancements in V1.07

The following issues are addressed in V1.07:

- In very rare cases, the application may terminate with “Out of memory” errors in the %INEX_HOME%/log/inex_stderr.log file, despite the changes implemented in V1.06 code changes have been implemented to further reduce the likelihood of re-occurrence by only displaying the most recent 200,000 events. One can see this in the inex.log file:
22-Oct-2012:09:12:46 3 Number of events: 417126
22-Oct-2012:09:12:46 3 Limiting number of events to 200000
- On the “Remote Copy” worksheet, the number in the Nr column (“J”) was one (1) too high. The listed members were correct.
- On the “Physical Disks” worksheet, failed pseudo PD’s (reported as VVs) had FC connectivity reported as missing. This is now changed such that only real PDs will have FC connectivity reported.
- On the “Hosts and LUNs” worksheet, the number listed in column “NrHBAs” was double the number of installed HBAs.

The following enhancements are implemented in V1.07:

- The subdirectory “showpdch_a” is now read.
- The application now also produces *.csv files, which can be imported into a database of your choice. The files are located in the “csv” subdirectory, which is located in the same directory as the InSplor. The application will automatically invoke the “post_csv” job, located in %INEX_HOME%\bat, once all csv files are generated. This enables automatic post processing of the csv files, which can be loading them up into an external database for example.
- On the “Ports” worksheets, the following changes were implemented:
 - “Free” ports are now in a compressed view.
 - “Disk” ports are displayed in black
 - “Host” ports are displayed in blue.
 - “RCFC” and “RCIP” ports are displayed in green.
- On the “Physical Disks” worksheet, the Port WWN on both A- and B-side per PD is now reported. Dependent on the variation compared to the node WWN, the first part or last part of the port WWN is displayed.
- The “printcfg” utility is introduced in this release. The utility will process the HTML-based configuration file, which can be downloaded from STaTS.
- If the application is provided with a directory, which contains “evtlog.*.debug” and “config.*” (the HTML config file) files, it will process those files. Note that both the “evtlog.*.debug” and “config.*” files can be downloaded from STaTS and are not in the InSplore format.

Fixes and Enhancements in V1.09

The following issues are addressed in V1.09:

- If a capture definition had leading and trailing spaces, the capture algorithm would not detect the string when processing the files, which were targeted for capture analysis.
- On the “Physical Disks” worksheet, if the state of a PD on the B-loop contained an unexpected value (“OK”), then the field wasn’t highlighted.
- On the “Overview” worksheet, if analysis code 13 was displayed, the last 3 digits of the WWN were not displayed.
- On the “Overview” worksheet, analysis code 12 was falsely reported for iSCSI hosts.
- If a Virtual Volume had a SCSI-3 reservation from an unknown host, the reservation would not be displayed.
- While processing the “showeventlog_-d_-fprefix_events_nd.out” and “showeventlog_-d_-fprefix_events_al.out”, not all events were processed. As a result of that, the maximum number of events is reduced to 150000.
- On the “Nodes” and “Ports x – y” worksheet, if a field, usually a serial number, matches the string “<digits>e<digits>”, Microsoft Excel would complain about a corrupted xlsx file.
- Sometimes the xlsx file would not load correctly, thus the xlsx files would not be created. Microsoft Excel is able to repair the file. The worksheet number listed with the inconsistency is then referring to the “Tasks” worksheet.

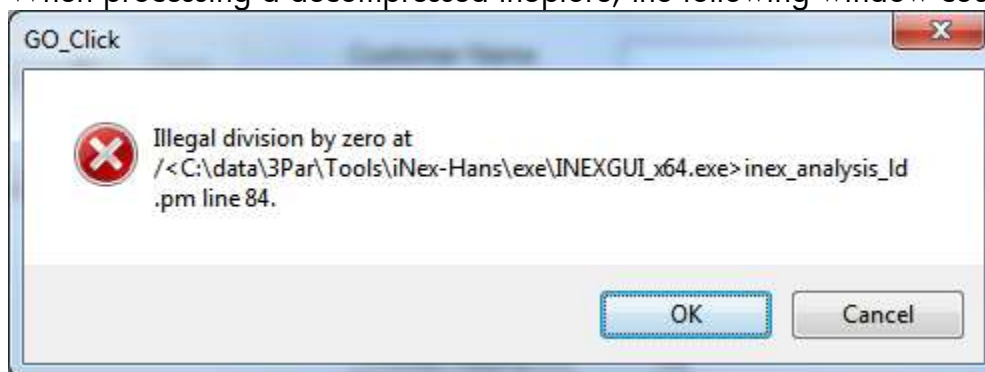
The following enhancements are implemented in V1.09:

- The captures made in showeventlog_-f*_al.out and showeventlog_-f*_nd.out will now report the correct date and time as well as the reporting node.
- On the “Port Node x – y” worksheets, iSCSI ports now have the same color code (“blue”) as FC host ports.
- It is now possible to define the maximum number of events to be displayed in the Microsoft Excel worksheet by optional parameters in both the GUI and CLI version of the application.
- The applications and supporting tools, except “auto_update”, are now available in both 32bit as well as 64bit. Dependent on the bitness of the Operating System, the correct version will be started. Meaning that on a 64-bit version of Windows, the 64-bit versions of the GUI, CLI, read_evtlog and printcfg programs are started. The shortcut on the desktop is automatically updated. On a 32-bit version of Windows, the 32-bit versions of the GUI, CLI, read_evtlog and printcfg programs are automatically started. With the introduction of 64-bit versions, the “out of memory” error should no longer occur and if it does, it means that the server ran out of virtual memory.

Fixes and Enhancements in V1.10

The following issues are addressed in V1.10:

- The 64-bit version did not always locate the decompression utility, leading to “*fileparse(): need a valid pathname at /<C:\tools\exe\INEXGUI_x64.exe>inex_dothejob.pm line 945*” errors.
- When processing a decompressed InSplore, the following window could pop up



- On the “Cluster” worksheet, the graph showed “Free” capacity in Red, while “Failed” capacity was in Green. This is now reversed, so “Free” is shown in Green and “Failed” in shown in Red. The tool uses Excel Style #2, which has these color scheme setup this way.
- The “Process Mapping Information” check-box was in-effective in the GUI version.
- In case more than 65530 URLs were generated for a worksheet (usually ‘Events’), then the spreadsheet generation process would end up in an endless loop. The `inex_stderr.log` file would show a lot of the following entries:
Ignoring URL ‘LogicalDisks’!A133’ since it exceeds Excel’s limit of 65,530 URLs per worksheet. See LIMITATIONS section of the Excel::Writer::XLSX documentation. At
/<C:\V109_iNex_Full\exe\INEXGUI_x64.exe>inex_print_spreadsheet.pm line 1103

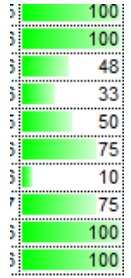
New “Events” worksheets are automatically generated if one of the following conditions is met:

- The number of rows on the worksheet exceeds 59998.
- The number of unique timestamps on the worksheet exceeds 10000
- The number of URLs on the worksheet exceeds 65000.

The following enhancements are implemented in V1.10:

- On the “Physical Disks” worksheet, the following fields were added:
 - The temperature as reported by the drive is now displayed.
 - TOC information (generation nr, version, etc) is now displayed per drive.
 - A utilization percentage as %used (with databar).

- The “Life Left” indicator, which is introduced in InFormOS V3.1.2 to indicate the expected remaining life time of SSDs. The field indicates the life time of a drive compared to a new one. It also has a gradient databar. The lower the number, the less expected life time and the shorter the bar. See the picture to the left.



NOTE 1: For systems running InFormOS versions 3.1.2 or above, the number will be 100 for other drive types (FC & NL)

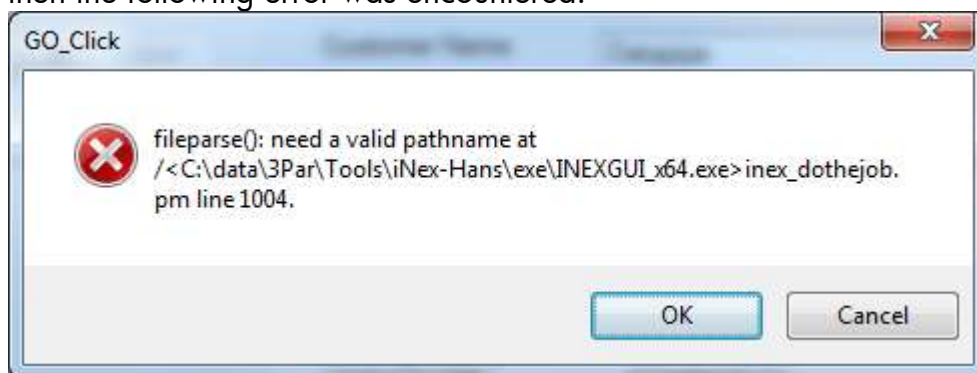
NOTE 2: For systems running InFormOS versions prior to 3.1.2, the number will be 100 for all drive types.

- On the “Nodes” worksheet, links are provided to the Nemoe event and Nemoe power logs. On the same worksheet, if the timestamp of an entry in the EEPROM matches (same day and same hour) an idelog file, a link is provided to the idelog file.
- On the “Logical Disks” worksheet, a list of Physical Disks used by the LD is now provided.
- On the “Virtual Volumes” worksheet, the following fields were added:
 - The “vvset” to which a virtual volume belongs
 - The reserved and allocated amount of space, including a %used (with databar).
 - The CPGs used by this virtual volume.
- On the “Cluster” worksheet, the following information is added:
 - The TOC information
 - The User Information (ACL, User Names and User Connections.
- On the “CPGs” worksheet, the following information is added:
 - A utilization percentage as %used (raw) (with databar).
- The optional “PD Sparing Chunklets” worksheet is introduced in this release.
- On the “Nodes” worksheet, pointers are provided to the “ps -ef” and “meminfo” output per node.
- A Microsoft Access Database is now copied to the directory, containing the spreadsheet. This MS-Access database holds a template, which can be used to display the mapping information (if available and part of the InSplore information). The database uses forms, which can be used to efficiently load the relevant data (csv files) into the database.
- The optional output “showvvcpg” and “showvv -pol” is now included in the “VirtualVolumes” worksheet. Note that the output is optional and may not be included in an InSplore. It can be part of the config file, which can be pulled from STaTS. If the output of “showvvcpg” is present, the columns will look like the picture below

Fixes and Enhancements in V1.11

The following issues are addressed in V1.11:

- On the “Virtual Volumes” worksheet, the distribution of data across the different CPGs per VV was not displayed if the output of the showvvcp command was not available. The tool will now use the information provided by the showvvmap command to determine the distribution of data.
- On the “Port LESB” worksheets, the filter settings only included the first date range.
- If one uses the “ClearAll” button in the GUI after a complete processing cycle of an InSplore, the next run will not end successfully and the xlsx file will not be created. Opening the xlsx file gives a warning then with the option to repair the file.
- If the system name was part of the system serial number, the spreadsheet was created at the wrong location or not at all.
- If the keyword “CustomersDirectory” was not specified or the directory with the compressed InSplore was not located in a subdirectory under “CustomersDirectory”, the spreadsheet was not created.
- If the environment variable “INEX_HOME” was not present, the application would crash.
- If the decompressed insplore did not contain the file Insplor.log* file in its root, then the following error was encountered:



- On the “Logical Disks” worksheet, the “SA” and “SD” flags weren’t filled in.
- If the LESB counter files contained an entry for a host, not connecting to the InServ, that entry would be omitted.
- On the “RemoteCopy” worksheets, the “resync snapshot” was displayed as “rcpyname”
- The “printcfg” utility sometimes fails to start.

