▲ DPM 4.0.0 USER GUIDE

Summary

1	Intro	oduction	2
2	Inst	allation	3
	2.1 2.1.1 2.1.2 2.1.3	Installation for prerequisites Activation of IIS Creating a SQL Server 2014 database (Express Edition) Installing DBMS clients	3 3 3
	2.2	New installation of DPM	4
	2.3	Upgrade of DPM	6
	2.4	Uninstallation	6
2	llcin	DA DPM	7
5	0.5		
	3.1	Creating a new user	
	3.2	«Inventory» module	8
	3.2.1	. Create instance, host, application	8
	3.2.2	2. Search instance (host, application) and display its detail	8
	3.2.3	Modify or delete instance (host, application)	10
	3.2.4	Putting an instance in MONITORING	10
	3.2.5	Putting an instance in EXPLOITATION	10
	3.2.6	Instance MONITORING mechanism	
	3.2.7	Instance EXPLOITATION mechanism	
	3.2.8	Manual deployment of exploitation-scripts to UNIX	
	3.2.9	Manual deployment of exploitation-scripts to WINDOWS	
	3.2.1	0 Scheduling exploitation-scripts	
	3.2.1	1 Visualizing collected metrics of an instance	
	3.2.1	2 I roubleshoot an instance	19
	3.3	«Supervision» module	20
	3.4	«Evergreening» module	21
	3.5	«Licensing» module	22
	3.6	«Refresh» module	23
	3.7	«Delivery» module	23
	3.8	«Administration» module	
	3.9	Set up HTTPS for the website	
	3.10	DPM manager	
	3.10		2J
4	FAQ		26

1 Introduction

Database Park Manager (DPM) is a WEB tool for managing a database park composed of :

• PostgreSQL, MySQL, Oracle, SQL Server, SAP (ASE and IQ) running on UNIX or WINDOWS

1. DPM Features

DPM covers the features below:

- 1. Monitoring :
 - Collection and historization, visualization of important indicators
 - Collection can work for DB installed under VM/os-cluster/Container/Cloud (AWS or Azure)
 - Collection can be done remotely from the website or by running scripts on DB machines

2. Exploitation :

- Portable exploitation-scripts (ksh or powerhsell) that can work with any type of DB installation (BACKUP/STAT/REORG/etc)
- Scripts can work for DB installed under VM/os-cluster/Cloud
- The scripts can be deployed by the website or installed manually on DB machines (or on a dedicated host for a DB on Cloud because its DB host is not accessible)

3. Troubleshooting :

• Real-time DB activity-reporting to identify the root-cause for various issues

4. And more :

- Tool to migrate an existing DB park to DPM
- Capacity-planning, DB-refresh, SQL scripts delivery, etc

2. <u>DPM Architecture</u>

DPM is designed with the architecture below :

- The website is developed with Visual-Studio Express 2015 in C#
- The website works under "**IIS**" (Internet Information Service: a module to activate in **Windows**)
- The website stores the data in a SQL Server database (Edition Express can do the job)
- The website accesses UNIX machines via **SSH** and WINDOWS machines via **UNC** (to transfer metric collections or do script deployments)
- Website users are Windows users (Active-Directory or Workgroup)
- The website can work with HTTPS (a parameter to activate in IIS)

3. <u>Prerequisites</u>

Prerequisite	Value
Supported-OS	WINDOWS 10 (or higher) or WINDOWS-SERVER 2016 (or higher)
WINDOWS user	1 WINDOWS-account with the "Administrator" privilege
Disk space	1GB (35MB for the tool, 900MB for LOG files)
Memory	A server with minimum 6GB RAM (8GB or 16GB RAM is better)
IIS	IIS (Internet Information Server) is a module to activate
SQL Server	A database in SQL Server 2005 or higher with Latin1_General_CI_AS collation
	("SQL-Server 2014 Express-edition" may be OK : max-size for each datafile is 10GB)
DBMS clients	DBMS clients for PostgreSQL, MySQL, Oracle, SQL-Server, SAP (required for
	Monitoring and Troubleshooting)

2 Installation

2.1 Installation for prerequisites

2.1.1 Activation of IIS

Here we take a WINDOWS-Server 2019 as an example :

- "Panel Control" \rightarrow "Programs and Features" \rightarrow "Turn Windows features on or off" :
 - 1. Check "Web Server (IIS)" with following option:
 - Web Server (please select all items in each group !):
 - Application Development Features
 - Common HTTP Features
 - Health and Diagnostics
 - Performance Features
 - Security
 - Management Tools :
 - IIS Management Console
 - IIS Management Services
 - 2. Click "Ok" button

