



# SELF-ASSESSMENT IN YOUR RECOVERPOINT INSTALLATION



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## **Introduction**

From the administrator perspective, the best way to check their environment is to understand and monitor performance and configuration.

The main purpose of this article is to provide guidance for self assessment in a RecoverPoint installation, using commands from the Command Line Interface (CLI) and working together with some scripts to interpret the CLI output. The output provided from the scripts is Excel-based, which is very useful to edit, make adjustments, and change the format.

Enabling this step requires a Secure Shell (SSH) communication between the workstation and RPA. We strongly recommend the use of PuTTY program which is free and easy to operate.

For each operation, output from each run command must be saved. This output will be used as input to the scripts.

Other detailed information will be included on this document as well.

## **RecoverPoint Overview**

The EMC RecoverPoint product family provides a comprehensive data protection solution for enterprise and commercial customers, providing integrated continuous data protection and continuous remote replication to recover applications to any point in time.

RecoverPoint systems enable reliable replication of data over any distance; within the same site (CDP), to another distant site (CRR), or both concurrently (CLR). Specifically, RecoverPoint systems support replication of data that applications are writing over Fibre Channel to local SAN-attached storage. The systems use existing Fibre Channel infrastructure to integrate seamlessly with existing host applications and data storage subsystems. For remote replication, the systems use existing IP connections to send the replicated data over a WAN, or use Fibre Channel infrastructure to replicate data asynchronously or synchronously. The systems provide failover of operations to a secondary site in the event of a disaster at the primary site.

## **RecoverPoint Family**

The RecoverPoint family consists of three products:

### **RecoverPoint/CL**

For replicating across EMC and non-EMC storage platforms. RecoverPoint/CL is the full-featured offering which allows a single cluster to utilize the same splitters as RP/EX. It also supports heterogeneous storage arrays using host-based write splitters and intelligent fabric-based write splitters.

### **RecoverPoint/EX**

For Symmetrix VMAX™ Series (VMAX 10K, VMAX 20K, VMAX 40K), VPLEX™ Local and Metro, VNX™ series, CLARiiON® CX3 and CX4 series, and Celerra® unified storage environments. RecoverPoint/EX is optimized to support VNX/CLARiiON and VMAX Series storage arrays, as well as VPLEX storage virtualization platform, using splitters embedded in each platform.

### **RecoverPoint/SE**

For VNX series, CLARiiON CX3 and CX4 series, and Celerra unified storage environments. RecoverPoint/SE is optimized to support VNX/CLARiiON storage arrays with built-in array-based write splitters.

## Option 1 – Current Configuration

Current configuration means you have a chance to take a snapshot from your current configuration and, through the script and output, save a registered documentation.

The final document will be an Excel spreadsheet, with all information printed in an understandable format. The script used for this action is Visual Basic Script (VBS).

The commands are taken in place from the RecoverPoint Console, using SSH connection and admin user.

The credentials are:

**User:** admin

**Password:** admin

### get\_system\_settings Command

Display the site-related settings from both sites. There is no parameter to be added. The settings are:

- Maintenance Status
- Software Version and Release
- Site-Management and WAN IP Addresses
- Hardware Details, including the WWN from each RPA port
- Repository Volume Information

The output below is an example of this command, extracted from the customer. Part of this command will be displayed.

```
SJP1> get_system_settings

Sites:
CTA1:
  Site management IPv4: 172.25.6.30
RPAS:
  RPA 1:
    Version: 3.3.P2(e.95)
    WAN IP: 172.31.0.11
    Box management IPv4: 172.25.6.31
    Box management IPv6:N/A
    Port settings:
      Port WWN: 5001248200976366
      Node WWN: 5001248200976367
```

Port WWN: 5001248201b76366  
Node WWN: 5001248201b76367

Port WWN: 5001248202d76366  
Node WWN: 5001248202d76367

Port WWN: 5001248203f76366  
Node WWN: 5001248203f76367

RPA 2:  
Version: 3.3.P2(e.95)

...[trunked]

Repository volume:  
5.00GB DGC RAID 5 CX4-480 LUN ID: 1999  
60,06,01,60,6a,50,25,00,52,7f,d4,df,ec,7e,df,11 0x66e5495daadd9b5

RPA	Port	WWN	Ctrl	Serial	LUN
1	0	500601613ce050fd	SP-A	CKM00084400270	0
1	0	500601633ce050fd	SP-A	CKM00084400270	0
1	0	500601693ce050fd	SP-B	CKM00084400270	0
1	0	5006016b3ce050fd	SP-B	CKM00084400270	0
1	2	500601603ce050fd	SP-A	CKM00084400270	0
1	2	500601623ce050fd	SP-A	CKM00084400270	0
1	2	500601683ce050fd	SP-B	CKM00084400270	0
1	2	5006016a3ce050fd	SP-B	CKM00084400270	0
2	0	500601613ce050fd	SP-A	CKM00084400270	0
2	0	500601633ce050fd	SP-A	CKM00084400270	0
2	0	500601693ce050fd	SP-B	CKM00084400270	0
2	0	5006016b3ce050fd	SP-B	CKM00084400270	0
2	2	500601603ce050fd	SP-A	CKM00084400270	0
2	2	500601623ce050fd	SP-A	CKM00084400270	0
2	2	500601683ce050fd	SP-B	CKM00084400270	0
2	2	5006016a3ce050fd	SP-B	CKM00084400270	0
3	0	500601613ce050fd	SP-A	CKM00084400270	0
3	0	500601633ce050fd	SP-A	CKM00084400270	0
3	0	500601693ce050fd	SP-B	CKM00084400270	0
3	0	5006016b3ce050fd	SP-B	CKM00084400270	0
3	2	500601623ce050fd	SP-A	CKM00084400270	0
3	2	5006016a3ce050fd	SP-B	CKM00084400270	0
4	0	500601613ce050fd	SP-A	CKM00084400270	0
4	0	500601633ce050fd	SP-A	CKM00084400270	0
4	0	500601693ce050fd	SP-B	CKM00084400270	0
4	0	5006016b3ce050fd	SP-B	CKM00084400270	0
4	2	500601603ce050fd	SP-A	CKM00084400270	0
4	2	500601623ce050fd	SP-A	CKM00084400270	0
4	2	500601683ce050fd	SP-B	CKM00084400270	0
4	2	5006016a3ce050fd	SP-B	CKM00084400270	0

vCenter Server settings:  
vCenter Servers: None

SJP1:  
Site management IPv4: 172.19.1.30  
RPAS:  
RPA 1:  
Version: 3.3.P2(e.95)  
WAN IP: 172.31.0.1  
Box management IPv4: 172.19.1.31  
Box management IPv6:N/A

```

Port settings:
  Port WWN: 5001248200977f68
  Node WWN: 5001248200977f69

  Port WWN: 5001248201b77f68
  Node WWN: 5001248201b77f69

  Port WWN: 5001248202d77f68
  Node WWN: 5001248202d77f69

  Port WWN: 5001248203f77f68
  Node WWN: 5001248203f77f69
RPA 2:
  Version: 3.3.P2(e.95)