The following enhancements are implemented in V1.11:

- On the “Nodes” worksheet, the output of “shownode –verbose” is now included.
- Additional configuration checks have been around Virtual Volumes and their presentation to hosts.
- The environment variable “INEX_HOME” is no longer required and is therefore removed from this manual.
- The worksheet “PD Spare Chunklets” is now renamed into “PD Chunklets”, which will contain the output of the showspare command as well as a list of disk drives, with chunklets, that are reported as disk events in the showeventlog output.
- The “EventLog” worksheets now have an additional column, which contains the first 16 characters of the event text. This will allow some easier sorting and pattern matching.
- A new worksheet “Events Summary” is introduced, which lists all components in the system, which reported at least one event in the showeventlog output. See the picture below for an example

1	2	3	A	B	C	D	E	F	G	H	I	J	K	L	M	N
	1		List of Worksheets	Events generated per object												
	2															
	3			Number of observed events: 28310			31	0	62	505	0	57	18343	9312		
	4	Object	Total Count				Criti	Errc	Maj	Deg	Wat	Min	Info	Debug		
+	5	host2	Number of observed events: 2519											2519		
+	16	host0	Number of observed events: 2501										3	2498		
+	34	host1	Number of observed events: 2486										1	2485		
+	46	cage18	Number of observed events: 1658										1658			
+	55	cage3	Number of observed events: 1655										1655			
+	64	cage13	Number of observed events: 1651										1651			
+	73	cage9	Number of observed events: 1641										1641			
+	82	cage8	Number of observed events: 1638										1638			
+	91	cage4	Number of observed events: 1635										1635			
+	100	cage19	Number of observed events: 1633										1633			
+	109	cage14	Number of observed events: 1627										1627			
+	118	node1	Number of observed events: 561				5		1			9	546			
+	217	node0	Number of observed events: 433						1			10	422			
+	277	pd49	Number of observed events: 382						3	3			159	217		
+	318	node3	Number of observed events: 324				26		1			18	279			
+	379	node2	Number of observed events: 292						1			17	274			
+	421	pd51	Number of observed events: 234							19			81	134		
+	451	pd53	Number of observed events: 211						1	16			72	122		
+	485	pd41	Number of observed events: 199						3	15			62	119		
+	524	pd23	Number of observed events: 161						4	2			54	101		
+	567	pd27	Number of observed events: 138						2	5			41	90		
+	602	pd29	Number of observed events: 128							3			39	86		

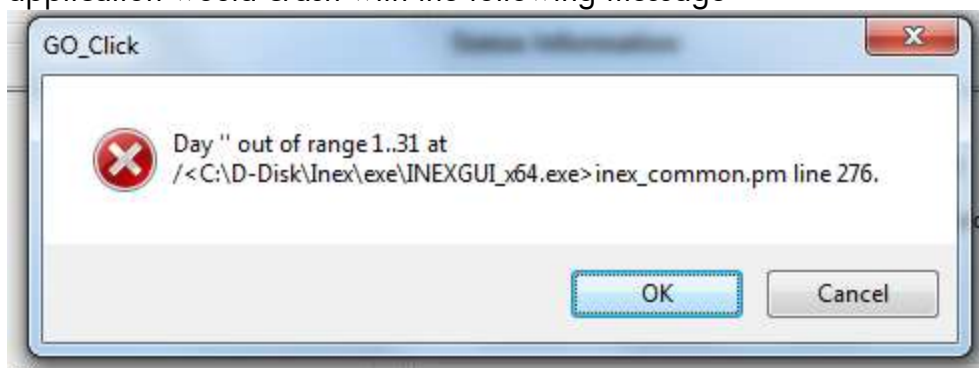
- Support for V3.1.2 and StoreServ7000 was expanded with multiple fields being added into several worksheets.
- A new worksheet “Memory” has been introduced. This worksheet shows the memory utilization per node over time.
- Two (2) new worksheet types are introduced to facilitate troubleshooting in SAS back-end systems, like StoreServ7000 family. These worksheet types are:

- “<Port> SAS Domain”, which lists all devices seen in the SAS domain related to the port.
 - “<Port> SAS PEL”, which lists all error counters per device on a given date seen in the SAS domain related to that port.
- The “SAN Ports” worksheet has been extended with additional columns, indicating if the entry is present in the “showportdev_all” and “showportdev_ns” output. Furthermore, the utility will verify if the content in both files for this entry is the same and alert if that is not the case.

Fixes and Enhancements in V1.12

The following issues are addressed in V1.12:

- On the "Cage Data" worksheet, the values of "N:S:P" and "Position" were mixed between IFC1 (A) and IFC0 (B).
- The check between portwnn and nodewwn false triggered too many times. The check now only verifies that the values between offset 4 and offset 14 are the same; this used to be offset 1 to offset 14.
- In rare occasions, not all LESB worksheets were created. This issue was related to entries in the showportlesb_hist_*.out file of being more than one year old.
- In case an invalid date/time format was encountered in the sysmgr logs, the application would crash with the following message



- In events were generated with the exact same timestamp, only one event would be printed.

The following enhancements are implemented in V1.12:

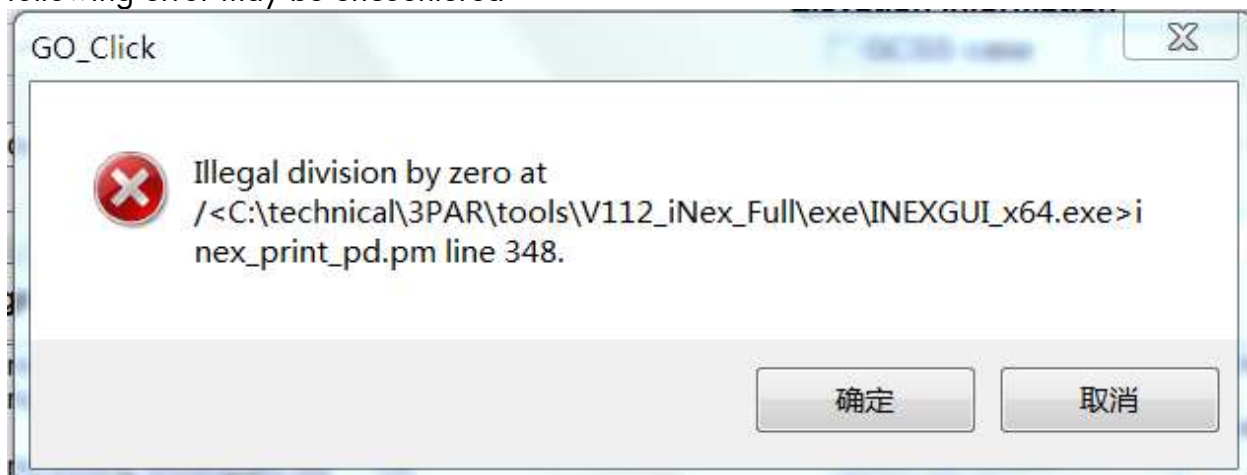
- The size of the Slab memory is now monitored throughout processing the data. If the size exceeds specific boundaries, warnings will be created in the "Overview" worksheet as well as on the "Memory" worksheet.
- Performance enhancements and reduction of memory usage while processing events. Mainly effective is 32-bit version; in 64-bit version one can use the "maximum number of events" to reduce the memory utilization by the program.
- Output of showsysmgr is now included in the "Overview" worksheet
-

25					
26	Health Check Overview		System is up and running from 2013-03-28 12:51:33 MSK		
27		Component	Status	# Categories	# Messages
28		Alert	OK	-	-
29		Cabling	OK	-	-
30		Cage	OK	-	-
31		Date	OK	-	-
32		File	OK	-	-

Fixes and Enhancements in V1.13

The following issues are addressed in V1.13:

- Invalid port types, such as "iport" were not marked as being abnormal.
- On the "Nodes" worksheet, the "ServiceLED" field was highlighted if the PCI-slot was not used.
- On the "RemoteCopy" worksheet, the status of the RCFC and RCIP ports was not provided and sometimes highlighted (for unused rcip ports)
- In case a failed drive is encountered and the PdlId is no longer used, then the following error may be encountered



•

The following enhancements are implemented in V1.13:

- On the "RemoteCopy" worksheet, the following information is added per RC-group:
 - Last-Full-Sync date and time
 - "Auto Recover" after certain types of failures
 - "Over Per Alert" generate alerts when synchronization between asynchronous groups is slow.
 - "Period", which is the time interval between 2 syncs in asynchronous mode.

Fixes and Enhancements in V1.14

The following issues are addressed in V1.14:

- In specific SAN configurations, specifically those with same domain numbers in both SANs, not all port numbers were displayed.

The following enhancements are implemented in V1.14:

- The information of the “showauthparams” is now presented on the “Cluster” worksheet.

TOC Information			LDAP Authorization Parameters		
ation		'27845	account-name-attr	sAMAccountName	
ation		'27845	account-obj	user	
date		2013-03-18 12:13:01	accounts-dn	OU=Beheer,OU=UID,DC=pc,DC=val,DC=xxxxxxxxxx,DC=nl	
sion		'123	basic_edit-map	N=AUG_3PAR_BEH_BASIC_EDIT,OU=3PAR,OU=AUGGroepen,OU=UID,DC=	
nber		'42444854	binding	sasl	
gths	Used	'990870	browse-map	CN=AUG_3PAR_BEH_BROWSE,OU=3PAR,OU=AUGGroepen,OU=UID,DC=	
gths	Not Used	'0	create-map	CN=AUG_3PAR_BEH_CREATE,OU=3PAR,OU=AUGGroepen,OU=UID,DC=	
gths	On Disk	'90624	edit-map	CN=AUG_3PAR_BEH_EDIT,OU=3PAR,OU=AUGGroepen,OU=UID,DC=pc,	
jects	PDs	64	kerberos-realm	PC.VAL.XXXXXXXXXXXX.NL	
jects	LDs	71	ldap-server	10.231.15.189	
jects	VVs	34	ldap-server-hn	winfw01.pc.val.xxxxxxxxxxx.nl	
jects	Cages	8	memberof-attr	memberOf	
			sasl-mechanism	GSSAPI	
			service-map	CN=AUG_3PAR_BEH_SERVICE,OU=3PAR,OU=AUGGroepen,OU=UID,DC=	
			super-map	CN=AUG_3PAR_BEH_SUPER,OU=3PAR,OU=AUGGroepen,OU=UID,DC=	

- In the “VirtualVolumes” worksheet, snapshots, physical copies, etc are now displayed as child of their parent. The name of the child is preceded with one or more “_” characters, with the number of characters being the “level” of the child.
- Linux (32 and 64-bit) are now supported.

NOTE: If you’re using the 64-bit version, you will have to install the 32-bit libraries OR manually change the shell scripts to invoke the 64-bit version directly.

On Ubuntu, this command is:

```
sudo apt-get install ia32-libs
```


Fixes and Enhancements in V1.15

The following issues are addressed in V1.15:

- The CPG related to a Virtual Volume was not always listed, especially in configuration with other than “base” volumes.
- If a PD in a StoreServ7000 had an abnormal state on PortA, the state field for that Port would not be highlighted. Instead, the PortB field was highlighted.
- If a cage was missing one loop / port, then the “Cage Data” worksheet would display scrambled data for that cage.
- In configurations with a lot of iSCSI hosts, the “Hosts & LUNs” worksheet contained a lot of empty lines.

The following enhancements are implemented in V1.15:

- A new GUI, much like the old-style, which is available on both Windows and Linux platforms. The new GUI supports drag-and-drop of several file types with automatic file type recognition.
- A new check-box “Customer Viewable” is introduced, meaning that the output can be shared with customers and that typical support information is removed. This feature is also available on the CLI version as “cus[tomerformat]=yes|no”.
- If a virtual volume is part of a RC-group, the name of the RC-group is now listed.
- Office2013 is supported as of this version.
- Office2007 no longer requires special handling during the iNex setup.

Fixes and Enhancements in V1.16

The following issues are addressed in V1.16:

- During processing large InSplores, the GUI sometimes becomes minimized without user interaction.

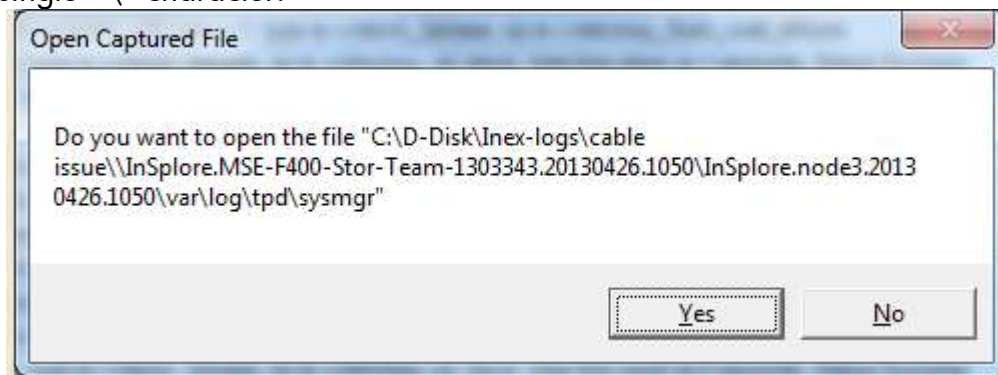
The following enhancements are implemented in V1.16:

- The utility generates the "SR AO Config and Events" worksheet. This worksheet lists the SR and AO Configuration Data, Schedules and SR AO related events as found during processing
- The utility generates the "SR AO Logs", which lists the SR and AO related log entries in a reversed time order.
- The utility checks for swap space usage and generates warnings if above thresholds.

Fixes and Enhancements in V1.17

The following issues are addressed in V1.17:

- If VLUNs are presented to a server and the server is not logged in, the VLUN was not listed in the “Hosts and LUNs” worksheet for that server as well as the server was not listed on the “Virtual Volumes” worksheet for the related Virtual Volume.
- The tasks_detail_xxxx files are now properly decoded and re-formatted to improve readability.
- The filename on the “Captured LogData” worksheet contains “\\” instead of a single “\” character.