2.1.2 Creating a SQL Server 2014 database (Express Edition)

- 1. Download from "<u>https://www.microsoft.com/en-US/download/details.aspx?id=42299</u>" (file "Express 64BIT\SQLEXPR_x64_ENU.exe") → c:\temp
- 2. Installation (double-click "SQLEXPR_x64_ENU.exe"). During installation, choose default values except :
 - In windows "SQL Server Installation Center" :
 - Choose "Installation" and "New SQL Server stand-alone installation or add features to an existing ..."
 - In windows "Feature Selection": Specify "Installation root directory" to a directory (eg: "c:\dpm_webdb")
- 3. Setting listening port :

Start-menu → Microsoft SQL Server 2014 →> SQL Server 2014 Configuration Manager :

- "SQL Server Network Configuration" → "Protocols for SQLEXPRESS" →
- "TCP/IP" (double-click) \rightarrow Tab "IP ddresses" \rightarrow In section "IPAII", set "TCP port" to "1433"
- "SQL Server Services" → SQL Server (SQLEXPRESS) → Restart (right-click)
- 4. Creating a database (eg: db_dpm) and a login (eg: dpm) in SQL-Server :
 - Connect to SQL Server (in a DOS console): sqlcmd -S .\SQLEXPRESS
 - Creating a database and a login (under **sqlcmd**):

```
CREATE DATABASE [db_dpm]

CONTAINMENT = NONE

ON PRIMARY ( NAME = N'db_dpm', FILENAME =

N'c:\dpm_webdb\MSSQL12.SQLEXPRESS\MSSQL\DATA\db_dpm.mdf',

SIZE = 600MB , MAXSIZE = UNLIMITED, FILEGROWTH = 1024KB)

LOG ON ( NAME = N'db_dpm_log', FILENAME =

N'c:\dpm_webdb\MSSQL12.SQLEXPRESS\MSSQL\DATA\db_dpm_log.ldf',

SIZE = 400MB , MAXSIZE = 2048GB , FILEGROWTH = 10%)

COLLATE Latin_General_CI_AS

GO

CREATE LOGIN [dpm] WITH PASSWORD = 'password',

DEFAULT_DATABASE=[db_dpm], DEFAULT_LANGUAGE=[us_english]

GO

ALTER SERVER ROLE [sysadmin] ADD MEMBER [dpm]

GO
```

2.1.3 Installing DBMS clients

- 1. PostgreSQL client 10 (to get psql command) :
 - Download from "<u>http://get.enterprisedb.com/postgresql/postgresql-10.11-1-windows-x64-binaries.zip</u>" (there is not package for **PostgreSQL client**, but you could install **PostgreSQL server**)
- 2. MySQL client 8 (to get mysql command) :
 - Download from "<u>https://dev.mysql.com/downloads/file/?id=490395</u>" (there is not really package for MySQL client, you could install MySQL server)
- 3. ORACLE client 12c (to get sqlplus command) :
 - Download from <u>downloads.html</u>" → <u>winx64_12201_client.zip</u> 64-bit (If instant-client, please update PATH variable)
- 4. SQL Server client 2014 (to get sqlcmd command) :
 - Download from "<u>https://www.microsoft.com/en-US/download/details.aspx?id=42299</u>" (there is not package for SQL Server client, you could install SQL Server)
- 5. Syabse ASE client 16 (to get isql command) :
 - Download from SAP website

<u>Note</u>

For each DBMS client, after installation, please put its "bin" sub-directory in «PATH» environment variable !

2.2 New installation of DPM

<u>Note</u>

If you encounter problems while executing a script in POWERSHELL, it may be a privilege problem. In this case, we can set the correct privilege as follows (launch powershell under DOS) : Set-ExecutionPolicy RemoteSigned

- Download the package to the DPM machine in a temporary directory : C:\tmep\dpm-4.0.0.zip
- Unzip the package : This will extract the sources to **c:\temp\dpm**
- Lancer «c:\temp\dpm\install.cmd» avec le privilege Administrators (right-click → Run as Administrators)

PM (version 4.0.0) installer	×
1 - Prerequisites	
a - OS is WINDOWS 10 (or higher) or WINDOWS-SERVER 2016 (or higher)	
b - IIS (WINDOWS-feature to be activated) c - A database in SQL Server 2005 or higher (collation "Latin1 General CI AS")	
d - WINDOWS-account for installation should have "Administrator" privilege	
2 - License agreement (please read it carefully)	
DPM License	^
Except where otherwise note, all of the documentation and software included in the package is copyrighted by DatabaseParkManager.	
Copyright (C) 2012-2022 DatabaseParkManager. All rights reserved.	
This software is provided "as-is", whithout any express or implied warranty. In no event shall the author be held liable for any domages arising from the use of this software.	
	~
I accept the terms in the license agreement	
	1
Next > Cancel	