```

...[trunked]

```

Repository volume:
5.00GB      DGC      RAID 5      CX4-480      LUN ID: 1999
60,06,01,60,49,f0,22,00,be,ba,9e,83,04,7f,df,11 0xecb27b9002109077

```

RPA	Port	WWN	Ctrl	Serial	LUN
1	0	500601613ce02954	SP-A	CKM00090900231	0
1	0	500601693ce02954	SP-B	CKM00090900231	0
1	1	500601613ce02954	SP-A	CKM00090900231	0
1	1	500601693ce02954	SP-B	CKM00090900231	0
2	0	500601613ce02954	SP-A	CKM00090900231	0
2	0	500601693ce02954	SP-B	CKM00090900231	0
2	1	500601613ce02954	SP-A	CKM00090900231	0
2	1	500601693ce02954	SP-B	CKM00090900231	0
3	0	500601603ce02954	SP-A	CKM00090900231	0
3	0	500601623ce02954	SP-A	CKM00090900231	0
3	0	500601683ce02954	SP-B	CKM00090900231	0
3	0	5006016a3ce02954	SP-B	CKM00090900231	0
3	1	500601603ce02954	SP-A	CKM00090900231	0
3	1	500601623ce02954	SP-A	CKM00090900231	0
3	1	500601683ce02954	SP-B	CKM00090900231	0
3	1	5006016a3ce02954	SP-B	CKM00090900231	0
4	0	500601603ce02954	SP-A	CKM00090900231	0
4	0	500601623ce02954	SP-A	CKM00090900231	0
4	0	500601683ce02954	SP-B	CKM00090900231	0
4	1	500601603ce02954	SP-A	CKM00090900231	0
4	1	500601623ce02954	SP-A	CKM00090900231	0
4	1	500601683ce02954	SP-B	CKM00090900231	0
4	1	5006016a3ce02954	SP-B	CKM00090900231	0

```

vCenter Server settings:
vCenter Servers: None

```

This output is very simple to check and could not be used within the script.

### save\_settings Command

Save the current system settings. There is a parameter, but we will leave as default [no] to run all information needed. No other option will be selected, just the single command.



This is an important command that displays information about global parameters from the installation and more detail for each Consistency Group (CG). Some settings applied to the CG:

- Consistency Group Name from each one
- The primary RPA from each group
- OS type information and setting
- Has distributed flag setting
- Source and Target Replication volume information
- Source and Target Journal volume information
- All size information, including both Replication and Journal volumes
- SNMP settings to check if the email home is configured

It helps the administrator see and understand which storage resource and volumes are allocated to the RecoverPoint structure, to enable planning and performance analysis.