- In InSplores, where the “showvmap” directory was not present, but the “showldma” was, the “VV to LD” mapping was not displayed in the database.

The following enhancements are implemented in V1.17:

- The “SR AO Config and Events” worksheet now also lists all scheduled tasks.
- Support for additional information introduced in 3.1.2.MU2. As a result, the following worksheets have changed:
 - for the SAS based products, the “Cage Comms” worksheet is now filled with information, which originates from the showportpel –both n:s:p command.

List of Worksheets								5	0	5	0	1	0	32	0
								InvDC		RunDEC		LossDSC		PhyRPC	
Cage I	Port WWN	Ca	Ma	Ra	Typ	Port		A	B	A	B	A	B	A	B
5	0:0:1	5000-2ac0-0100-4b55			Port	0:0:1		-	-	-	-	-	-	4	-
6	0:0:2	5000-2ac0-0200-4b55			Port	0:0:2		-	-	-	-	-	-	4	-
7	1:0:1	5000-2ac1-0100-4b55			Port	1:0:1		-	-	-	-	-	-	4	-
8	1:0:2	5000-2ac1-0200-4b55			Port	1:0:2		-	-	-	-	-	-	4	-
9	2:0:1	5000-2ac2-0100-4b55			Port	2:0:1		-	-	-	-	-	-	4	-
10	2:0:2	5000-2ac2-0200-4b55			Port	2:0:2		-	-	-	-	-	-	4	-
11	3:0:1	5000-2ac3-0100-4b55			Port	3:0:1		-	-	-	-	-	-	4	-
12	3:0:2	5000-2ac3-0200-4b55			Port	3:0:2		-	-	-	-	-	-	4	-
14	cage0	5005-0cc1-0230-567e			Cage	0:0:1		-	-	-	-	-	-	-	-
15	cage0	5005-0cc1-0230-567e			Cage	1:0:1		-	-	-	-	-	-	-	-
16	cage0	5000-c500-5f8a-8446	0	0	0	Disk	0:0:1	-	-	-	-	-	-	-	-
17	cage0	5000-c500-5f8a-8445	0	0	0	Disk	1:0:1	-	-	-	-	-	-	-	-
18	cage0	5000-c500-5f8b-cb36	0	1	0	Disk	0:0:1	-	-	-	-	-	-	-	-
19	cage0	5000-c500-5f8b-cb35	0	1	0	Disk	1:0:1	-	-	-	-	-	-	-	-
20	cage0	5000-c500-5f8a-856a	0	2	0	Disk	0:0:1	-	-	-	-	-	-	-	-
21	cage0	5000-c500-5f8a-8569	0	2	0	Disk	1:0:1	-	-	-	-	-	-	-	-
22	cage0	5000-c500-5f8b-944e	0	3	0	Disk	0:0:1	-	-	-	-	-	-	-	-
23	cage0	5000-c500-5f8b-944d	0	3	0	Disk	1:0:1	-	-	-	-	-	-	-	-

- On the “SR AO Config and Events” worksheet, the AO and SR configurations as well as the schedules are presented.
- The paths used by the physical disks are verified against the paths mentioned in the TOC information. Any discrepancy will be reported, both in the Analysis section as well as the “Physical Disks” worksheet.

List of Worksheets															
Position															
Loop															
Loop A								Loop B							
ID	C	N	R	N	S	P	AI	S	WWN	N	S	P	AI	S	WWN
0	0	0	0	1	0	1	-	OK	5f8a-8445	0	0	1	-	OK	5f8a-8446
1	0	1	0	1	0	1	-	OK	5f8b-cb35	0	0	1	-	OK	5f8b-cb36
2	0	2	0	1	0	1	-	OK	5f8a-8569	0	0	1	-	OK	5f8a-856a
3	0	3	0	1	0	1	-	OK	5f8b-944d	0	0	1	-	OK	5f8b-944e
4	0	4	0	1	0	1	-	OK	5f8a-b735	0	0	1	-	OK	5f8a-b736
5	0	5	0	1	0	1	-	OK	5f8b-afbd	0	0	1	-	OK	5f8b-afbe

306	9006	Error	Number of occurrences: 1	PD%p1% active controller is different according to TOC (active: %p2%, TOC: %p3%).
307				1 PD0 active controller is different according to TOC (active: 1, TOC: 3).
308	9007	Error	Number of occurrences: 3	PD%p1% A-path is different according to TOC (active: %p2%, TOC: %p3%).
309				1 PD4 A-path is different according to TOC (active: 1:0:1, TOC: 1:1:1).
310				2 PD3 A-path is different according to TOC (active: 1:0:1, TOC: 1:1:1).
311				3 PD1 A-path is different according to TOC (active: 1:0:1, TOC: 0:0:1).
312	9008	Error	Number of occurrences: 3	PD%p1% B-path is different according to TOC (active: %p2%, TOC: %p3%).
313				1 PD4 B-path is different according to TOC (active: 0:0:1, TOC: 0:1:1).
314				2 PD2 B-path is different according to TOC (active: 0:0:1, TOC: 0:1:1).
315				3 PD1 B-path is different according to TOC (active: 0:0:1, TOC: 1:0:1).

- On the "Virtual Volumes" worksheet, the QoS of VVs belonging to a VVset

136	QoS characteristics		
137		Limits	
138	On/Off	VVSet Name	KBytes/sec IO/sec
139	Off	VVS_BSVPSQLC1	- 300
140	On	VVS_BSVPSQLC2	204800 4000
141	On	VVS_BSVPSQLMGMT0	102400 5000
142	On	VVS_ODX_TST	102400 -
143			

is now displayed (if part of the InSplore) as well as the QoS settings. If a VV is subject to QoS settings, a hyperlink is provided to the QoS settings as the picture above.

- There is now the possibility, after manually capturing the mapping information, to generate the mapping csv files.
- There is now the possibility to use the internal decompression routine instead of using the external program, like 7-zip. The option can be preset in the inex.ini file (keyword: "decommethod = enabled"). Note that memory occupation of the program will increase, and this option is discouraged on 32-bit operating systems.
- There is now the option to generate a XLSM file without starting Microsoft Excel to load the macros. The advantage is that access to the VBA Project in Excel is not required. Use the "tools\get_macros" file and provide it with a recent XLSM file, which has macros loaded. The program will extract the macros in binary form and place them in "defs/iNex_macros.bin". This file will be loaded in every iNex generated spreadsheet. Hence Microsoft Excel will not be started anymore at the very end of the spreadsheet creation to load and run the macros.
- A new worksheet is introduced ("PD_AscAscQ"), which lists the PDs which logged the an asc/ascq, the chunklet is was logged against, as well as the number of events logged with this asc/ascq.

Fixes and Enhancements in V1.18

The following issues are addressed in V1.18:

- In the “Events” worksheet, events which occurred with the same timestamp were listed in reversed order of arrival (lowest seqnr first, then highest)
- On the “Virtual Volumes” worksheet, the values listed for “Snap Rsrvd” and “Snap Used” were the same as for “User Rsvd” and “User Used”

List of Workbooks										User										Size										Admin																			
Reservations										GoS characteristics										Snapshot										Percentage																			
										Node										in MB										in MB										in MB									
ID	Name	VVset	Domain	P	Other	Type	Pro	Res	Alloc	Percent	Rsvd	Used	Used	Warn	Limit	Rsvd	Used	Used	Warn	Limit	Rsvd	Used	Used	Warn	Limit	Rsvd	Used	Used	Warn	Limit																			
6621	AXIATDB-DB	DBVvlySnap	-	3	2.0	Base	Tprr	100	8	9.4	10752	9628	9.4	88		10752	9628	0			384	11	13																										
6622	AXIATDB-L	DBVvlySnap	-	3	2.0	Base	Tprr	50	4	8.8	5120	4407	8.8	88		5120	4407	0			384	8	70																										
6736	AXIATDB-map	DBVvlySnap	-	3	2.0	Base	Tprr	3	0	0.2	1024	0	0.2	88		1024	0	0			512	4	25																										
6629	AXIATDB-Q	DBVvlySnap	-	3	2.0	Base	Tprr	2	0	0.6	1024	13	0.7	88		1024	13	0			384	4	24																										
6623	AXIATDB-TDB	DBVvlySnap	-	3	2.0	Base	Tprr	25	0	0.6	2048	164	0.6	88		2048	164	0			512	5	51																										
7937	carlogstData	DBVvlySnap	-	3	2.0	Base	Tprr	1950	1172	16.9	1201152	1209428	60.1			1201152	1209428	0			1536	778	121																										
3911	CARNETDEVData.0	DEVVvlySnap	-	3	2.0	Base	Tprr	1024	111	10.9	118784	114457	10.9			118784	114457	0.3			512	117	120																										
10785	CARNETDEVData.0 OS	-	-	3	2.0	Vcopy	Snp	1024	0	0.0	-	-	-	-	-	-	-	0.0			-	10	1																										
10896	CARNETDEVData.0 OS	-	-	3	2.0	Vcopy	Snp	1024	0	0.0	-	-	-	-	-	-	-	0.0			-	10	1																										
11027	CARNETDEVData.0 OS	-	-	3	2.0	Vcopy	Snp	1024	0	0.0	-	-	-	-	-	-	-	0.0			-	10	1																										
11158	CARNETDEVData.0 OS	-	-	3	2.0	Vcopy	Snp	1024	0	0.0	-	-	-	-	-	-	-	0.0			-	10	1																										
11289	CARNETDEVData.0 OS	-	-	3	2.0	Vcopy	Snp	1024	0	0.0	-	-	-	-	-	-	-	0.0			-	10	1																										
3912	CARNETDEVData.1	DEVVvlySnap	-	3	2.0	Base	Tprr	1024	71	7.0	76808	73479	7			76808	73479	0.5			512	87	89																										

- In some complex SAN configurations, not all HBAs and SAN ports were listed.

The following enhancements were implemented in V1.18:

- On the “Nodes” worksheet, links are provided to the “Banner” and “Bios” logs for each node.
- On the “Logical Disks” worksheet, the following is added:
 - Device type
 - Device speed
 - Grow parameter
 - Allocate parameter
- A new event parsing algorithm has been implemented, which require a smaller memory footprint
- For every SAS domain, the cabling diagram, including used IFC ports, is now presented. The picture to the left represents a correctly cabled SAS domain. The cabling diagram is placed on the “Port_N:S:P_SAS_Domain” worksheet for the specific port.

SAS cabling scheme				
Cage	Expander	IN/OUT	IFC port	Next
-	sas-root	OUT	Internal	exp0a
cage0	exp0a	IN	DP-1	sas-root
	exp0a	OUT	DP-2	exp0c
cage1	exp0c	IN	DP-1	exp0a
	exp0c	OUT	DP-2	exp2f
cage2	exp2f	IN	DP-1	exp0c
	exp2f	OUT	DP-2	exp54
cage3	exp54	IN	DP-1	exp2f
	exp54	OUT	DP-2	-

Checks are performed if in-appropriate ports on the IFCs are used. In case of a failure, analysis code 9200 will be generated and available on the “Overview”

worksheet. The next 2 graphs show an incorrect cabled SAS domain as well as the generated warning messages.

SAS cabling scheme				
Cage	Expander	IN/OUT	IFC port	Next
-	sas-root	OUT	Internal	exp09
cage4	exp09	IN	DP-1	sas-root
	exp09	OUT	DP-2	exp0b
cage5	exp0b	IN	DP-1	exp30
	exp0b	OUT	DP-2	exp09
cage6	exp30	IN	DP-1	exp0b
	exp30	OUT	DP-2	exp53
cage7	exp53	IN	DP-1	exp30
	exp53	OUT	DP-2	-

262	9200	Error	Number of occurrences: 8	SAS cabling incorrect on port %p3%: %p1% (%p4%) not connected to %p2% (%p5%).
263				1 SAS cabling incorrect on port 2:0:2: Cage13 (IN) not connected to Cage14 (OUT).
264				2 SAS cabling incorrect on port 2:0:2: Cage13 (OUT) not connected to Cage12 (IN).
265				3 SAS cabling incorrect on port 2:0:2: Cage14 (IN) not connected to Cage13 (OUT).
266				4 SAS cabling incorrect on port 2:0:2: Cage12 (OUT) not connected to Cage13 (IN).
267				5 SAS cabling incorrect on port 0:0:2: Cage5 (IN) not connected to Cage6 (OUT).
268				6 SAS cabling incorrect on port 0:0:2: Cage5 (OUT) not connected to Cage4 (IN).
269				7 SAS cabling incorrect on port 0:0:2: Cage6 (IN) not connected to Cage5 (OUT).
270				8 SAS cabling incorrect on port 0:0:2: Cage4 (OUT) not connected to Cage5 (IN).
271				

- It is now possible to specify a start- and end-date and time the tool needs to process events, analyze files, etc.
- It is now possible to specify that all files in /var/log/tpd need to be read. Entries will be placed in the "Captured Log Data" worksheets. This feature is meant to be used in combination with the Date Time selection.