Click « Next » :

DPM (version 4.0.0) inst	aller	>
1. General purpos	e	
Directory	c:\dpm	Choose folder
Windows user	frhb50457flex\dpm	Used in IIS, Task-Scheduler and DB connection (if db-user is '-E')
Password	*******	Hardcoded in IIS and Task-Scheduler
Encryption key	yyyymmdd	For password encrypting in DB maintenance scripts (8 characters)
2. Web site		
IP	178.170.115.123	Should be IP4 (not DNS name)
Listening port	80	If 80, no need to specify it in URL
3. Database (DB)	for web site	
IP	frhb50457flex	May be IP4 or DNS name
Port	1433	SQL Server listening port
DB name	db_dpm	DB-user may read and write tables in this DB
DB user	dpm	'-E' means windows-authentication
DB password	*******	If user is '-E': password is not needed
E		
	Install	Cancel
message area		

Enter the information for the website and the database, and then click "Install"

DPM (version 4.0.0) installer	×
1. Installation to "c:\dpm" successful !	
2. Website is <u>http://178.170.115.123:80</u>	
3. You may use "frhb50457flex\dpm" to log in	
Finish	

If all goes well, the **website** is installed.

After installation, installation information is stored in : o <installation_dir>\conf\dpm.conf

2.3 Upgrade of DPM

- Download the package to the DPM machine in a temporary directory : C:\tmep\dpm-4.0.0.zip
- Unzip the package :
 - This will extract the sources to c:\temp\dpm
- Lancer «c:\temp\dpm\install.cmd» avec le privilege Administrators (right-click → Run as Administrators)

P		
Č		
c:\dpm	Choose folder	
frhb50457flex\dpm	Used in IIS, Task-Scheduler and DB connection (if db-user is '-E')	
****	Hardcoded in IIS and Task-Scheduler	
yyyymmdd	For password encrypting in DB maintenance scripts (8 characters)	
178.170.115.123	Should be IP4 (not DNS name)	
80	If 80, no need to specify it in URL	
for web site		
frhb50457flex	May be IP4 or DNS name	
1433	SQL Server listening port	
db_dpm	DB-user may read and write tables in this DB	
dpm	'-E' means windows-authentication	
****	If user is '-E': password is not needed	
Upgrade	Cancel	
	e [c:\dpm] [frhb50457flex\dpm] ************************************	e c:\dpm Choose folder frhb50457flex\dpm Used in IIS, Task-Scheduler and DB connection (if db-user is '-E') +******** Hardcoded in IIS and Task-Scheduler yyyymmdd For password encrypting in DB maintenance scripts (8 characters) 178.170.115.123 Should be IP4 (not DNS name) 80 If 80, no need to specify it in URL for web site frhb50457flex May be IP4 or DNS name 1433 SQL Server listening port db_dpm DB-user may read and write tables in this DB dpm '-E' means windows-authentication ******** If user is '-E': password is not needed

Installer detects automatically existing DPM, upgrade will be done by clicking "Upgrade"

2.4 Uninstallation

Go to "Control Panel" → Choose "Programs and Features" : • Uninstalling the "DPM 4.0.0" component

3 Using DPM

3.1 Creating a new user

After installing **DPM** (a website), you can connect to the website. To do this, launch a web-browser (Chrome 30, FireFox 52, Opera 73.0.3, IE 11, etc.) and enter the URL of the website.

In the login page, enter the WINDOWS account (Active-Directory or Workgroup) given during installation and its password. Once the connection is made, we come to the home page, here we see all the DPM modules (Inventory, Supervision, Capacity-planning, DB-refresh, SQL-delivery, etc.)

The first task is to create a new user. To do this, you can click on the "User" tab (in "Inventory" module), and then click on the "Add new user" button and enter the information necessary to create the user. Once the user has been created, you can disconnect and reconnect with the new user.

Note: as shown in the figure, you may move the cursor over label "Is group" to get help message about the attribute !

$- \rightarrow c$	i	<u>1</u>		htory/UpdateAp	Q	tò	£≡		•
-				Connected user: fri	administrat	or (role A	ADM)	© Log	gout
Inventory > User									
					Confirm	adding	Ca	ncel	
/1 - Attributes						1			
Windows account*	ad_domain/u1								
Role	ADM				~				
Description	New user with 1) ADM: may 2) DBA : may 3) APPLI_SU	one of 3 roles: manage anything manage affected applicati PPORT : may view affecte	ons (and linked insta d applications (and li	nces, hosts) nked instances, hosts)					
account a group (AD or Wo Is group	rkgroup) ?								
Phone									
E-mail									

3.2 «Inventory» module

•

In this module, we manage 4 types of objects: :