## Generating the Output

Use the same credentials provided previously to run this command. Below is a sample, extracted from a customer. Some part of this output will be displayed, especially the CG settings:

```
SJP1> save_settings

##### save_settings output (version: 3.3.P2(e.95)) #####;
set_env_param break_on_error="yes";
set_cleanup_state site="SJP1" enabled="no";
set_cleanup_state site="CTA1" enabled="no";
clear_settings -f;
rescan_san volumes=none;

#####
# Phoenix System RP site settings
#####

#####
# Settings for CG_SAPWPAPO
#####;
create_group name="CG_SAPWPAPO" primary_box="RPA 4" distributed_group="NO";
edit_group_settings group="CG_SAPWPAPO";
create_copy name="Source" group="CG_SAPWPAPO" site="SJP1" hosts_os="windows";
create_copy name="RTarget" group="CG_SAPWPAPO" site="CTA1" hosts_os="windows";
create_replication_set name="RSet 1" group="CG_SAPWPAPO" size="10 GB"
geometry="512, 1, 10, 2097152" oracle_aware=NO;
create_replication_set name="RSet 2" group="CG_SAPWPAPO" size="51 GB"
geometry="512, 1, 12, 8912896" oracle_aware=NO;
```

```
create_replication_set name="RSet 3" group="CG_SAPWPAPO" size="51 GB"
geometry="512, 1, 12, 8912896" oracle_aware=NO;
create_replication_set name="RSet 4" group="CG_SAPWPAPO" size="51 GB"
geometry="512, 1, 12, 8912896" oracle_aware=NO;
set_production_copy group="CG_SAPWPAPO" copy="Source" start_transfer=no;
```

```
#####
# Replication volumes in copy Source of CG_SAPWPAPO
#####;
add_volume type=replication group="CG_SAPWPAPO" copy="Source"
replication_set="RSet 1" uid="60,06,01,60,49,f0,22,00,70,8d,68,9a,16,62,df,11"
uid_hash="0x660ffdf0c2c1fb6" vendor="DGC" product="RAID 5" model="CX4-480"
physical_size="10737418240" name="LUN 829 (829)";
add_volume type=replication group="CG_SAPWPAPO" copy="Source"
replication_set="RSet 2" uid="60,06,01,60,49,f0,22,00,64,fb,ec,e3,dc,61,df,11"
uid_hash="0xcc77b7d31c1d05c8" vendor="DGC" product="RAID 5" model="CX4-480"
physical_size="54760833024" name="LUN 841 (841)";
add_volume type=replication group="CG_SAPWPAPO" copy="Source"
replication_set="RSet 3" uid="60,06,01,60,49,f0,22,00,76,cb,fc,ec,dc,61,df,11"
uid_hash="0x656ab93aec80d254" vendor="DGC" product="RAID 5" model="CX4-480"
physical_size="54760833024" name="LUN 842 (842)";
add_volume type=replication group="CG_SAPWPAPO" copy="Source"
replication_set="RSet 4" uid="60,06,01,60,49,f0,22,00,82,23,35,f6,dc,61,df,11"
uid_hash="0xbdeff6dd07e7f543" vendor="DGC" product="RAID 5" model="CX4-480"
physical_size="54760833024" name="LUN 843 (843)";
```

```
#####
# Journal volumes in copy Source of CG_SAPWPAPO
#####;
add_volume type=journal group="CG_SAPWPAPO" copy="Source"
uid="60,06,01,60,49,f0,22,00,7c,9b,2c,2d,ab,7f,df,11"
uid_hash="0x3d5749dc55356671" vendor="DGC" product="RAID 5" model="CX4-480"
physical_size="21474836480" name="LUN 2000 (2000)" -f;
```

```
#####
# Replication volumes in copy RTarget of CG_SAPWPAPO
#####;
add_volume type=replication group="CG_SAPWPAPO" copy="RTarget"
replication_set="RSet 1" uid="60,06,01,60,6a,50,25,00,ac,ee,b8,f7,19,7f,df,11"
uid_hash="0xec4341b73add6151" vendor="DGC" product="RAID 5" model="CX4-480"
physical_size="10737418240" name="LUN 829 (829)";
add_volume type=replication group="CG_SAPWPAPO" copy="RTarget"
replication_set="RSet 2" uid="60,06,01,60,6a,50,25,00,7f,e3,22,e2,1a,7f,df,11"
uid_hash="0x020affe0a385b4f5" vendor="DGC" product="RAID 5" model="CX4-480"
physical_size="54760833024" name="LUN 841 (841)";
add_volume type=replication group="CG_SAPWPAPO" copy="RTarget"
replication_set="RSet 3" uid="60,06,01,60,6a,50,25,00,b0,e8,5d,e8,1a,7f,df,11"
uid_hash="0xdb1713181d601151" vendor="DGC" product="RAID 5" model="CX4-480"
physical_size="54760833024" name="LUN 842 (842)";
add_volume type=replication group="CG_SAPWPAPO" copy="RTarget"
replication_set="RSet 4" uid="60,06,01,60,6a,50,25,00,b2,e8,5d,e8,1a,7f,df,11"
uid_hash="0x975bc5902bda9455" vendor="DGC" product="RAID 5" model="CX4-480"
physical_size="54760833024" name="LUN 843 (843)";
```

```
#####
# Journal volumes in copy RTarget of CG_SAPWPAPO
#####;
add_volume type=journal group="CG_SAPWPAPO" copy="RTarget"
uid="60,06,01,60,6a,50,25,00,9d,9d,27,be,a7,7f,df,11"
uid_hash="0xe7ecb6a259d31788" vendor="DGC" product="RAID 5" model="CX4-480"
physical_size="21474836480" name="LUN 2000 (2000)" -f;
```

```
#####
# Group level policies for CG_SAPWPAPO
#####;
set_policy group="CG_SAPWPAPO" bandwidth_limit="UNLIMITED" compression="10"
managed_by_exchange="E14_disabled" managed_by_srm="SRM_disabled"
measure_lag_to_box="YES" priority="NORMAL" remote_fast_init="YES"
remote_snapshot_granularity="DYNAMIC" transfer_by_non_preferred="YES";
```

```
#####
# Copy level policies for Source of CG_SAPWPAPO
```

```
#####;
set_policy      group="CG_SAPWPAP0"      copy="Source"      allow_long_resync="YES"
failall_variant="auto"      image_access_log_size="20"      journal_compression="NONE"
journal_size_limit="1200"      max_journal_lag="UNLIMITED"      reservations_policy="Auto";

#####
# Copy level policies for RTarget of CG_SAPWPAP0
#####;
set_policy      group="CG_SAPWPAP0"      copy="RTarget"      allow_long_resync="YES"
failall_variant="auto"      image_access_log_size="20"      journal_compression="NONE"
journal_size_limit="1200"      max_journal_lag="UNLIMITED"      reservations_policy="Auto";
enable_reservations group="CG_SAPWPAP0"      enabled="yes";
set_global_cluster_mode group="CG_SAPWPAP0"      mode="none";

#####
# Automatic snapshot consolidation policy for copy Source of CG_SAPWPAP0
#####;
config_automatic_snapshot_consolidation      group="CG_SAPWPAP0"      copy="Source"
enable=NO      unconsolidated_duration=2days      daily_consolidations=5
weekly_consolidations=4;

#####
# Automatic snapshot consolidation policy for copy RTarget of CG_SAPWPAP0
#####;
config_automatic_snapshot_consolidation      group="CG_SAPWPAP0"      copy="RTarget"
enable=NO      unconsolidated_duration=2days      daily_consolidations=5
weekly_consolidations=4;

#####
# Protection policy of the remote link of CG_SAPWPAP0
#####;
config_link_protection      group="CG_SAPWPAP0"      link=remote      mode=async
dynamic_by_latency=NO      dynamic_by_throughput=NO      regulate_application=NO
minimize=LAG      max_lag=SYSTEM;

#####
# Phoenix System RP protection level for copy source of CG_SAPWPAP0
#####;
config_phoenix_system_protection      group="CG_SAPWPAP0"      copy="Source"
protection_level=disabled;

#####
# Phoenix System RP protection level for copy RTarget of CG_SAPWPAP0
#####;
config_phoenix_system_protection      group="CG_SAPWPAP0"      copy="RTarget"
protection_level=disabled;
apply_group_settings group="CG_SAPWPAP0";
```

## Using the Tool

The tool, named RecoverV3.7.vbs, converts all text saved on the file—in this case called “output”—to the Excel format—in this case named by “report”.