Processing Options

☐ Input already decompressed

☒ Process Mapping Information

☐ Output Formats: ☒ Spreadsheet ☒ CSV

☐ Max Nr Events

☐ Customer Viewable

☐ Use Internal Decomp Method

☒ Capture var/log/tpd and Merge

☒ DateTime Selection Start:

End:

Fixes and Enhancements in V1.19

The following issues are addressed in V1.19:

- A pop-up window was displayed if the compressed inspiore did not meet the expected filename format.

The following enhancements were implemented in V1.19:

- The utility now verifies, in case 3TB or 4TB drives are present, if the minimum requirements to support these drives are met. These requirements are:
 - 3.1.2.MU1+P25
 - 3.1.2.MU2+P25
 - 3.1.2.MU3+P18 or 3.1.2.MU3+P25
 - 3.1.2.MU4
 - 3.1.3 or higher

If these requirements are not met, analysis code 21 will be generated for each disk

	127	21	Error	Number of occurrences: 192	PD%p1% (Position %p2%) is a 3TB or 4TB drive without being at minimal 3.1.2.MU1+P25, 3.1.2.MU2+P25 or 3.1.2.MU3+P18/P25.
-	128				1 PD364 (Position 18:4:0) is a 3TB or 4TB drive without being at minimal 3.1.2.MU1+P25, 3.1.2.MU2+P25 or 3.1.2.MU3+P18/P25.
-	129				2 PD167 (Position 8:11:0) is a 3TB or 4TB drive without being at minimal 3.1.2.MU1+P25, 3.1.2.MU2+P25 or 3.1.2.MU3+P18/P25.
-	130				3 PD176 (Position 8:20:0) is a 3TB or 4TB drive without being at minimal 3.1.2.MU1+P25, 3.1.2.MU2+P25 or 3.1.2.MU3+P18/P25.
-	131				4 PD402 (Position 19:18:0) is a 3TB or 4TB drive without being at minimal 3.1.2.MU1+P25, 3.1.2.MU2+P25 or 3.1.2.MU3+P18/P25.
-	132				5 PD98 (Position 4:20:0) is a 3TB or 4TB drive without being at minimal 3.1.2.MU1+P25, 3.1.2.MU2+P25 or 3.1.2.MU3+P18/P25.
-	133				6 PD259 (Position 13:1:0) is a 3TB or 4TB drive without being at minimal 3.1.2.MU1+P25, 3.1.2.MU2+P25 or 3.1.2.MU3+P18/P25.
-	134				7 PD100 (Position 4:22:0) is a 3TB or 4TB drive without being at minimal 3.1.2.MU1+P25, 3.1.2.MU2+P25 or 3.1.2.MU3+P18/P25.

Fixes and Enhancements in V1.20

The following issues are addressed in V1.20:

- A pop-up window was displayed if the compressed insplore did not meet the expected filename format.

The following enhancements were implemented in V1.20:

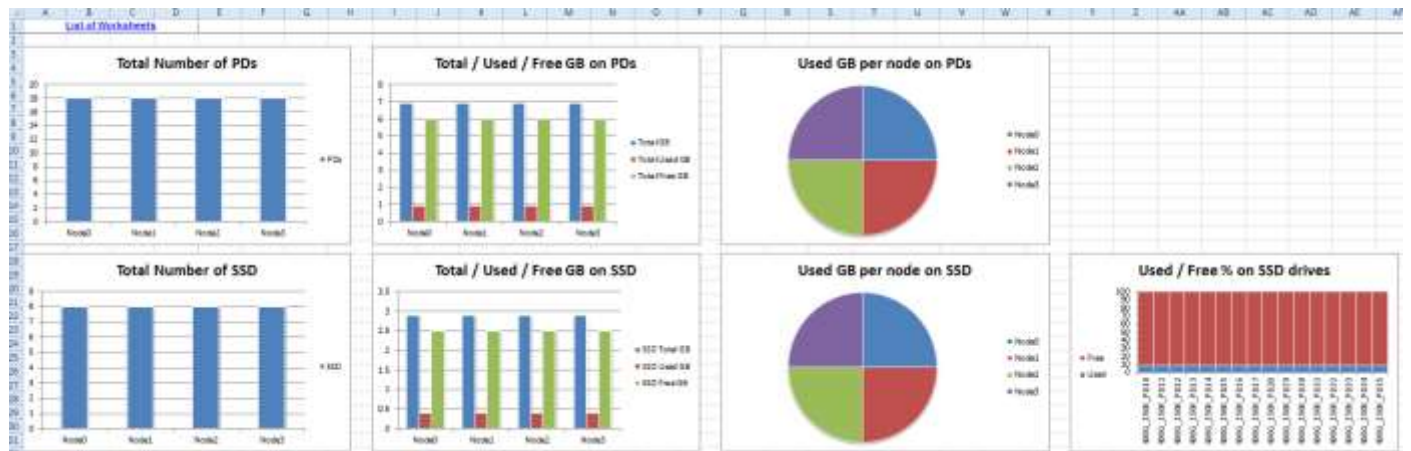
- Processing of files, which are now part of InSplores generated by SP V4.2, typical used in combination with InFormOS V3.1.3
- A new processing model is introduced, resulting in a smaller memory footprint at the time the spreadsheet is generated. See the following table for some data

Insplore Size (in MB)	iNex V1.19		iNex V1.20		
	Memory Size	Duration Time	Memory Size	Duration Time	Reduction in memory size
18	1,798	05:26	803	05:26	55.4%
54	4,015	11:57	3,534	12:00	12.0%
74	4,410	21:24	3,452	22:06	21.8%
102	5,270	17:30	4,445	19:12	15.7%
125	3.759	22:40	1,567	23:35	56.4%

Note that there will be 3 spreadsheets, one *.main.xlsm, one *.lesb.xlsm and another one *.events.xlsm. Upon using the “Open” button in the GUI, the “main” spreadsheet will be opened. References between the spreadsheets are still in place. The reduction in memory is mainly dependent on the number of events, tasks, and amount of captured data.

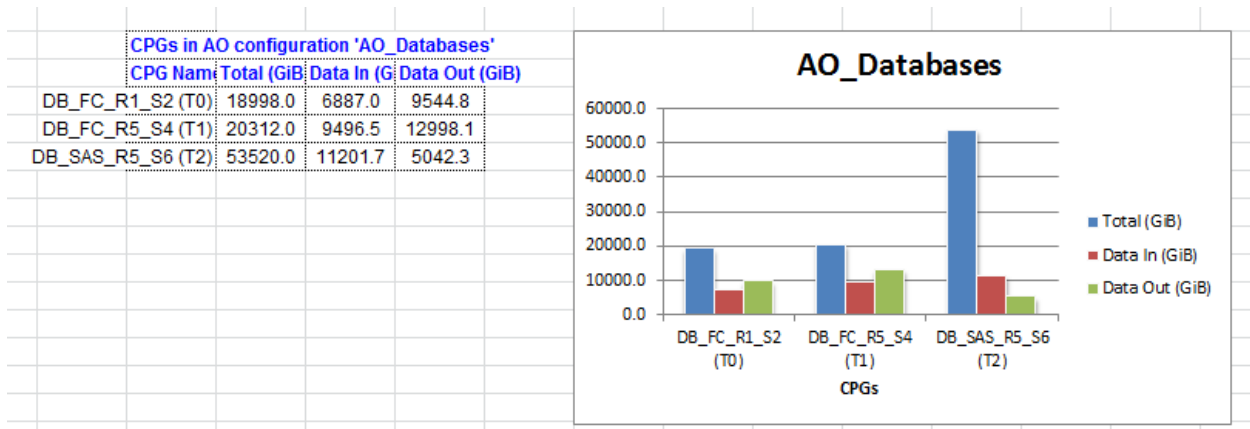
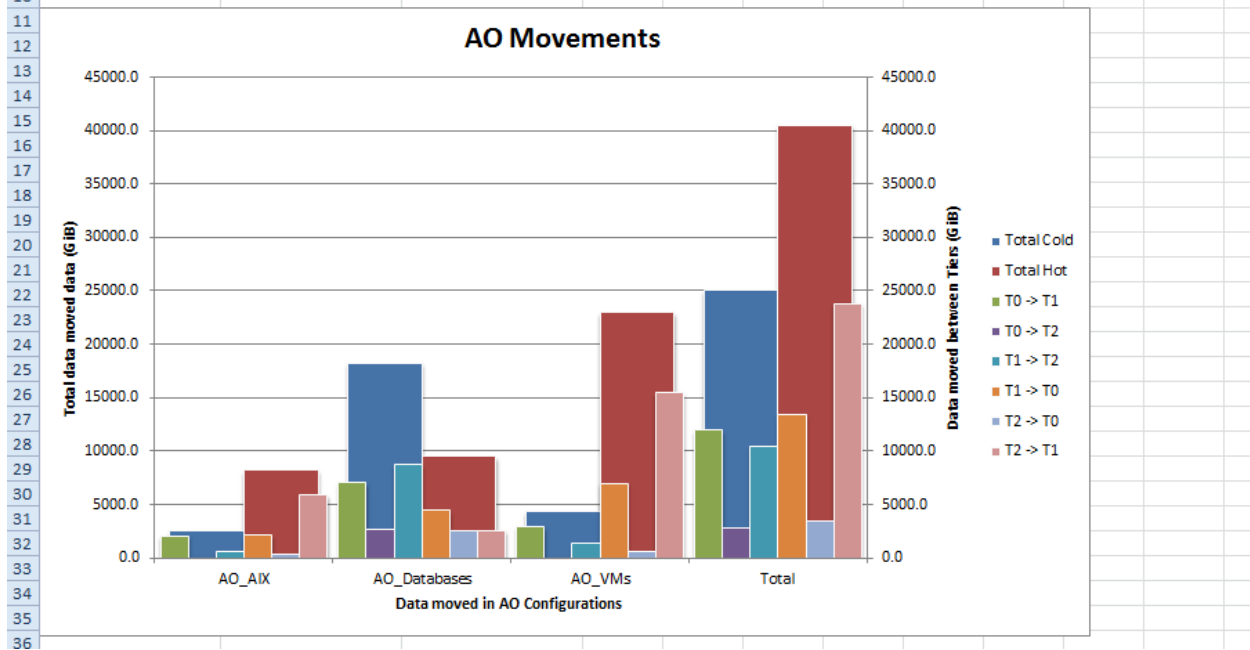
- A new worksheet is introduced, being “PD Capacity Charts”. This worksheet contains the graphical representation on the following:
 - Balancing of disk drives across nodes
 - Balancing of total/used/free capacity per disk drive per disk type (SSD, FC and NL)

Some of the example output is given in the pictures below:

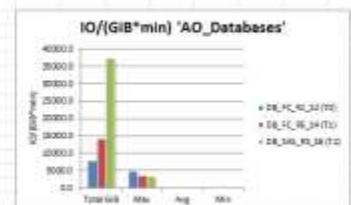
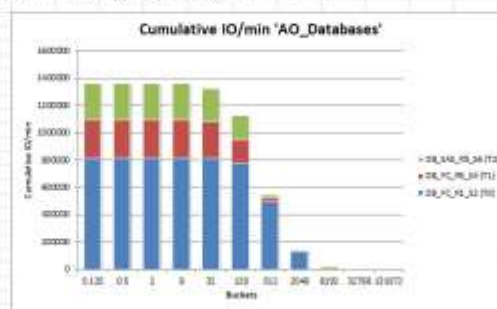


- A new worksheet is introduced, being "SR AO Data Statistics". This worksheet contains data and graphs based upon the output of the "showaomoves" and "srrigidensity" commands. Note that this data is only available in insplores generated from SP V4.2 onwards. Some of the example output is given in the pictures below

	A	B	C	D	E	F	G	H	I	J	K
1		List of Worksheets									
2		Adaptive Optimization Configurations									
3		CPGs in AO configurations									
4		Region Density reports									
5	StartTime	EndTime	AO Config	T0 -> T1	T0 -> T2	T1 -> T2	Total Cold	T1 -> T0	T2 -> T0	T2 -> T1	Total Hot
6	23-Jan-2014 19:02:17	24-Jan-2014 19:02:17	AO_AIX	1993.1	64.0	468.9	2526.0	2046.1	224.7	5859.6	8130.3
7	23-Jan-2014 19:02:17	24-Jan-2014 19:02:17	AO_Databases	6983.4	2561.4	8640.2	18185.1	4357.8	2529.2	2513.1	9400.1
8	23-Jan-2014 19:02:17	24-Jan-2014 19:02:17	AO_VMs	2889.7	64.1	1294.2	4247.9	6936.5	578.9	15361.0	22876.4
9			Total	11866.2	2689.5	10403.3	24959.0	13340.4	3332.8	23733.7	40406.8