- Application → Functional application (ex: ACCOUNTING, TRADE, etc)
- Instance Database environment (ex: PostgreSQL instance, MySQL, Oracle, etc)
 - Host \rightarrow Device with an OS (ex: a standalone machine, VM, node of a cluster-OS)
- User \rightarrow DPM Users (linked to a WINDOWS account)

The relationships between these objects are as follows :

- An application can use several instances (and an instance can be used by several applications)
- An instance can be hosted on one host or several hosts (in case of cluster-OS)
- A host can host one or more instances

$\leftarrow \rightarrow$ C \square					1 tory/#	instance/ta	ble=tableInstance/	name=&v	ir Q tô	£'≡	
= 🔺							Connected	user: fri	Tex\administrator (ro	le ADM)	© Logout
odule-list	Inventory > In	istance									
- Inventory	Ins	tance		Host			Application		Usi	BT	
- Supervision	Instance	VirtH	ost DBM	IS Host	Em	v Vers	ion Application (os	Status Extra		
Capacity planning			IIA	~	AI	· •			All ¥	Searc	
- Evergreening											
- Licensing	Instance 11	VirtHost 11	DBMS 1	Host(s)	Env 11	Version 11	Application(s)	OS IT	Status 11	Extra	11
Dolivery	pjsxx1	1000pjs101	PGS	1000pjs101	PRD	9.6	ITM CONNECT	Linux	EXPLOITED	pgbackrest	101
Delivery	rwqpoc1	1000rwq101-	MYS	1000rwq101,	TST	5.6	PIM - PRODUCT	Linux	EXPLOITED		
Refresh		102		1000rwq102			INFORMATION MANAGEMENT				
- Park overview	PRW3FR01	vip-pgsql-	PGS	I203rw3003,	TST	10	WMS WITRON	Linux	MONITORED		
- Administration		PRW3FR01- I203rw3003- 004		1203rw3004			AUTOMATISATION				
	MRBZFR1	MRBZFR01- VIP-DB	SQL	w203rex131, w203rex132	TST	2012	EXPLOITATION, SAV BAZAR TECHNIQUE	Windows	EXPLOITED		
	COPNLFR1	u203pn1003	ORA	u203pn1003	PRD	19	PERFLOG	AIX	INVENTORIED		
	1 - 5 of 2351	1 2 3	4 5	6 7 8	9 10	471	Add new instance	PDF	(.pdf) V Expo	t	

3.2.1 Create instance, host, application

You can create a new object (application, instance, host) as follows (in the "Inventory" module) :

- Create an application : in the "Application" tab → click "Add new application"
- Create an instance : in the "Instance" tab → click "Add new instance"
- Create a host : in the "Host" tab → click "Add new host"
- Create a user : in the "User" tab → click "Add new user"

*Note: you may create the objects via batch (see "Migration assistant" in "Administration" page)

3.2.2 Search instance (host, application) and display its detail

To search for one or more instances in home-page, proceed as follows :

- In the "Instance" tab: enter the search criteria ("AND" relationship is applied if several fields are entered) and then click on the "Search"
- Once the instance is found, just click on the name of the instance to see its detail (see the figure below)

\rightarrow C $=$	1			, into	ry/READInst	tanc	Q	20	₹⁄≡	
***				Con	nected user: fr	ex\a	dministr	ator (role A	ADM)	© Lo
nventory > Instance > pjs	por1									
General Activity	reporting Perf	istory	DB (TS) list	F	S list	Maintena	ince jobs		Occured er	rrors
Modify Delete Clear metr	Show dom conf	Put to exploit	Deploy ssh	key Deploy	scrint Sched	ule job 1	Modify o	s-profile	Collect	metric
Modily Doloto Otodi Mod	o onon upril.com	T UL LO GADIOIL	Dopioy sorr	ney Depioy	Script Script		clouily o	oprome	CONCLET	incours.
/9 - Instance attributes (fjreq	uired; []updated by m	etrology)								
/9 - Instance attributes (f)req	uired; ①updated by m	trology)								
/9 - Instance attributes (fireq Instance name* Virtual host*	uired; (Jupdated by m pjsxx1	trology)								
/9 - Instance attributes (fireq Instance name* Virtual host* DBMS type*	uired; []updated by m pjsxx1 1000pjs101 PGS	etrology)								
/9 - Instance attributes (fireq Instance name* Virtual host* DBMS type* Status	uired; []updated by m pjsxx1 1000pjs101 PGS EXPLOITED	etrology)								
/9 - Instance attributes (fireq Instance name* Virtual host* DBMS type* Status DBMS major version	uired; [Jupdated by m pjsxx1 1000pjs101 PGS EXPLOITED 9.6	etrology)								
/9 - Instance attributes (fireq Instance name* Virtual host* DBMS type* Status DBMS major version TCP port	uired; [Jupdated by m pjsxx1 1000pjs101 PGS EXPLOITED 9.6	etrology)								
/9 - Instance attributes (fireq Instance name* Virtual host* DBMS type* Status DBMS major version TCP port Environment type	uired; []updated by m pjsxx1 1000pjs101 PGS EXPLOITED 9.6 PRD	etrology)								
/9 - Instance attributes (fireq Instance name* Virtual host* DBMS type* Status DBMS major version TCP port Environment type Description	uired; []updated by m pjsxx1 1000pjs101 PGS EXPLOITED 9.6 PRD Primaire en clus	etrology)								
/9 - Instance attributes (fireq Instance name* Virtual host* DBMS type* Status DBMS major version TCP port Environment type Description Criticity	uired; []updated by m pjsxx1 1000pjs101 PGS EXPLOITED 9.6 PRD Primaire en clus CRITICAL	ter PCS								