In this example, we are using the following files:

- RecoverV3.7.vbs – the script wrote in VBS format
- save\_settings\_Knowledge.txt – output extracted from a customer



save\_settings\_Knowledge.txt

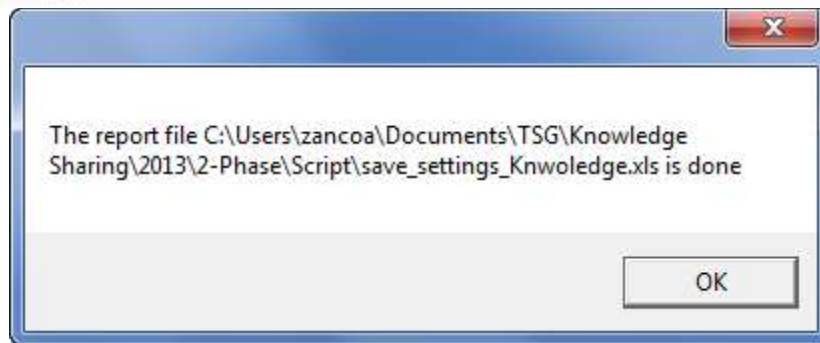
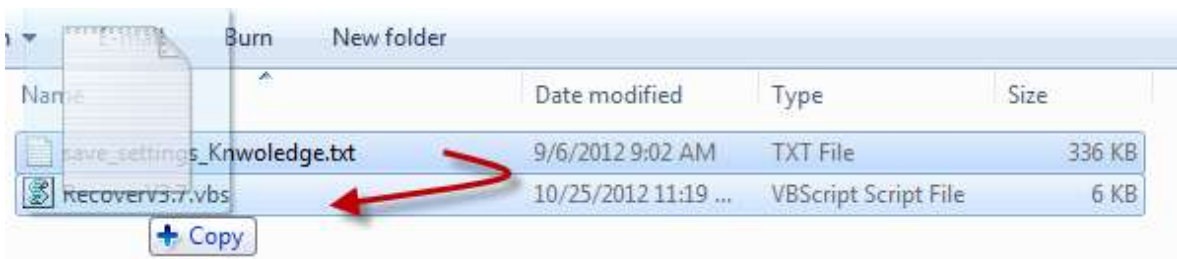


RecoverV3.7.vbs

The process to use the tool is very simple:

1. Select the save\_setting txt file:
2. Drag the selected file and drop over the script, in VBS format:
3. The script automatically displays a pop-up, informing the conversion is done:

Name	Date modified	Type	Size
save_settings_Knowledge.txt	9/6/2012 9:02 AM	TXT File	336 KB
RecoverV3.7.vbs	10/25/2012 11:19 ...	VBScript Script File	6 KB



4. After this action, the Excel file is created into current directory:

Name	Date modified	Type	Size
RecoverV3.7.vbs	10/25/2012 11:19 ...	VBScript Script File	6 KB
save_settings_Knowledge.tmp	1/2/2013 3:28 PM	TMP File	14 KB
save_settings_Knowledge.txt	9/6/2012 9:02 AM	TXT File	336 KB
save_settings_Knowledge.xls	1/2/2013 3:28 PM	Microsoft Office E...	18 KB

## Your Current Configuration Report

Once the process is finished and the file is present in the current directory, open the file.

As mentioned earlier, there is no special format for Excel. Each user can modify and adjust the format as they want, including fill the cells, fonts, colors, etc.

The first sheet named “# CGs e RPAs” displays information regarding CGs and RPAs. It means the relationship from each CG is attached to each RPA or if the CG is a distributed one:

	A	B	C
1			
2	Consistence Group	Primary RPA	Distributed Group
3	CG_SAPWPAPO	RPA 4	NO
4	CLPSQL002	RPA 1	NO
5	CLPSQL003	RPA 2	NO
6	CLPSQL004	RPA 3	NO
7	CLPSQL005	RPA 4	NO
8	CLPSQL007	RPA 1	NO
9	SAPPPORTALDB	RPA 2	NO
10	CG_CITRIX	RPA 1	NO
11	CG_EXCHANGELOJAS	RPA 2	NO
12	CG_PORTALVGNPROD	RPA 3	NO
13	CG_PRACTICOPROD	RPA 4	NO
14	CG_CRMPROD	RPA 1	NO
15	CG_APLIC-INTERNAS	RPA 2	NO
16	CG_DESKTOPMGR	RPA 1	NO
17	CG_EXCHANGEIND	RPA 4	NO
18	CG_FILESERVER	RPA 3	RPA 1, RPA 4
19	CG_PRINTSERVER	RPA 3	NO
20	CG_SAPPROD	RPA 4	RPA 1, RPA 2, RPA 3
21	CG_SQLDMZPROD	RPA 3	NO
22	CG_SQLLANPROD	RPA 3	RPA 4
23	CG_TRENDIMSS	RPA 1	NO
24	CG_VASCO	RPA 2	NO
25	CG_VSAT	RPA 3	NO

You can detect if Distributed Group is enabled. The script will display which other RPAs are connected with this particular CG.

The second sheet—named “# CGs e devices” —displays information regarding CGs and their volumes. It displays all replication volume relationship and the current journal volume used for each CG:

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
1														
2		Consistence Group	Site	Rset	Size (GB)	LUN	Size (GB)	LUN	Site	Rset	Size (GB)	LUN	Size (GB)	LUN
3		CG_SAPWPAPO	Source	RSet 1	10240	829	20480	2000	RTarget	RSet 1	10240	829	20480	2000
4		CG_SAPWPAPO	Source	RSet 2	52224	841			RTarget	RSet 2	52224	841		
5		CG_SAPWPAPO	Source	RSet 3	52224	842			RTarget	RSet 3	52224	842		
6		CG_SAPWPAPO	Source	RSet 4	52224	843			RTarget	RSet 4	52224	843		
7		CLPSQL002	Source	RSet 1	51200	50	5120	2001	RTarget	RSet 1	51200	50	5120	2001
8		CLPSQL002	Source	RSet 3	30720	90			RTarget	RSet 3	30720	90		
9		CLPSQL002	Source	RSet 4	30720	93			RTarget	RSet 4	30720	93		
10		CLPSQL003	Source	RSet 1	51200	63	5120	2002	RTarget	RSet 1	51200	63	5120	2002
11		CLPSQL004	Source	RSet 1	51200	64	5120	2012	RTarget	RSet 1	51200	64	5120	2012
12		CLPSQL005	Source	RSet 1	51200	66	5120	2013	RTarget	RSet 1	51200	66	5120	2013
13		CLPSQL007	Source	RSet 1	51200	65	5120	2014	RTarget	RSet 1	51200	65	5120	2014
14		SAPPPORTALDB	Source	RSet 1	51200	26	5120	2015	RTarget	RSet 1	51200	26	5120	2015
15		CG_CITRIX	Source	RSet 1	51200	101	5120	2020	RTarget	RSet 1	51200	101	5120	2020
16		CG_EXCHANGELOJAS	Source	RSet 1	153600	13	25600	2019	RTarget	RSet 1	153600	13	25600	2019
17		CG_EXCHANGELOJAS	Source	RSet 2	153600	150			RTarget	RSet 2	153600	150		
18		CG_PORTALVGNPROD	Source	RSet 1	102400	1	76800	2009	RTarget	RSet 1	102400	1	76800	2009
19		CG_PORTALVGNPROD	Source	RSet 2	102400	14			RTarget	RSet 2	102400	14		
20		CG_PORTALVGNPROD	Source	RSet 5	256000	152			RTarget	RSet 5	256000	152		
21		CG_PORTALVGNPROD	Source	RSet 6	102400	19			RTarget	RSet 6	102400	19		
22		CG_PORTALVGNPROD	Source	RSet 7	102400	262			RTarget	RSet 7	102400	262		
23		CG_PORTALVGNPROD	Source	RSet 3	256000	42			RTarget	RSet 3	256000	42		