Total Size	Max	Avg	Min
7947.4	4917.4	107.4	0.0
14884.9	3888.9	21.9	0.0
33406.3	3207.4	7.4	0.0

[illegible]

- HPE Private. Confidential and Internal Use Only**

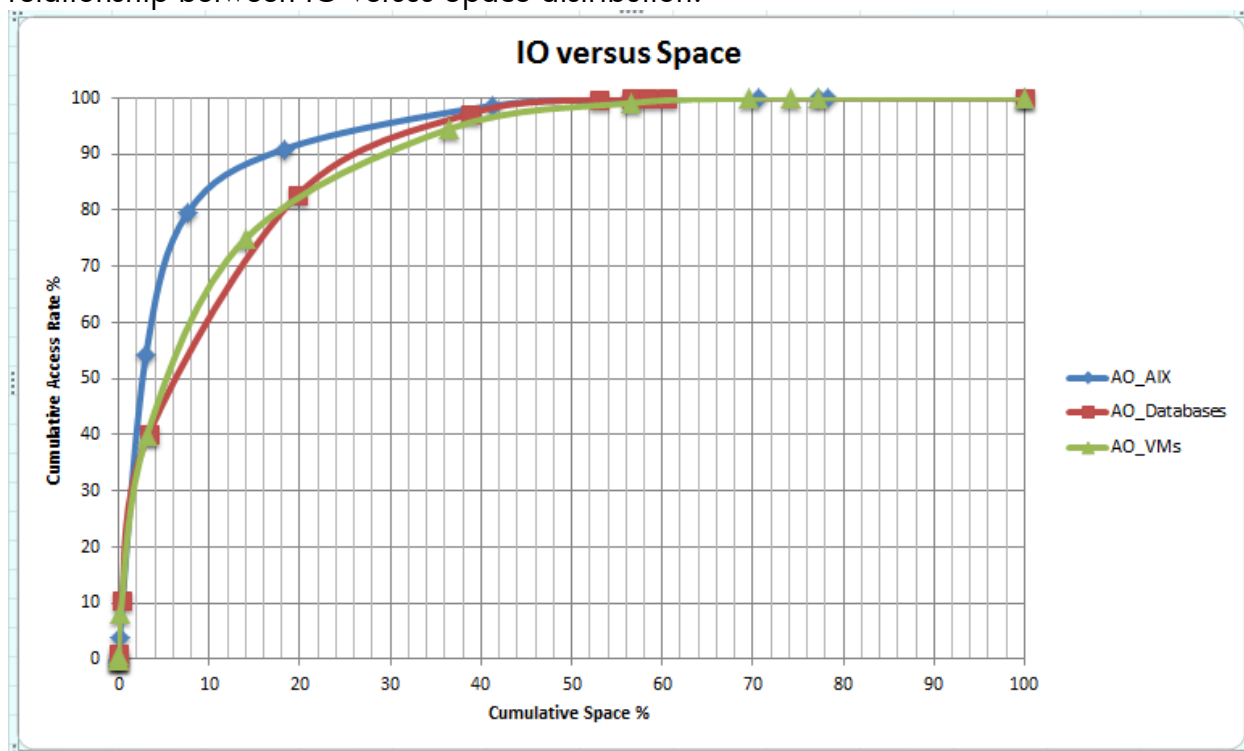
Fixes and Enhancements in V1.21

The following issues are addressed in V1.21:

- If there are no VVs part of a CPG, then sometimes the device type is displayed incorrectly if the “showcpg –sag” is processed after the “showcpg –sdg”.
- For 3.1.3 systems, the fan status of the nodes was not reported correctly.

The following enhancements were implemented in V1.21:

- The host persona's for InFormOS V3.1.3 are now displayed
- On the “RemoteCopy” worksheet, the “auto_failover” and “path_management” policies are now displayed.
- A mechanism is introduced, allowing a quick implementation of configuration checks without updating the main executable. For example: checking disk drives to see if they fall into a specific serial number range, checking for DIMMs in specific serial number ranges, etc.
- On the “Cluster” worksheet, the patch history of the system is now displayed.
- The links used within the spreadsheets are now relative links. This means the spreadsheets can be moved without the need to re-generate them.
- On the “SR AO Data Statistics”, a new graph is introduced, showing the relationship between IO versus Space distribution.



- If a directory containing config.* and evtlog.*.debug files also contains filenames with “aomoves” or “iodensity”, then those files will be interpreted as output of “sraomoves” and “srrgioidensity” respectively and processed as such.

Fixes and Enhancements in V1.22

The following issues are addressed in V1.22:

- The PD chunklet to PD block range was incorrect as chunklet 0 starts on PD offset 256MB or 1024MB, not at PD offset 0.
- If a scheduled job was listed as “suspended” in the “showsched –all” output, the job was still listed as active on the SR and AO worksheet.
- Several issues with “auto_update” have been addressed.
- SLDR (Synchronous Long Distance Replication) configurations only had one target displayed. From this release onwards, the tool will list both targets.
- If a VV is part of multiple VVsets, only 1 VVset was displayed. The Virtual Volumes worksheet now lists the number of VVsets the VV is part of as well as the list of VVsets this VV is part of.
- If the stepsize of a CPG was not specified, a value of “128” was displayed. This is incorrect, as the default stepsize is dependent on the device type as well as the setsize.
- If a VV was part of a VVset and was presented to a host set, then analysis codes 18 and 19 were reported, which was not correct.

The following enhancements were implemented in V1.22:

- Additional configuration checks are now implemented.
- A new worksheet is introduced. This worksheet (“Index”) contains links to the various categories of information available on the other worksheets.

	A	B	C	D	E	F	G	H	I	J	K
1	List of Worksheets				Index of available information						
2											
3											
4	Alerts - Active				Memory - Swap/Slab				RC - Status		
5											
6	CPG - Info				Node 0 - Info				SR & AO - AO Configs		
7					Node 1 - Info				SR & AO - Events		
8	Cage0 - Info								SR & AO - Logs		
9	Cage1 - Info				Overview - Analysis				SR & AO - SR Config		
10	Cage2 - Info				Overview - Health Check				SR & AO - Scheduled Jobs		
11	Cages - SAS Errors				Overview - System						
12									Tasks - Most Recent		
13	Captured Data - 2014-03-13 08:12:19				PDs - Asc/Ascq						
14	Captured Data - Summary				PDs - Charts				VWs - CPG Distribution		
15					PDs - Info				VWs - Info		
16	Chunklets - IO Errors								VWs - QoS		
17	Chunklets - Relocated				Port 0:0:1 - SAS Domain				VWs - SCSI Reservations		
18					Port 0:0:2 - SAS Domain						
19	Cluster - Encryption				Port 0:1:0 - Info						
20	Cluster - LDAP				Port 0:1:1 - Info						

- In case there is no binary representation of the macros (%INEX_HOME%\defs\iNex_macros.bin), the file will now be automatically generated to streamline future invocations of the tool.
- New macros have been added, which will facilitate navigation through the worksheets.

- The utility will now interact with the central CFI database. In case that, during processing, issues are detected for which a CFI number is known, the ERT case will be automatically added to the list of that CFI in the central CFI database.

Furthermore, the tool will now automatically download a 3PAR oriented copy of the central database. This copy will be used by future version for automatic recognition of node crashes and other known issues. This local copy of this database can be viewed by Microsoft Excel. See [CFI database](#) for more details.

- The GUI now has a “Tools” menu, which contains some utilities which may be invoked. In this release, those tools are:
 - “*Find remote chunklets*”. This tool will check all LDs, which are listed in the mapping database, and locate the chunklets, which are located on PDs which are not owned by the owning node of the LD. It will generate a “movech –perm” command to migrate the remote chunklets over to a location local to this node.
 - “*Get Macros*”. This tool will retrieve the macros from a previously, not necessary last, worksheet generated by iNex.



Fixes and Enhancements in V1.23

The following issues are addressed in V1.23:

- The auto_update process would sometimes assume the workstation was not connected to the HP Intranet, meaning an IPV4 address in the 15.* or 16.* range, if the system had multiple IP addresses. The same applies for the get_cfldb script.
- FAN speed on nodes is yellow highlighted, while the fan speed is "Low" or "Medium".
- The Environmental Section on the "Nodes" worksheet was not displayed correctly. And in case of environmental issues, those were not displayed correctly while the worksheet was marked with a yellow marker.
- If in the GUI the "Add File" option was used, a pop-up window would appear stating `"Can't use string ("Addfile_Click") as a SCALAR ref while "strict refs" in use at inex_tkx.pl line 5932"`. The file could not be added.
- Sometimes the auto_update process would not progress while creating the network drive to the regional download server. A time-out value is now added to this operation. If the timer expires, an alternative method will be tried to verify if a new update is available.
- Sometimes the "get_cfldb" process would end abnormally, if the CFI database on the local workstation was still open. A retry mechanism has been added, so the "get_cfldb" process now wait with generating a new version of the CFI database until the database is closed.
- Some fields on several worksheets were falsely reported as abnormal state while processing data of an InServ using InFormOS version 3.2.1.
- On StoreServ 7000 systems, the SAS address and IFC ports (of the actual IFCs) were displayed incorrectly.
- On the "Ports x-y" worksheets, for RCFC ports the actual operating link-speed was displayed as configured link speed.

The following enhancements were implemented in V1.23:

- The CFI database now contains 2 additional tables, being :
 - A translation table between the TPD Version Name and Version Number
 - A table listing all released patches, the related TPD Version, patch description, synopsis, obsoletes previous patches and release date.

- Support is implemented for Direct Access. This means that, from an iNex point of view, users are no longer required to have their HP VPN up in order to benefit from auto_update and get_cfddb.

- A new worksheet "UpDown" is implemented. This worksheet lists the appearance and disappearance of nodes in the cluster, as well as the InformOS versions the nodes are booting.

5	
6	- Node Crash dumps (if any):
7	
8	node1 2014-10-16 16:07:36 1645457-1 init: Attempting to save dump.....>10%...100%
9	node2 2014-10-16 19:29:59 1645457-2 init: Attempting to save dump.....>10%...100%
10	node0 2014-10-16 20:48:12 1645457-0 init: Attempting to save dump.....>10%...100%
11	
12	
13	- Node TPD Versions:
14	
15	node3 2014-10-15 13:54:58 1645457-3 kernel: [39.567559] Loading TPD InformOS v3.2.1.46
16	node1 2014-10-15 14:10:01 1645457-1 kernel: [39.664800] Loading TPD InformOS v3.2.1.46
17	node2 2014-10-15 14:24:41 1645457-2 kernel: [37.262311] Loading TPD InformOS v3.2.1.46
18	node0 2014-10-15 14:36:49 1645457-0 kernel: [40.053311] Loading TPD InformOS v3.2.1.46
19	node1 2014-10-16 16:07:49 1645457-1 kernel: [33.078193] Loading TPD InformOS v3.2.1.46
20	node2 2014-10-16 19:30:10 1645457-2 kernel: [30.641196] Loading TPD InformOS v3.2.1.46
21	node0 2014-10-16 20:48:24 1645457-0 kernel: [32.678047] Loading TPD InformOS v3.2.1.46
22	

- 2 new worksheets are available now. These worksheets ("Host Events Summary" and "Host Events List") provide an overview of the events related to a specified host.