		9
**	Connected user: 1 ministrator (role ADM)	⊕ Lo
/9 - Parameters for MONITORING	(status=MONITORED or BOTH) and "Activity-reporting"	
DB-user (remote connection)	postgres	
Password	RAARAFEERRAAAAAAFEERR	
Stored in a password-safe	N	
Password-safe info		
Advanced mode	Y	
/9 - Parameters for EXPLOITATIO	N (status=EXPLOITED or BOTH): ເງິfor deployment; ຢູ່for job-scheduling; ຫຼືfor "dpm.conf"①	
db-host is UNIX 🗊	Y	
os-user on db-host 🗊	postgres	
Installation directory ()	/exploit/tool/dba_pgs	
Get metrology from db-host ()	Y	
Script-host (if CONTAINER) ()		
INVENTORY-job schedule []	1 day	
PERF-job schedule 2	5 minutes	٦.
ALERT-job schedule @	20 minutes	
DBMS home directory (3)	/usr/pgsql-9.6	
DBMS init file ()	/pgsqldata_js/9.6/pg_data/postgresql.conf	
DB-user (3)	postgres	
Password [3]	*********	
JOBLOG directory 8		٦.
METROLOGY directory @		
BACKUP directory (3)	/stor/pisxx1/nfs/dump	
DUMP directory (3)	/stor/pjsxx1/nfs/dump	
Blackout supervision ()	N	
Is slave (if REPLICATION) (5)	N	
Cluster name (if CLUSTER) @	clust-1000pis101-102	
Active node (if CLUSTER) @		
Is in RAC (if RAC) (3)	N	
Job node (if RAC) (5)		
DB UNIQUE NAME (if RAC) D		-
Other parameters (s	gv_dump_retention="2copy"	1

3.2.3 Modify or delete instance (host, application)

To modify an object, you start by searching for the object and displaying its detail. Then, we click on the "**Modify**" button to make the modification (provided that the user has the privilege on the object). Association relationships between objects (between an application and an instance, between a host and an instance) may be created during object modification.

To delete an object, the process is similar to that of modification. Deleting an object removes all of the object's association relationships with other objects.

3.2.4 Putting an instance in MONITORING

When an instance is added in DPM: it is in **MONITORING** mode by default. For an existing instance that is not in "**MONITORING**" mode, we start by searching for the instance and displaying its details. And then, we click on the "**Modify**" button (in the "**General**" tab):

1. Change following attributes (section "1/6 - Instance attributes" and "2/6 - Parameters for MONITORING"):

DB-user (remote connection)	dbuser1
Password	
Stored in a password-safe	
Password-safe info	
Advanced mode	

Note : you may move the cursor over the label of an attribute to get help message !

- 2. And then you click "**Confirm modifying**" button to save the parameters (normally, 10 minutes later we may view the performances metrics)
- 3. To stop the monitoring for an instance :
 - In "General" tab, you may click "Modify" button :
 - Change following attributes in section "1/6 Instance attributes" : "Status" (set to "INVENTORIED")
 - Then click "Confirm modifying" button to save the change
 - From now, the collection of metrics for the instance is stopped !