Description of columns C and J are listed below:

- Source – the production site
- Target – local target, in case of local replication
- RTarget – remote target, in case of remote replication

Information about Source Volume, can be obtained from the:

- Column E – size of source volume
- Column F – LUN ID of source volume
- Information about Source Journal Volume, can be obtained from the: Column G – size of journal volume
- Column H – LUN ID of journal volume

Information about Replica Volume (target), can be obtained from the:

- Column K – size of replica volume
- Column L – LUN ID of replica volume

At the end, the information about Replica Journal Volume (target), can be obtained from the:

- Column M – size of journal volume
- Column N – LUN ID of journal volume

Column K displays information about Remote Journal information, as well. You can perceive for each CG has its own Journal, Local and Remote. In case a single CG has multiples Journal volumes, the output would display all information from these volumes.

Once the report is concluded, you can format the columns, lines, including colors, and whatever else you may want to make the report more visible and easy to follow.

## Option 2 – Current Performance

A functional RecoverPoint system continuously collects and saves both long-term and short-term statistics for various components in the system. Detect bottlenecks is a RecoverPoint feature that processes these statistics and outputs a report that can be used to better understand the system's behavior and possible bottlenecks.

### detect\_bottleneck Command

The bottleneck detection tool is run from the RecoverPoint CLI, using the detect\_bottlenecks command.

To run the detect\_bottlenecks command, you will have to connect to a RecoverPoint cluster using the site management IP, and log in to the RecoverPoint CLI as a user with admin privileges.

Generally, it is recommended to select option **4) General detection including initialization and high load periods with peak writing analysis.**

After selecting this option, the user will not be prompted for additional information and the analysis will be performed over a period of 3 days, in advanced and detailed scope.

```
detect_bottlenecks
```

```
Enter mode (select one from the list), or press Enter to default mode (default is System overview and bottleneck analysis)
```

- 1) System overview and bottleneck analysis
- 2) Detection of initialization periods
- 3) Detection of high load periods
- 4) General detection including initialization and high load periods with peak writing analysis
- 5) Advanced and detailed general detection

6) Peak writing analysis

Select, or press 'ENTER': 4

Enter earliest time, or press 'ENTER' for the earliest time available  
(Format: HH:MM [DD/MM/YYYY] OR wks/days/hrs/mins ago)

Enter latest time, or press 'ENTER' for the latest time available  
(Format: HH:MM [DD/MM/YYYY] OR wks/days/hrs/mins ago)

Do you want advanced overview? (default is NO)

- 1) yes
- 2) no

Select, or press 'ENTER': 1

Do you want detailed overview? (default is NO)

- 1) yes
- 2) no

Select, or press 'ENTER': 1

Enter peak\_duration(secs/mins/hrs),e.g I/O peaks (default is 5mins)

Enter group name(s), separated by ',' if more than one (default is all groups)

Bottlenecks detection file will be written to '/home/kos/statistics/bottlenecks'.

Warning: This operation may take a long time. Do you want to continue (yes/no)?  
[default is 'yes']

Statistics were found between the times: 2012/02/12 13:55:59.568 GMT ---->

2012/05/31 14:32:21.227 GMT

System overview of the link on group: CG\_VM from site: Cetip\_Alphaville to site:

Cetip\_Ingleses on box: RPA1

Incoming writes rate for link : 13.0516

Megabytes/sec

Max value: 71.656

Megabytes/sec

Incoming IOs rate for link

: 18.5576

IOs/sec

Max value: 1856.81

IOs/sec

Total Output rate for link during transfer

: 0.0460568

Megabytes/sec

Max value: 0.0460568

Megabytes/sec

Non - initialization output rate for link during transfer

: 0.0460568

Megabytes/sec

Max value: 0.0460568

Megabytes/sec

Initialization output rate for link during init

: -0

Megabytes/sec

Max value: 0

Megabytes/sec

Data synchronization rate for link during init

: -0

Megabytes/sec

Compression CPU utilization

: 0.31246 %

Max value: 0.31246 %

Percentage time in transfer

: -0.0183927 %

of time

Percentage time of initialization

: -0.00532296

% of time

Compression ratio

: 6.16688

Deduplication ratio

: 1.09167

Time spent on reading from local user volume during initialization

: -0 % of time

Percentage time of highload

: 0 % of time

RPO - lag in time between replicas during transfer after init

: 0 sec

RPO - lag in data between replicas during transfer after init

: 0 Megabytes

RPO - lag in IOs between replicas during transfer after init

: 0 IOs

Group-Link utilization

: 17.4021 %

Max value: 95.5413 %

-----



```

System overview of the link on group: CG_VM from site: Cetip_Alphaville to site:
Cetip_Ingleses on box: RPA2
Incoming writes rate for link                               : 8.60627
Megabytes/sec                                             Max Value: 1520.9
Megabytes/sec
Incoming IOs rate for link                                 : 159.656
IOs/sec                                                  Max Value: 2587.93
IOs/sec
Total Output rate for link during transfer                : 2.50595
Megabytes/sec                                             Max Value: 6.24652
Megabytes/sec
Non - initialization output rate for link during transfer  : 2.05568
Megabytes/sec                                             Max Value: 6.05196
Megabytes/sec
Initialization output rate for link during init           : 3.75189
Megabytes/sec                                             Max Value: 5.85142
Megabytes/sec
Data synchronization rate for link during init           : 0.0606249
Megabytes/sec                                             Max Value: 49.5503
Megabytes/sec
Max Value: 44.9849 %
Percentage time in transfer                               : 35.687 % of
time
Percentage time of initialization                         : 4.28288 % of
time
Compression ratio                                        : 3.08981
Deduplication ratio                                     : 1.20555
Time spent on reading from local user volume during initialization : 6.61122 % of
time
Speed of reading from local user volume during initialization : 147.174
Megabytes/sec
Percentage time of highload                              : 4.93981 % of
time
RPO - lag in time between replicas during transfer after init : -8.22877e-15
sec
Max Value: 750.151 sec
Min Value: -3.52143 sec
RPO - lag in data between replicas during transfer after init : -9.56582e-14
Megabytes
Max Value: 14091.5
Megabytes
Min Value: -136.372
Megabytes
RPO - lag in IOs between replicas during transfer after init : -3.52567e-12
IOs
Max Value: 501056 IOs
Min Value: -3625.59 IOs
Group-Link utilization                                   : 11.475 %
Max Value: 100 %
Time spent on reading from remote user volume during initialization: 0.142216 %
of time
Speed of reading from remote user volume during initialization : 801.123
Megabytes/sec
-----
System overview of the link on group: CG_Oracle from site: Cetip_Alphaville to
site: Cetip_Ingleses on box: RPA1
Incoming writes rate for link                               : 1.37953
Megabytes/sec                                             Max Value: 864.934
Megabytes/sec
Incoming IOs rate for link                                 : 4.73676
IOs/sec                                                  Max Value: 1247.58
IOs/sec
Total Output rate for link during transfer                : 0.265153
Megabytes/sec

```

```

Max Value: 6.01793
Megabytes/sec
Non - initialization output rate for link during transfer      : 0.252757
Megabytes/sec
Max Value: 6.01793
Megabytes/sec
Initialization output rate for link during init                : 3.37143
Megabytes/sec
Max Value: 5.70339
Megabytes/sec
Data synchronization rate for link during init                 : 4.64352
Megabytes/sec
Max Value: 36.7373
Megabytes/sec
Compression CPU utilization                                    : 1.33724 %
Max Value: 60.446 %
Percentage time in transfer time                               : 9.42158 % of
time
Percentage time of initialization of time                      : 0.0346403 %
Compression ratio                                             : 4.22285
Deduplication ratio                                          : 1.11127
Time spent on reading from local user volume during initialization : 8.45655 % of
time
Speed of reading from local user volume during initialization   : 166.567
Megabytes/sec
Percentage time of highload of time                           : 0.044646 %
RPO - lag in time between replicas during transfer after init : 2.84945 sec
Max Value: 312.131 sec
Min Value: -11.8478 sec
RPO - lag in data between replicas during transfer after init  : 33.8838
Megabytes
Max Value: 3568.45
Min Value: -220.584
Megabytes
RPO - lag in IOs between replicas during transfer after init   : 1491 IOs
Max Value: 82484.6 IOs
Min Value: -3533.87 IOs
Group-Link utilization                                        : 1.83937 %
Max Value: 100 %
Time spent on reading from remote user volume during initialization: 0.648665 %
of time
Speed of reading from remote user volume during initialization   : 160.63
Megabytes/sec
-----
System overview of the link on group: CG_Oracle from site: Cetip_Alphaville to
site: Cetip_Ingleses on box: RPA2
Incoming writes rate for link                                 : 6.08314e-06
Megabytes/sec
Incoming IOs rate for link                                   : 0.000396668
IOs/sec
Total output rate for link during transfer                   : 0.0522064
Megabytes/sec
Non - initialization output rate for link during transfer     : 0.0522064
Megabytes/sec
Compression CPU utilization                                  : 0 %
Percentage time in transfer of time                          : 0.00361208 %
Percentage time of initialization                            : 0 % of time
Compression ratio                                           : 3.22588
Deduplication ratio                                          : 1.1525
No init process occurred
Percentage time of highload                                  : 0 % of time
RPO - lag in time between replicas during transfer after init : 1.86128 sec
RPO - lag in data between replicas during transfer after init : 0.357913
Megabytes
RPO - lag in IOs between replicas during transfer after init  : 23.9269 IOs
Group-Link utilization                                        : 8.11085e-06
%
-----

```

```

System overview of the link on group: CG_VM from site: Cetip_Ingleses to site:
Cetip_Alphaville on box: RPA2
Incoming writes rate for link           : 0.585692
Megabytes/sec                           Max value: 1868.08
Megabytes/sec
Incoming IOs rate for link               : 0 IOs/sec
Max value: 0 IOs/sec
Percentage time in transfer              : 0 % of time
Percentage time of initialization        : 0 % of time
Compression not used
Deduplication not used
No init process occurred
Percentage time of highload             : 0 % of time
Group-Link utilization                   : 0.780922 %
Max value: 100 %
-----

```

## Understanding the Output

This section contains descriptions of the output that can be displayed by the bottleneck detection tool, and recommends courses of action, wherever relevant. Option 4 is the most commonly used option for troubleshooting.

The following sections describe the output, as it is displayed to users that:

- a. Access the CLI as a user with admin privileges.
- b. Run the detect\_bottlenecks command.
- c. Select **4) General detection including initialization and high load periods with peak writes analysis.**
- d. Select to include an advanced overview.
- e. Select to include a detailed overview.

The bottleneck detection output is divided into the following sections:

### a) System overview

The following information is displayed for each consistency group:

- I. System overview of links in group
  - Link A
  - Link B
- II. System overview of copies in group
  - copy A
  - ...
  - ...
  - copy Z
- III. System overview of RPAs in site
  - RPA1
  - ...
  - ...
  - RPA<sub>n</sub>

- IV. System overview of sites
  - Site1
  - Site2

**b) Bottlenecks**

**c) Initialization periods**

**d) High loads**

**e) Peaks**

**Using the Tool**

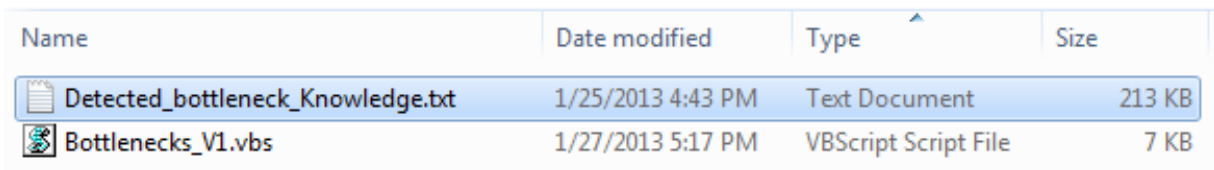
The tool, named Bottlenecks\_V1.vbs, is responsible to convert all text saved in the file, in this case called “output”, to the Excel format, in this case named “report”.