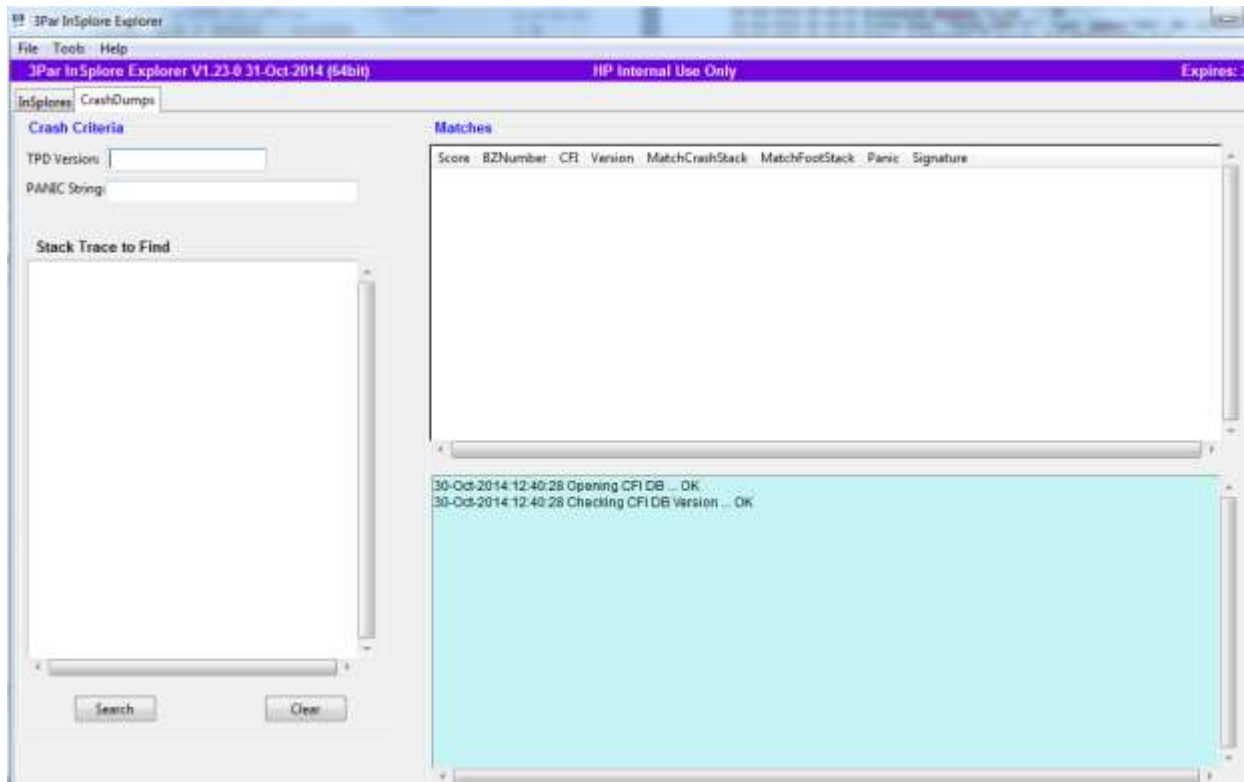
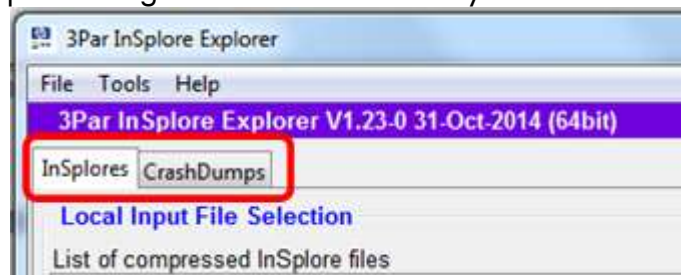
List of Worksheets														
List of Worksheets														
Reported Host Errors														
SCSI Reservations														
ID	Name	Port	Lost	Normal	SCSI Status	ASC/ASCQ	Key	Total	Reser	Rekor	Proser	Regist	Other	
5	8 chs-as-pocsgl	4	16	26				303	5	10			80	
38	2 chs-as-vmm001	0	12	24				56	8	0				
39	3 chs-as-vmm002	0	12	26				77	2	2				
40	8 is-as-pocsgl	0	14	28				88	4	2			68	
74	0 is-as-vmm001	0	0	10				39						
88	1 is-as-vmm002	0	4	18				108						
104	7 vmbasac3	8	22	34				1333						

Host Events List									
Host	Name	Port	Lost	Home	SCSI Status	ASC/ASCQ	Reported Host Errors	Key	Total
5	8 chs-as-pocsgl	4	16	26					303
38	2 chs-as-vmm001	0	12	24					56
39	3 chs-as-vmm002	0	12	26					77
40	8 is-as-pocsgl	0	14	28					88
74	0 is-as-vmm001	0	0	10					39
88	1 is-as-vmm002	0	4	18					108
104	7 vmbasac3	8	22	34					1333

- A training slide-set ("*iNex for Profi's*") is available now in the <INEX_HOME>\docs directory.
- There are now binary macro files available, which can be used. There is support for 4 different editors, being "PSPad", "Notepad++", "gVim" and "UltraEdit". These files are located in <INEX_HOME>\defs and all have the *.bin extension. Please rename the file supporting the editor of your choice into "iNex_macros.bin" in order to benefit from the latest macros.
- From this release onwards, only 64-bit versions will be distributed. The 32-bit versions (Windows and Linux) became obsolete. Please contact inex.support@hp.com if you think you still require a 32-bit version.

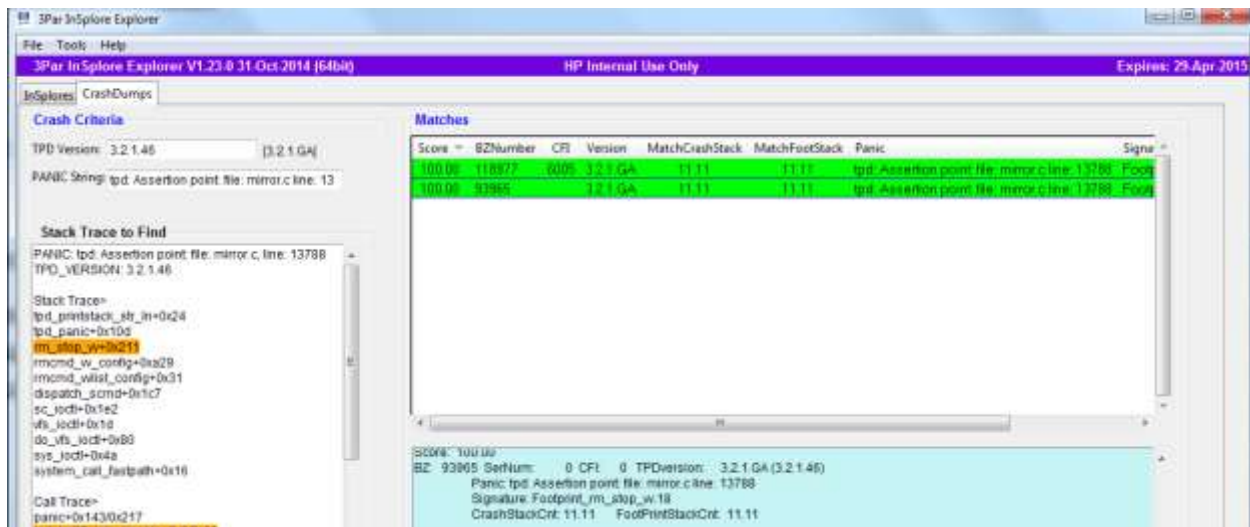
- Support is implemented for node crash footprint recognition. This functionality can be accessed by selecting the “CrashDumps” tab within the Graphical User Interface.

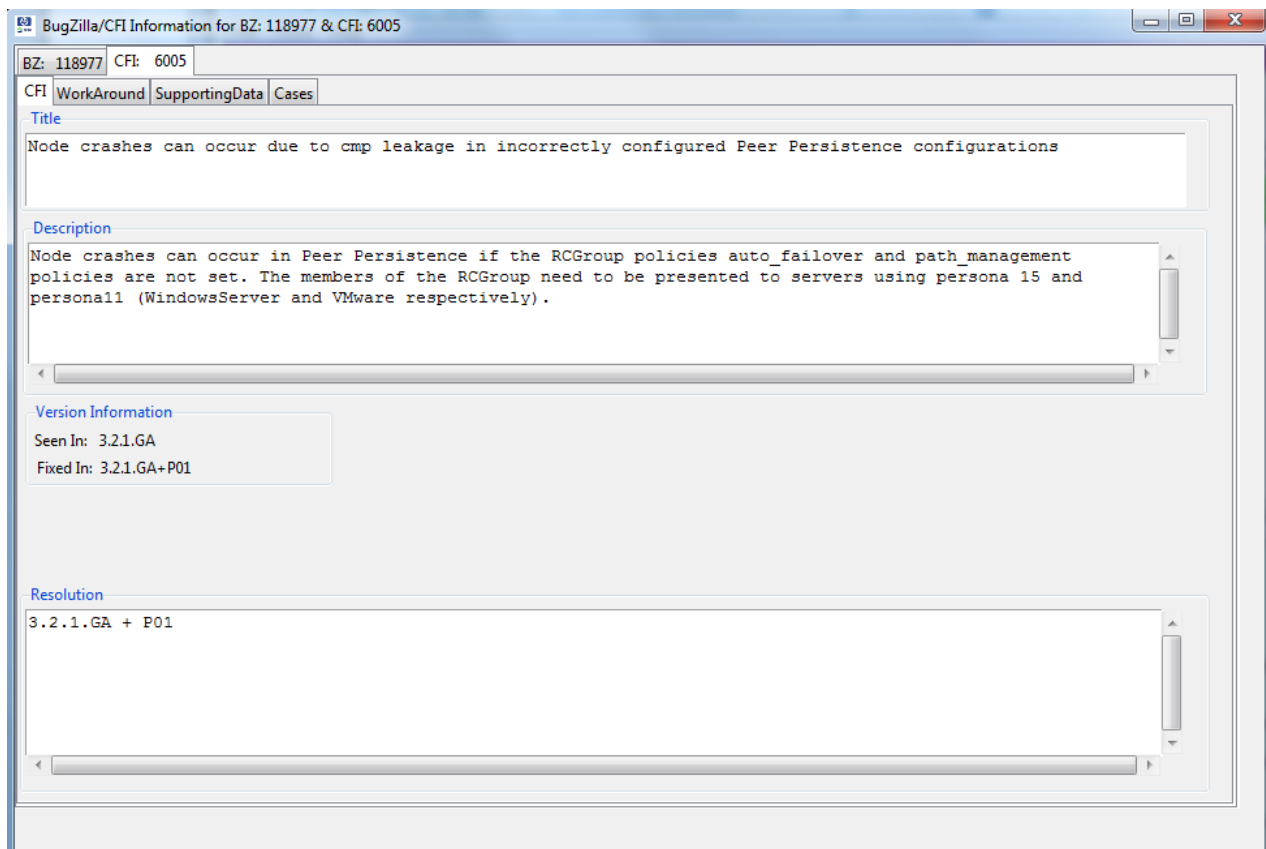
One can copy and paste the complete crashtxt file or analysis.<nr> file in the text field listed as “Stack Trace to Find”.



After using the “Search” button, the next screen will show the footprints within the local CFI database, which match, to some degree, the call stack experienced by the customer. Listed are the confidence level, bugzilla number, CFI number (if any) and InformOS version of the call stack used to compare against.

One can click on a line in the table, and then a separate window will appear showing detailed information regarding the CFI, possible work-around, observed GR8 / SI /OPT cases as well as links to the BugZilla itself.





A spreadsheet with the same information is available in "1_NodePanics\<system serial nr>" directory located within the directory, as defined in the CustomersDirectory keyword

ID	Score	Crash Footprint	Version	Crash Footprint	Version	References
0	100	PANIC: tpd Assertion point file mirror c line: 13788 tpd_persistent_ats_in=0x0 tpd_panic=0x0 cm_stop_vv=0x0 rcmd_vv_config=0x0 rcmd_vvlist_config=0x0 dispatch_ams=0x0 ps_ioctl=0x0 vfa_ioctl=0x0 do_vfa_ioctl=0x0 sys_ioctl=0x0 system_call_fastpath=0x0	3.2.1.GA	PANIC: tpd Assertion point file mirror c line: 13788 tpd_persistent_ats_in=0x0 tpd_panic=0x0 cm_stop_vv=0x0 rcmd_vv_config=0x0 rcmd_vvlist_config=0x0 dispatch_ams=0x0 ps_ioctl=0x0 vfa_ioctl=0x0 do_vfa_ioctl=0x0 sys_ioctl=0x0 system_call_fastpath=0x0	3.2.1.GA	Bugzilla 118977 ERT Cases 662133 662805 OPT Cases 47288114-472881204 CFI 6005 Title Node crashes can occur due to cmp leakage in incorrectly configured Peer Persistence configurations Description Node crashes can occur in Peer Persistence if the RCGroup policies auto_failover and path_management policies are not set. The members of the RCGroup need to be presented to servers using persona 15 and persona11 (WindowsServer and VMware respectively) Status Open Open/Resolved 3.2.1.GA Fixed/Release 3.2.1.GA+P01 Resolution 3.2.1.GA + P01
1	100	PANIC: tpd Assertion point file mirror c line: 13788 tpd_persistent_ats_in=0x0 tpd_panic=0x0 cm_stop_vv=0x0 rcmd_vv_config=0x0 rcmd_vvlist_config=0x0 dispatch_ams=0x0 ps_ioctl=0x0 vfa_ioctl=0x0 do_vfa_ioctl=0x0 sys_ioctl=0x0 system_call_fastpath=0x0	3.2.1.GA	PANIC: tpd Assertion point file mirror c line: 13788 tpd_persistent_ats_in=0x0 tpd_panic=0x0 cm_stop_vv=0x0 rcmd_vv_config=0x0 rcmd_vvlist_config=0x0 dispatch_ams=0x0 ps_ioctl=0x0 vfa_ioctl=0x0 do_vfa_ioctl=0x0 sys_ioctl=0x0 system_call_fastpath=0x0	3.2.1.GA	Bugzilla 118977 No CFI found

Fixes and Enhancements in V1.24

The following issues are addressed in V1.24:

- Added tool tips to many of the widgets.
- Fixed the use of the "Elevation" information.
 - If the checkbox is clear then use the input source associated information.
 - If the checkbox is marked then use the value in the associated entry field.
- Added a "Tools" menu to the menu bar and 2 sub menus
 - Execute Find Remote Chunklets
 - Get Macro
- Re-worked the Windows oriented file specification length check. And changed the text of the pop-up. The decision was made that automatic corrections will not be made. It would be left to the user to make the necessary corrections. Not only check when the input file is added to the GUI, but also when processing and creating the spreadsheet and accdb/db file names.
- Added the "Used Fixed Output Dir" and "Find Output Dir in Common" radio-buttons.
 - Use these radio-buttons when **not** using the source directory of the input as the output directory.
- Added a check for an empty output directory field if **not** using source directory before processing.
- Fixed some error messages and the sequence in which they are displayed, just to make things look nice.
- Fixed the registration process so that the inex.ini file is updated properly.
- Added pop-up message when iNEX is expired.
- Fixed a problem with the temp dir cleanup if there are spaces in the directory name.
- Made the use of the internal decompression routines the default.
- Enhanced the capture processing to capture specific definitions during a capture all.
- Added the system up-down spreadsheet.
- Fixed some issues with PDs that are "new" and have not been admitted yet:
 - Space usage calculations
 - False Stale Paths
- Fixed the internal decomp module to delete existing directory tree instead of over-writing.
- Added Extract Only function for compressed insplores to allow the mapping data to be added to an InSplore directory before processing the InSplore.
- Added field to provide date-time the local CFI Db was last updated.