3.2.5 Putting an instance in **EXPLOITATION**

Putting an instance in "EXPLOITATION" mode means :

- to deploy exploitation-scripts to its db-hosts (or script-host for DB on Cloud)
- to schedule 3 cyclic-jobs (INVENTORY, PERF, ALERT) to do monitoring locally on db-host
- script-executions generate some metrics (metrology) in form of text-file on db-host (eg: BACKUP script will generate backup-size and backup-status as metrics)
- there is a cyclic-job (DPM GET METRO) on website-host which will retrieve the metrology from the db-hosts

To do that, you first search the instance and then display its detail. In "General" tab, you may click "Modify" button :

1. Change following attributes (section "1/6 - Instance attributes" and "3/6 - Parameters for EXPLOITATION"):

For all cases (standalone/os-cluster/RAC/Container/Cloud)

- "Status" (set to **EXPLOITED** or **BOTH**)
- "db-host is UNIX"
- "os-user on db-host"
- o "Installation directory"
- \circ "Get metro from db-host" (set to Y)
- "DBMS home directory"
- "DBMS major version"
- "DBMS init file"
- o "TCP port" (if different from the default. Default: 5432 for PostgreSQL, 1521 for Oracle, etc)
- o "DB-user"
- o "Password"
- And more (eg: "BACKUP directory", "DUMP directory", "JOBLOG directory", etc)

Note : you may move the cursor over the label of an attribute to get help message !

For OS-cluster

- "Cluster name (if CLUSTER)"
- "Active node (if CLUSTER)": node running the instance. The BACKUP or DUMP scripts may be scheduled on each node of cluster, but only the scripts on this node will actually do BACKUP or DUMP (useful if your enterprise-scheduler cannot schedule job on a VIP)

For ORACLE-RAC

- "Cluster name (if CLUSTER)"
- "Is in RAC (if RAC)"
- "DB_UNIQUE_NAME (if RAC)"
- "Job node (if RAC)" : node dedicated to launching scripts. The BACKUP or DUMP scripts may be scheduled on each node of the RAC, but only the scripts on this dedicated node will actually do BACKUP or DUMP

For Container or Cloud

- "Script-host (if CONTAINER)" (set to **dedicated-host** to deploy and run scripts)
- 2. And then you click "Confirm modifying" button to save changes
- 3. Search the instance and display its detail page once again :
 - In "General" tab, click "Put to exploit" button. This button does the operations below:
 - to deploy SSH key to UNIX db-hosts (or script-host): password is asked for "os-user on db-host"
 - to deploy exploitation-scripts to db-host (ou script-host):
 - this operation updates "dpm.conf" too (section "[GLOBAL]", section "[instance_name]")
 - it's possible to undo the deployment (please see undo_last_upgrade.sh)
 - to schedule 3 scripts (INVETORY, PERF, ALERT) on db-host (**crontab** for UNIX and **Task-Scheduler** for Windows) to do monitoring locally on db-hosts
 - to modify os-profiles (eg: \$HOME/.bash_profile, \$HOME/.bashrc) for UNIX db-hosts
 - to run INVENTORY and PERF script and transfer **metrology** to website DB (this information allows to create/update the instance and the associated host)

Note:

- Each of above operations may be done individually, there is corresponding button for each operation in the webpage (eg: "**Deploy script**" button)
- Above operations may be doned manually (see section «manual deployment for exploitation scripts»)
- 4. To stop the exploitation for an instance :

In "General" tab, you may click "Modify" button :

- Change following attributes (in section "1/6 Instance attributes"): "Status" (set to "INVENTORIED")
- Then click "Confirm modifying" button to save the change
- From now, instance metrology is no longer retrieved to website. But you should remove manually some action done by "**Put to exploit**" on db-host (eg: removing 3 scheduled jobs) !

3.2.6 Instance MONITORING mechanism

1. Schema for MONITORING



2. The 3 cyclic jobs

The metrics for the instance will be collected remotely by **website** via 3 cyclic-jobs in **Task-Scheduler** on website-host (created during DPM installation):

- **DPM_GET_PERF** (hit-ratio, blocked-sessions, transactions, slowest SQL-query-text, etc)
- **DPM_GET_INVENTORY** (instance info, DB volumetry, etc)
- **DPM_GET_ALERT** (alerting about instance status, space usage in DB, etc)

3.2.7 Instance EXPLOITATION mechanism

1. Schema for EXPLOITATION

For each instance with status "EXPLOITED", the following things are done :

- a. The exploitation-scripts are deployed to its db-hosts (or script-host for DB hosted on Cloud)
- b. The scripts are executed on db-host (by crontab/Task-Scheduler, by enterprise-scheduler or by DBA manually), these executions generate metric files (**metrology**)
- c. Usually, 3 scripts for monitoring are scheduled automatically on db-hosts (or script-host) while script-deployment (or manual script-installation). So, if an instance whose status is "EXPLOITED", then it is also "MONITORED" (CPU/RAM/FS info is collected too) !
- d. The metrology-files are retrieved by a job on website-host (job DPM GET METRO)



2. Method for retrieving metrology from db-hosts

website connects regularly (every 10 minutes) to the db-hosts to retrieve the metrology files via scp for UNIX and UNC for WINDOWS. Once retrieved, the contents of metrology files are integrated into DB of the website (webdb).