In this example, we are using the following files:

- Bottlenecks\_V1.vbs – the script written in VBS format
- Deteced\_bottleneck\_Knowledge.txt – an output extracted from a customer

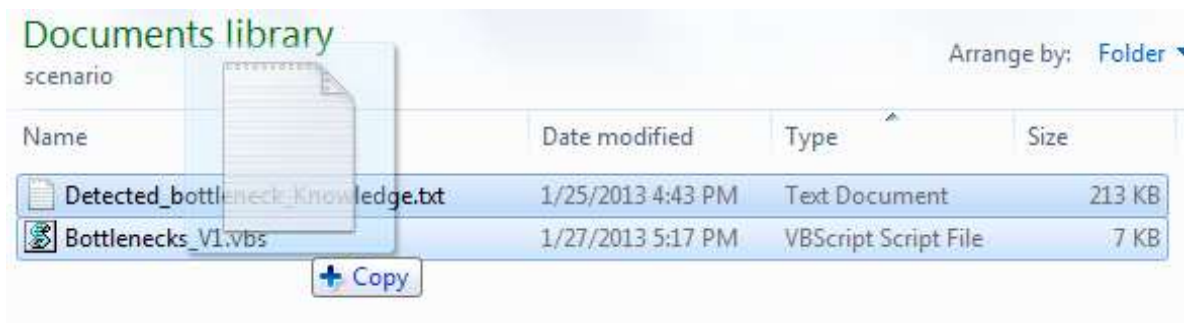
The process to use the tool is very simple:

1. Select the save\_setting txt file:

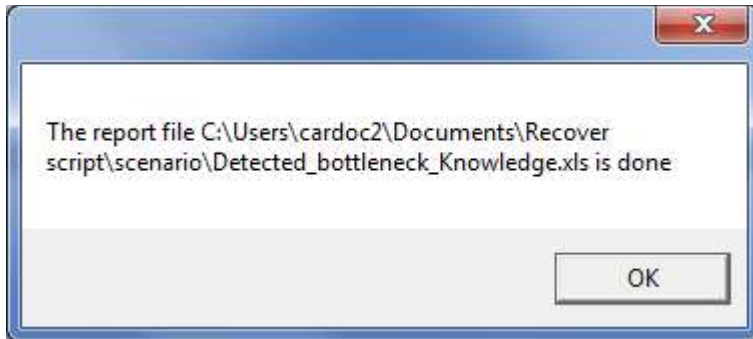


Name	Date modified	Type	Size
 Deteced_bottleneck_Knowledge.txt	1/25/2013 4:43 PM	Text Document	213 KB
 Bottlenecks_V1.vbs	1/27/2013 5:17 PM	VBScript Script File	7 KB





2. Drag the selected file and drop over the script, in VBS format:



3. The script automatically display a pop-up, informing the conversion is done:



4. After this action, the Excel file is created into current directory:

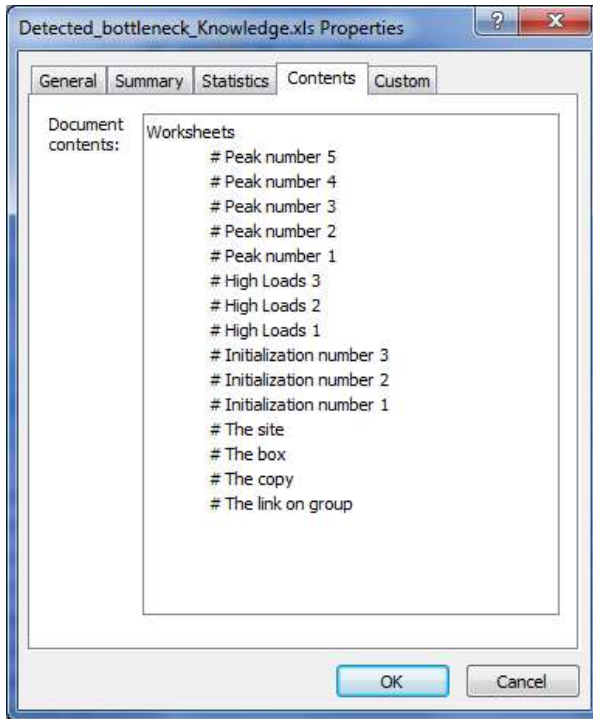
Name	Date modified	Type	Size
 Detected_bottleneck_Knowledge.xls	1/27/2013 9:45 PM	Microsoft Office E...	57 KB
 Detected_bottleneck_Knowledge.txt	1/25/2013 4:43 PM	Text Document	213 KB
 Detected_bottleneck_Knowledge.tmp	1/27/2013 9:45 PM	TMP File	156 KB
 Bottlenecks_V1.vbs	1/27/2013 5:17 PM	VBScript Script File	7 KB

## Your Current Performance Report

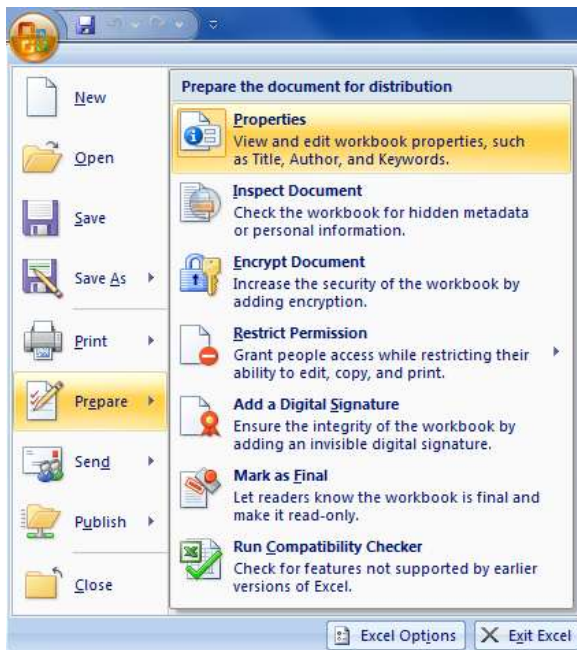
Once the process is finished and the file is present in the current directory, open it.