Fixes and Enhancements in V1.25

The following issues are addressed in V1.25:

- Only allow CFIs belonging to the 3PAR Product Family to be uploaded and updated.
- Improved the crash text/analysis data parsing
- Added option to manually update the local CFI db.
- Re-designed the disk mapping information database to use SQLite and the use ACCESS to
Interact with the data by mapping the SQLite tables into ACCESS. The associated find remote chunklets program will now use the SQLite db, removing dependencies on the ACCESS ODBC.
- Changed the logic and messaging concerning Set Sizes in CPG worksheet
- The "Status Information" now scrolls allowing more data to be displayed.
- The "Processing Options" fields also resides in a scrolling region to accommodate the additional options.
- Added the options to allow cleanup of decompressed InSplore directories and/or the CSV directories created when after an InSplore has been processed. Allow for the clean up to occur at one of 3 points in the execution of iNEX; exiting, post-processing, execution of "ClearAll".
- Removed external decompression option, only Internal decompression is used as of 1.25
- Added the feature to collect support information, attach it to an OUTLOOK email and present the email to the user to complete the problem description and add any screenshots if so desired. This is available only on WINDOWS.
- iNex will now check and prompt if the iNex_macros.bin file is missing from the "/defs" sub-directory.
- Added a progress bar for the file extraction.
- Added Slowdisk checking tool
- Added Chunklet tracking Tool

Fixes and Enhancements in V1.25-1

The following issues are addressed in V1.25-1:

- Added the ability to choose which spreadsheets to generate.
- Fixed the use of the mapping information checkbox.
- Improved checks for some CM link error messages.
- Fixed check regarding Peer Persistence and "auto_failover" policy setting.
- Changed splash and "About" screen images, avoid copyright issues.
- Changed the output messages in the "Processing and Progress Information" text box to help with displaying progress.
- Minor changes to GUI: preserve position and size between sessions.
- Added check for VV/Snapshot names greater than 31 characters.
- Calculate Used Memory now using Total-free-cached when we print the memory out in the spreadsheet.
- Added check for sccmd_portop messages.
- Changed some of the checks and messaging when opening the ACCESS Mapping database interface.
- Mapping MS-ACCESS db now has correct file creation and modification dates.
- Tried to enhance event categorization.
- Adding ability to list multiple occurrences in the Analysis Overview section of Overview worksheet.
- Fixed the "Capture Log Data" sheet and the hidden filename to be properly formatted.
- Fixed the autofilter settings on the "Events Summary" worksheet for "Info" and "Debug" columns.
- New OpenFile macro scheme implemented.
- Updated the routine that parses the showsys and showsys-d outputs for 3.2.2.

Fixes and Enhancements in V1.26-0

- Updated the routine that parses the showsys and showsys-d outputs for 3.2.2.
- Fixed a coding typo with regards to the specification to a Slab memory hash.
- Fixed a spreadsheet reference issue from Main to Events spreadsheets, specifically the "Hosts Events Summary".
- Updated the code to address possible presence of iSCSI iSNS information with port information.
- Added new parsing code for new cage types in Chimera.
- Enhanced the SAS cabling routines.
- Fixed several parsing issues with `inex_parse_config_pd`: was erroneously picking up header data, column count wrong in another area.
- RAID 0 checking on LDs added.
- Fixed an issue when creating a spreadsheet and that spreadsheet by the same name is already open.
- Fixed the "Tasks" sheet and the hidden file name to be properly formatted.
- Fixed an array index count issue.
- Fixed an inspire file name parsing issue with "inspire" appearing in the directory path.
- Fixed some hyper-links in the spread sheets to be relative rather than absolute.
- Added the ability to choose which spreadsheets to generate.
- Fixed the use of the mapping information checkbox.
- Improved checks for some CM link error messages.
- Fixed check regarding Peer Persistence and "auto_failover" policy setting.
- Changed splash and "About" screen images, avoid copyright issues.
- Changed the output messages in the "Processing and Progress Information" text box to help with displaying progress.
- Minor changes to GUI: preserve position and size between sessions.
- Added check for VV/Snapshot names greater than 31 characters.
- Calculate Used Memory now using Total-free-cached when we print the memory out in the spreadsheet.
- Changed some of the checks and messaging when opening the ACCESS Mapping database interface.
- Mapping MS-ACCESS db now has correct file creation and modification dates.
- Tried to enhance event categorization.
- Adding ability to list multiple occurrences in the Analysis Overview section of Overview worksheet.
- Fixed the "Capture Log Data" sheet and the hidden filename to be properly formatted.
- Fixed the autofilter settings on the "Events Summary" worksheet for "Info" and "Debug" columns.

- New OpenFile macro scheme implemented.
- Fixed the stack trace pattern matching.
- Adding Explanation Of Analysis codes (EOA) documentation for analysis codes with hyperlinks in the spreadsheet if the corresponding EOA file is found.
- Corrected the Host Analysis section and added some new rules for the hosts.
- Updated the OpenFile EXCEL macro to address empty file names.
- Corrections to the analysis code for nodes, PDs, LDs, VVs. These corrections address analysis code messages with missing data.
- Included the UNITY spreadsheet for file services and file provisioning groups.
- In the Analysis Overview section we now report on missing nodes and unowned LDs.
- Enlarged the EXCEL cell comment box.
- Added a new rule for RC policy checks on target systems.
- Added more captures with regards to config locks, config_lock_tattler, unresponsive IOCTLs
- Fixed the config cage parsing routine for DCS6 cages.
- Added check for invalid_header in the pd detailed state.
- Added check for 16GB HBAs.
- Updated default/minimum version for De-Duplication.
- Added the ability to work with app dumps
- Addressed a subtle date-time processing issue with captures for files whose time stamps did not contain a year value.
- Addresses a problem with capture records that did not have a time stamp, use the previous timestamp found to estimate the occurrence.
- Had to fix a column handling issue with parsing PD data.
- The RC configuration analysis was updated for considerations of CLX environments.
- Fixed an error with unexpected date-time stamps in the shownode -verbose output.
- Added a check for VVs with IDs greater than 32767 which has an impact on RC groups on OS versions below 3.1.3.
- Fixed an issue with VLUN IDs within VVsets and how the VLUN IDs were calculated.

Fixes and Enhancements in V1.26-1

- Had to make updates to the CFI db tools due to network changes as a result of the company split
- Minor change to the column lay on the eventlogs worksheets.
- Changed license expiration and actions of the auto-update during expiration.

Fixes and Enhancements in V1.26-2

- Fixed a truncation issue with parsing "event log" data
- Added a check for invalid dump text
- Added some new configuration analysis checks
- Updated domain name changes as a result of company split.
- Additional fixes to include and address newer 20000 arrays; 3.2.2 changes in outputs and additional fields
- Addressed changes to configuration checks as a result of recent engineering changes:
 - SanDisk OPTIMUS drives
 - Dedupe: TDVVs and non-TDVVs sharing a CPG
 - Fabric IOCTL

Fixes and Enhancements in V1.26-3

- Fixed a parsing issue with the cage data amongst the older versions and newer versions.
- Fixed a mapping database schema issue for vv_general and pd_genral tables.
- Fixed a minor message formatting issue in the capture processing.
- Added detail to a dump related message pop-up.
- Fixed an issue if INEX_HOME had quotation marks.

Fixes and Enhancements in V1.26-4

- A minor change in the cfganal_captures routine when calculating and checking GC abandonment percentages.
- Fix to database routines to handle the various serial number characters.
- Fix for SAS cabling.
- Fix for processing spare uninitialized chunklets.
- Fix regarding port failover fields having dashes "-".
- Fix with regards to VV names being identical when case insensitive.
- New tool: a mapping information data base viewer. This obsoletes the need for the MS ACCESS DB.

Fixes and Enhancements in V1.26-5

- Updated copyright information to reflect the new company, Hewlett Packard Enterprise.
- Updated the RAID-0 check to exclude the flash cache LDs.
- Added the check for ports being disabled in showpd output.
- Added a review of possible ini files, listed in the inex.log file when inex.ini is not found.
- Fixed the call of the Mapping Information Viewr from within INEX.
- Additional checks related to 16GB HBAs.
- Added the "Smart_SAN" flag to port worksheet.
- Parse the "Smart_SAN" column from showport_-par.out.
- Fix for checking SAS cabling.
- Updated Slab check to take into account flash cache slab information.
- Also display the "Base" and "Adjusted" Slab values in the Memory worksheet.
- Mapping Information Viewer can now extract selected information to a text file.
- Added a check for tyhe existance of VLUN creations using the "-sublun" switch.
- Fixed a rounding issue in the LD analysis section for reporting LD imbalances.
- Updated the reporting of TE_PATHSICK with rval 0x31 messages.
- Fixed an issue when checking PS power supplies part numbers.
- Fix to the analyze_string routine.

Fixes and Enhancements in V1.26-6

- Inclusion of the new INEX RC Tool.
- Added a check of the PD loops for the correct node numbering to indicate nodes are in their expected slots.
- Added a check for crypto-erases occurring.
- Corrected the parsing and print routines for SRA0.
- Added check for CFI 10221.
- Corrected the cell formula for the cluster capacity pie chart.
- Fixed a cosmetic issue with the progress bar.
- Change in hiding the console behavior.
- Fixed a problem with building the VV tree related information when printing the VV worksheet.
- Change in determining Home Directory.
- Added the necessary information to handle the SAS configuration of DCS5 cages.
- Fixed an issue with the cage print routines when there was no cage data present, i.e. - using debug event logs only.
- Cleaned up code for CFGANAL_CAPTURE.
- Fixed a pointer for pd wwn lookups in one of the PD parsing subroutines..
- Added a new analysis code for vendor specific asc/ascq codes.
- Updated the parsing of cages to take into account the location field if present and to address parsing the DCS5 model of cages.
- Fixed a subtle bug with the registration process.
- Updated INEX Mapping Information Viewer with a new tab that allows one to specify multiple PDs and then identify the raid sets containing those PDs.
- Updated, corrected, added several EOA files.
- Fixed an issue with checking the fan speed in the node printing routine.
- Addressed the detection and reporting of VV IDs greater than 32767.
- Cleaned up a data structure relating to slab memory after its use in the memory analysis routine.
- Fixed a formatting issue with PD serial numbers for the worksheets: Physical Disks and PD AscAscq.
- Added the parsing and display of information from showvv_-matchbulkobjs.out which deals with VMware VVols.
- Added a check for SA LDs that reside on NL drives.
- Fixed a date format issue with showpatch-hist.out for early versions of the HPE 3PAR OS.
- Fixed an issue with node memory data structures in the cfganal_nodes routine.
- Fixed an issue printing the port information spread sheet, again dealing with earlier versions of HPE 3PAR OS that did display the same data as newer versions do. The parsing code had to include the missing data structures to allow the print routines to function properly. And the cfganal_port required updating also to address the "Pre-312" flagging

Fixes and Enhancements in V1.26-7

- Fixed the node/slot check.
- Fixed the home directory determination algorithm
- Addressed a compilation issue with the "Encode" module.
- Addressing changes in memory calculations that involve UNITY.
- Changed the Memory worksheet to reflect total memory adjustment due to UNITY memory.
- Moved the memory analysis to CFGANAL_MEMORY.
- Updated the mail server address.
- Separated the capture strings for Stack and Call traces found in the nodes' messages and/or syslog files. Call traces are now informational, for there is at least one call trace that may be safely ignored, other may require further investigation. Stack traces generally appear in a nodes' message file as that of a Stack trace for another node that has crashed. Please refer to the EOA links for each for additional clarifications.