This process is done by a job in "Task Scheduler" ("DPM_GET_METRO" created during installation) : powershell <dpm_dir>\bin\get_metro.ps1

3. Method to access UNIX db-host

The website uses SSH (ssh and scp) to access UNIX host in order to:

• Deploy DB exploitation-scripts, retrieve metrology files, etc.

There are 2 ways to generating SSH keys (2nd should be done just after installing DPM) :

- You can use existing «<dpm dir>\conf\pub.ssh» and «<dpm dir>\conf\private.ssh»
- Or you can generate new keys by running "<dpm_dir>\ThirdParty\Putty\puttygen.exe" (and choose "SSH-2 RSA" for "Type of key"):
 - Save the generated public key in file "<dpm dir>\conf\pub.ssh"
 - Save the generated private key in file "<dpm_dir>\conf\private.ssh"

4. Method to access WINDOWS db-host

The **website** uses **WinRM** to access remote WINDOWS hosts, and UNC to access remote directory. It is sufficient if the AD account exists on the remote host to get UNC access. To check if you can access drive C of the remote host "remote_host1": dir \\remote host1\c\$

Note : On Windows db-host, you may activate WinRM by: winrm quickconfig

3.2.8 Manual deployment of exploitation-scripts to UNIX

It may happen that you have to install manually the exploitation-scripts on an isolated host (eg: the db-host is in **DMZ** that **website** doesn't have access). In what follows, you take an instance PostgreSQL as example, the other types DBMS can be managed in a similar way !

Description

- There are in all a dozen scripts in **BASH**; each script covers a functional need (**BACKUP, RESTORE, DUMP, IMPORT, STAT, REORG, PERF, ALERT, INVENTORY**, etc.)
- Scripts can work with various PostgreSQL versions (13/12/11/10/9.x) by setting a config-file (dpm.conf)
- Each execution of a script generates a **log file** (timestamped), and the script purges these **log** files with a default retention period of 7 days (configurable)
- Exploitation-scripts can work alone without the implementation of website

Prerequisites for running scripts

Prerequisite	Description
Disk space	1MB for scripts and 50MB for log-files per instance
Command UNIX	bc, openssl (to check if openssl is installed: which openssl)

1. Installation (or upgrade) of exploitation-scripts :

- Transfer scripts (from <dpm_dir>\dba_script\pgs_unix or www.DatabaseParkManager.com) to db-host (eg: to «/tmp/pgs_unix»)
- Install (or upgrade) the scripts in a directory «eg: /home/postgres/dba_pgs»: sh /tmp/pgs_unix/install.sh -d /home/postgres/dba_pgs
- To uninstall an installation, simply delete the directory: rm -r /home/postgres/dba_pgs

2. Configuration:

In «/home/postgres/dba_pgs/dpm.conf», the information is divided into 2 parts:

Part-1 → **General settings** (applicable for all instances on the db-host):

[GLOBAL] gv_rc_err="12" gv_encryption_key="yyyymmdd"

Part-2 \rightarrow **Each instance settings** (eg: parameter gv_joblog_retention is redefined) :

[INST1] gv_dbms_home="/usr/pgsql-9.6" gv_dbms_version="9.6" gv_config_file="/INST1/data/postgresql.conf" gv_backup_dir="/INST1/backup" gv_dump_dir="/INST1/backup" gv_login="postgres" gv_passwd="nq6N3UrfZwWrvXQepOyJ3K4M/zAeJTIpq7dizEmknpQ" gv_joblog_retention="21"

* <u>to encrypt and decrypt password</u> Encrypt → crypo.sh -s "password" Decrypt → crypo.sh -d Y -s "encrypted_password"

3. Examples for script-executions (the syntax for all scripts are similar, please see "README.txt" for more info) :

- to show script syntax and documentation: pgs_perf.sh -h
- to run script en simulation-mode (no real execution): pgs_perf.sh -i INST1 -simu Y
 - to run script :