As mentioned previously, there is no special format for Excel. Each user can modify and adjust the format as they want; fill the cells, fonts, colors, graphics, etc.

The amount of worksheet created is listed on the Excel Properties,



Properties can be found after the file is opened, using the “Office” button and selecting Prepare → Properties



For example, the sheet named “# The link on the group” displays information regarding the system overview for each link in a consistency group.

	A	B	C	D
1				
2		Group CG_VM from site Cetip_Alphaville to site Cetip_Ingleses on box RPA1		
3		Incoming writes rate for link	13.0516 Megabytes/sec	71.656 Megabytes/sec
4		Incoming IOs rate for link	18.5576 IOs/sec	1856.81 IOs/sec
5		Total Output rate for link during transfer	0.0460568 Megabytes/sec	0.0460568 Megabytes/sec
6		Non - initialization output rate for link during transfer	0.0460568 Megabytes/sec	0.0460568 Megabytes/sec
7		Initialization output rate for link during init	-0 Megabytes/sec	0 Megabytes/sec
8		Data synchronization rate for link during init	-0 Megabytes/sec	
9		Compression CPU utilization	0.31%	0.31%
10		Percentage time in transfer	-0.0183927 % of time	
11		Percentage time of initialization	-0.00532296 % of time	
12		Compression ratio	6.16688	
13		Deduplication ratio	1.09167	
14		Time spent on reading from local user volume during initialization	-0 % of time	
15		Percentage time of highload	0 % of time	
16		RPO - lag in time between replicas during transfer after init	0 sec	
17		RPO - lag in data between replicas during transfer after init	0 Megabytes	
18		RPO - lag in IOs between replicas during transfer after init	0 IOs	
19		Group-Link utilization	17.40%	95.54%
20		Group CG_VM from site Cetip_Alphaville to site Cetip_Ingleses on box RPA2		
21		Incoming writes rate for link	8.60627 Megabytes/sec	1520.9 Megabytes/sec
22		Incoming IOs rate for link	159.656 IOs/sec	2587.93 IOs/sec
23		Total Output rate for link during transfer	2.50595 Megabytes/sec	6.24652 Megabytes/sec
24		Non - initialization output rate for link during transfer	2.05568 Megabytes/sec	6.05196 Megabytes/sec
25		Initialization output rate for link during init	3.75189 Megabytes/sec	5.85142 Megabytes/sec
26		Data synchronization rate for link during init	0.0606249 Megabytes/sec	49.5503 Megabytes/sec
27		Percentage time in transfer	35.687 % of time	
28		Percentage time of initialization	4.28288 % of time	
29		Compression ratio	3.08981	
30		Deduplication ratio	1.20555	
31		Time spent on reading from local user volume during initialization	6.61122 % of time	

For more information, we recommend reading the “EMC RecoverPoint Detecting Bottlenecks – Technical Notes” in order to understand each metric.

## Glossary

**CDP:** Continuous Data Protection is local data protection and provides synchronous replication between LUNs that reside in one or more arrays at the same site.

**CLI:** Command Line Interface

**CLR:** Concurrent Local and Remote is both CDP and CRR protections of the same data volume.

**Consistency Groups:** consists of one or more replication sets. The consistency group ensures that updates to the replicas are always consistent and in correct write order; that is, the replicas can always be used to continue working or to restore the production source in case it is damaged.

**Copies:** A logical RecoverPoint entity that constitutes all of the volumes defined for replication at a given location (production, local, or remote). These include; a journal size limit setting that defines RTO, journal compression policies, and protection policies that define snapshot consolidation and the required protection window.

**CRR:** Continuous Remote Replication is remote replication and provides synchronous or asynchronous replication between two sites for LUNs that reside in one or more arrays.

**Journals:** One or more volumes are dedicated on the storage at each replica site for the purpose of holding images that are either waiting to be distributed, or that have already been distributed, to the replica storage.

**Links:** The communication pipe between a production and replica copy through which data is transferred. In RecoverPoint, data transfer for each link can be over WAN or Fibre Channel.

**Replication Sets:** Is a production source volume and the replica volume/s to which it replicates.

**RPA:** The RecoverPoint Appliance is an intelligent data protection appliance. In RecoverPoint, RPAs manage all aspects of reliable data replication at all sites.

**RPO:** Recover Point Objective is a point in time to which systems and data must be recovered after an outage. Basically, RPO is the amount of data loss that a business can endure.



**RTO:** Recover Time Objective is a time within which systems, applications, or functions must be recovered after an outage. In other words, RTO is the amount of downtime that a business can endure and survive.

**Snapshots:** A point in time marked by the system for recovery purposes. A snapshot is the difference between one consistent image of stored data and the next available.

**Splitters:** A splitter is proprietary software that is installed on either host operating systems, storage subsystems, or intelligent fibre switches. Splitters access replica volumes; i.e., volumes that contain data to be replicated. The primary function of a splitter is to “split” application writes so that they are sent to their normally designated storage volumes and the RPA simultaneously.

**Volumes:** In the EMC RecoverPoint Management Application, LUNs are represented as volumes. Therefore, this help file refers to LUNs when referencing the storage entity, and volumes when referencing the RecoverPoint entity.

## **Author Biographies**

Alexandre Zancope is an Advisory Solution Architect in the EMC Brasil, supporting a wide EMC's products, such as RecoverPoint, VPLEX, NAS, SAN, CAS, VMAX and Unified Storage. He has been working in IT industry for 22 years, where 12 of these years are dedicated to EMC. He has experience in UNIX and Windows Operational System, Network Concepts, Business Continuity and Project Management. Zancope possesses a masters' degree in Data Processing and post-graduation in Project Management using PMI techniques. He is a certified EMC Proven Professional NAS Expert Technology Architect, SAN Specialist Technology Architect, CAS Specialist Technology Architect and RecoverPoint Data Replication and Recovery.

Carlos Luis Cardozo is a Senior Implementation Delivery Specialist for Virtual Service Delivery (VSD) in Latin America based out of our Buenos Aires office. He works very closely with our delivery teams in country. He brings over 16 years of experience in the IT industry in different technical roles, spending the last 6 years as Administrator for Storage and UNIX for IBM in Argentina and He also worked at EDS.

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