Fixes and Enhancements in V1.26-8

- Fixed a problem with parsing the checkhealth files, which caused a reporting problem.
- Added support for T10-DIF.
- Add checks for panic traces in the IDE log files.
- Updated the check on DeDupe CPGs per node pair.
- Compilation process updated to include additional Encodings.
- Added a check on version and patch for 3.2.2.MU1 and P16.
- INEX GUI: updated the old GCSS and L3 case files to CSC and ERT case respectively.

15. Appendix A: Example run of a 3Par T400 system with 2 nodes

```
D:\Tools\Inex>inex "D:\Customers\Croon\73456\20120608\INSPLORE_20120608_112405.tbz2"
HP Company Confidential
Copyright (C) 2011-2012 Hewlett-Packard Company
```

3Par InSplore Explorer V1.01 16-Jul-2012

```
16-Jul-2012:08:45:33 Reading Capture Definitions File ... OK
16-Jul-2012:08:45:33 Extracting INSPLORE_20120608_112405.tbz2 to *.tar ... OK
16-Jul-2012:08:46:05 Extracting INSPLORE_20120608_112405.tar to *.Files ... OK
16-Jul-2012:08:46:56 Processing showsys_-d.out ... OK
16-Jul-2012:08:46:56 System Name: "Croon_3PAR-01". Type: InServ T400. SN: 1205190
16-Jul-2012:08:46:56 Nodes: Configured: 2 Online: 2,3 Participate: 2,3
16-Jul-2012:08:46:56 Processing showld.out ... OK
16-Jul-2012:08:46:56 Processing showvv.out ... OK
16-Jul-2012:08:46:56 Processing showdate.out ... OK
16-Jul-2012:08:46:56 Processing showpd_-i.out ... OK
16-Jul-2012:08:46:56 Processing showcage_-d.out ... OK
16-Jul-2012:08:46:56 Processing showhost_-verbose.out ... OK
16-Jul-2012:08:46:56 Processing showport.out ... OK
16-Jul-2012:08:46:56 Processing showport_-iscsi.out ... OK
16-Jul-2012:08:46:56 Processing showport_-par.out ... OK
16-Jul-2012:08:46:56 Processing showsys_-param.out ... OK
16-Jul-2012:08:46:56 Processing showld_-p.out ... OK
16-Jul-2012:08:46:56 Processing showpd_-c.out ... OK
16-Jul-2012:08:46:56 Processing showbattery.out ... OK
16-Jul-2012:08:46:56 Processing sub-directory showldmap ...Done
16-Jul-2012:08:47:04 Processing showport_-i.out ... OK
16-Jul-2012:08:47:04 Processing showcpq_-r.out ... OK
16-Jul-2012:08:47:04 Processing showversion_-a.out ... OK
16-Jul-2012:08:47:04 Processing showcpq_-sdg.out ... OK
16-Jul-2012:08:47:04 Processing showeeprom.out ... OK
16-Jul-2012:08:47:04 Processing showvln.out ... OK
16-Jul-2012:08:47:04 Processing showrcopy_-d.out ... OK
16-Jul-2012:08:47:04 Processing showport_-sfp_-ddm.out ... OK
16-Jul-2012:08:47:04 Processing showpd.out ... OK
16-Jul-2012:08:47:04 Processing showpd_-i.out ... OK
16-Jul-2012:08:47:04 Processing showvv_-state.out ... OK
16-Jul-2012:08:47:04 Processing showcpq_-sag.out ... OK
16-Jul-2012:08:47:04 Processing showversion_-b.out ... OK
16-Jul-2012:08:47:04 Processing showpd_-s.out ... OK
16-Jul-2012:08:47:04 Processing showport_-c.out ... OK
16-Jul-2012:08:47:04 Processing showvv_-s.out ... OK
16-Jul-2012:08:47:04 Processing showhostset.out ... OK
16-Jul-2012:08:47:04 Processing shownet_-d.out ... OK
16-Jul-2012:08:47:04 Processing showld_-d.out ... OK
16-Jul-2012:08:47:04 Processing sub-directory showldch ...Done
16-Jul-2012:08:47:13 Processing showvv_-d.out ... OK
16-Jul-2012:08:47:13 Processing sub-directory showportlesb ...Done
16-Jul-2012:08:47:15 Processing showld_-state.out ... OK
16-Jul-2012:08:47:15 Processing showpd_-e.out ... OK
16-Jul-2012:08:47:15 Processing showcage_-e.out ... OK
16-Jul-2012:08:47:15 Processing showeventlog_-d_-debug_-online.out ... OK
16-Jul-2012:08:48:12 Processing showport_-rc.out ... OK
16-Jul-2012:08:48:12 Processing showlicense.out ... OK
16-Jul-2012:08:48:12 Processing showeventlog_-d_-fprefix_events_nd.out ... OK
16-Jul-2012:08:48:17 Processing showeventlog_-d_-fprefix_events_al.out ... OK
16-Jul-2012:08:48:18 Processing shownode_-d.out ... OK
16-Jul-2012:08:48:18 Processing shownet.out ... OK
16-Jul-2012:08:48:18 Processing showport_-sfp_-d.out ... OK
16-Jul-2012:08:48:18 Creating list of files to be investigated:
16-Jul-2012:08:48:29 Processing InSplor_log.Croon_3PAR-01 ... OK
16-Jul-2012:08:48:29 Processing InSplore.node2.20120608.1102/uptime.out ... OK
16-Jul-2012:08:48:29 Processing InSplore.node2.20120608.1102/var/log/messages ... OK
16-Jul-2012:08:48:29 Processing InSplore.node2.20120608.1102/var/log/messages.0 ... OK
```

```

16-Jul-2012:08:48:29 Processing InSplore.node2.20120608.1102/var/log/syslog ... OK
16-Jul-2012:08:48:29 Processing InSplore.node2.20120608.1102/var/log/syslog.0 ... OK
16-Jul-2012:08:48:29 Processing InSplore.node2.20120608.1102/var/log/syslog.1.gz
...[Decompressing ... Done] ... OK
16-Jul-2012:08:48:29 Processing InSplore.node2.20120608.1102/var/log/syslog.2.gz
...[Decompressing ... Done] ... OK
16-Jul-2012:08:48:29 Processing InSplore.node2.20120608.1102/var/log/syslog.3.gz
...[Decompressing ... Done] ... OK
16-Jul-2012:08:48:30 Processing InSplore.node2.20120608.1102/var/log/syslog.4.gz
...[Decompressing ... Done] ... OK
16-Jul-2012:08:48:30 Processing InSplore.node2.20120608.1102/var/log/syslog.5.gz
...[Decompressing ... Done] ... OK
16-Jul-2012:08:48:30 Processing InSplore.node2.20120608.1102/var/log/syslog.6.gz
...[Decompressing ... Done] ... OK
16-Jul-2012:08:48:30 Processing InSplore.node2.20120608.1102/var/log/tpd/sysmgr ... OK
16-Jul-2012:08:48:33 Processing InSplore.node3.20120608.1102/uptime.out ... OK
16-Jul-2012:08:48:33 Processing InSplore.node3.20120608.1102/var/log/messages ... OK
16-Jul-2012:08:48:33 Processing InSplore.node3.20120608.1102/var/log/messages.0 ... OK
16-Jul-2012:08:48:33 Processing InSplore.node3.20120608.1102/var/log/syslog ... OK
16-Jul-2012:08:48:33 Processing InSplore.node3.20120608.1102/var/log/syslog.0 ... OK
16-Jul-2012:08:48:33 Processing InSplore.node3.20120608.1102/var/log/syslog.1.gz
...[Decompressing ... Done] ... OK
16-Jul-2012:08:48:33 Processing InSplore.node3.20120608.1102/var/log/syslog.2.gz
...[Decompressing ... Done] ... OK
16-Jul-2012:08:48:33 Processing InSplore.node3.20120608.1102/var/log/syslog.3.gz
...[Decompressing ... Done] ... OK
16-Jul-2012:08:48:33 Processing InSplore.node3.20120608.1102/var/log/syslog.4.gz
...[Decompressing ... Done] ... OK
16-Jul-2012:08:48:33 Processing InSplore.node3.20120608.1102/var/log/syslog.5.gz
...[Decompressing ... Done] ... OK
16-Jul-2012:08:48:33 Processing InSplore.node3.20120608.1102/var/log/syslog.6.gz
...[Decompressing ... Done] ... OK
16-Jul-2012:08:48:34 Processed 24 files
16-Jul-2012:08:48:34 Analyzing captured data ... OK
16-Jul-2012:08:48:44 Generating spreadsheet ... OK
16-Jul-2012:08:51:30 D:\Customers\Croon\73456\20120608\Croon_73456_20120608_1205190_Croon_3PAR-
01.xls
16-Jul-2012:08:51:30 Finished

```

16. Appendix B: Example of “config/inex.ini” file

```
# -----
# The following keyword specifies the operation mode
# Values: [Standard], and Decompressed
# Standard:      Normal Operation Mode.
# Decompressed: Will skip the decompression of files and just analyze the
#               extracted files. Meant to be used for tunnig the
healthchecks.
# -----
# OperationMode = standard

# -----
# The following keyword specifies the amount of detail in the trace. Valu
# 1 : Only Errors will be logged
# 2 : Same as 1, but now also Normal operation will be logged
# 3 : Same as 2, but now more detailed information will be logged (default)
# 4 : Same as 3, but now major routine calls will be logged
# 5 : Same as 4, but now also memory contents will be dumped
# 9 : Everything
# -----
# DebugLevel = 3

# -----
# The next keyword specifies if Excel macros need to be loaded during the
generation.
# of the spreadsheet. Allowed values are:
# disabled   : Excel macros will not be loaded into the spreadsheet
# manual     : Excel macros will be loaded, but 'autorun' macro will not be
executed
# autorun    : Excel macros will be loaded and 'autorun' macro will be
executed.
# The macros are located in .\Defs\macros
# Default    : disabled.
# -----
# MacroProcessing = autorun

# -----
# The next keyword specifies the root directory where the case subdirectories
# are located. No default
# -----
CustomersDirectory = D:\Customers

# -----
# The next keyword defines the "monitor window", which is the number of days
# the utility will search backwards in InSplore eventlogs and logfiles for
# strings to be captured or events to be processed.
# Default: 7 days
# -----
# MonitorWindow = 7
```

```

# -----
# The next keyword specifies the command line utility, which can be used
# to decompress the tbz2 file into regular text files.
# Default      : exe1:      %ProgramFiles%\7-zip\7z.exe
#                argument1: x -y -o"%outputdir%" "%inputfile%"
#                format1:   tar
#                exe2:      %ProgramFiles%\7-zip\7z.exe
#                argument2: x -y -o"%outputdir%" "%inputfile%"
#                format2:   <END>
#
# Note that %outputdir% and %inputfile% are generated by the program at
# runtime
# -----
# Decompress = exe:"%ProgramFiles%\7-zip\7z.exe", arguments:"x -y -
# o"%outputdir%" "%inputfile%", inputformat:"tbz2", outputformat:"tar"
# Decompress = exe:"%ProgramFiles%\7-zip\7z.exe", arguments:"x -y -
# o"%outputdir%" "%inputfile%", inputformat:"tar", outputformat:"<END>"
#
# -----
# The next keyword specifies if the XLSX file needs to be kept or not.
# Allowed values are:
# No   : The XLSX file will not be kept and deleted at the end of processing.
# Only the
#        XLSM file will be available.
# Yes  : The XLSX file will be kept and NOT deleted at the end of processing.
# Both the
#        XLSX and XLSM files will be available.
# Default: No
# -----
# KeepXLSX = No
#
# -----
# The next keyword specifies if the Mapping information needs to be processed
# or not.
# Allowed values are:
# No   : The mapping information will not be read and processed.
# Yes  : The mapping information will be read and processed.
# Default: Yes
# -----
# ProcessMapping = Yes
#
# -----
# The next keyword specifies the output formats of the application.
# Allowed values are:
# spreadsheet : The output in the form of a spreadsheet will be generated
# csv         : The output in the form of multiple csv files will be
# generated.
# Default: spreadsheet,csv
# -----
# OutputFormats = spreadsheet, csv

```