pgs_perf.sh -i INST1

4. List of exploitation-scripts:

Script	Description
pgs_backup.sh	Physical backup (pg_basebackup) of an PostgreSQL instance
pgs_restore.sh	Restoring from the physical backup obtained via pgs_backup.sh
pgs_dump.sh	Logical backup (pg_dump) : script may do BACKUP with parallel jobs
pgs_import.sh	Import (pg_restore) from a dump done by pgs_dump.sh
pgs_stat.sh	Update statistics for tables in DB
pgs_reorg.sh	Do various VACUUM and REINDEX with parallel jobs
pgs_send2tape.sh	Send backups (physical and dump) to tapes (NetBackup,TSM, hdps, etc.)
pgs_manage.sh	start/stop/clean/status an instance
pgs_reboot.sh	Script to stop or restart all instances when rebooting the host
pgs_perf.sh	Collection of performance indicators and the slowest sql-query's text:
	Hitratio, CPU usage rate, RAM usage rate
	 Number of all sessions, number of active sessions
	• Number of blocked sessions, number of sessions with transaction,
	Slowest sql-query's text (at collection time)
pgs_inventory.sh	Collecting inventory information (FS, tablespace, INSTANCE)
pgs_alert.sh	Supervision for an instance with a return code (configurable):
	$0 \rightarrow OK; 1 \rightarrow WARNING; 2 \rightarrow CRITICAL$
	Monitored info :
	• Instance status, Errors in DBMS logfile, FS
	• Blocked session (blocked for a given duration)
	• Very slow SQL query (duration > 1 day)
	• Replication issue (from the standby instance)
	Note:
	This script can be used by third party monitoring tools (TIVOLI,ZABBIX)

5. Configure **bash** (or **ksh**) to obtain an optimized work environment:

To facilitate the exploitation of DB environments, you can configure the 2 files below:

- For **bash** → **\$HOME**/.**bash_profile** and **\$HOME**/.**bashrc**
- For ksh → \$HOME/.profile and \$HOME/.kshrc

You proceed as follows (under os-account "postgres"):

- Add the line below at the end of the file \$HOME/.bash_profile : export DPM_HOME=/home/postgres/dba_pgs; if [-f \$DPM_HOME/os.profile]; then . \$DPM_HOME/os.profile; fi
- Add the line below at the end of the file **\$HOME/.bashrc**: if [-f /home/postgres/dba pgs/os.bashrc]; then . /home/postgres/dba pgs/os.bashrc; fi
- Disconnect and reconnect from the **PUTTY** console, and you should get the screen below:

```
_____
   1. useful commands:
        si [instance] : to set an instance to work with
        gi
                    : to get current instance info
        ct
                    : to connect to current instance
        li
                    : to list instances on this host
   2. declared instances (in /home/postgres/dba_pgs/dpm.conf):
        INST1
        INST2
                    _____
si \rightarrow to choose an PostgreSQL instance to work :
     postgres@mach1[]:/home/postgres> si
     Available instances:
      1) INST1
      2) INST2
     Your choice (ctrl+c to abort): 1
```

gi → to display the information of the chosen instance (current instance):
 postgres@mach1[INST1]:/home/postgres> gi
 Instance: INST1 (status: UP)
 Port: 5432 on mach1
 ···
ct → to connect to the current instance with psql:
 postgres@mach1[INST1]:/home/postgres> ct
 You are under "psql" command connecting to INST1
 postgres>

6. To uninstall an installation: simply delete the installation-directory

3.2.9 Manual deployment of exploitation-scripts to WINDOWS

Description

- There are about 10 **powershell** scripts running in various WINDOWS versions; each script covers a functional need (BACKUP, RESTORE, DUMP, IMPORT, STAT, PERF, INVENTORY, ALERT, etc.)
- Scripts can work with different DBMS versions by setting a config-file (dpm.conf)
- Each execution of a script generates a log file (timestamped), and the script purges these log files with a default retention period of 7 days (configurable)
- Exploitation-scripts can work alone without the implementation of the website

Prerequisites for running scripts

Prerequisite	Description
Disk space	1MB for scripts and 50MB for log-files per instance
OS	Windows-7 and Windows-Server 2008 or higher
POWERSHELL	POWERSHELL 2.0 (WINDOWS-7, WINDOWS-SERVER 2008 or higher should already be OK)

1. Installation (or upgrade) of exploitation-scripts for PostgreSQL:

- Transfer scripts (from <dpm_dir>\dba_script\pgs_win or <u>www.DatabaseParkManager.com</u>) to DB host (eg: in "c:\temp\pgs_win")
- Install (or upgrade) scripts in "c:\dba_pgs" : powershell c:\temp\pgs_win\install.ps1 -d c:\dba_pgs

Note

If you encounter any problem while running a script in POWERSHELL, it may be a privilege issue. In this case, you can set the right privilege as follows (launch **powershell** under DOS): Set-ExecutionPolicy RemoteSigned

2. Configuration:

In "c:\dba_pgs\dpm.conf", the information is divided into 2 parts :

Part-1 \rightarrow General settings (applicable for all instances on the db-host):

[GLOBAL] gv_rc_err="12" gv_encryption_key="yyyymmdd"

Part-2 → Each instance settings (parameter **gv_joblog_retention** is redefined):

[INST1]

gv dbms home="c:\Program Files\PostgreSQL\9.6"

- gv dbms version="9.6"
- gv backup dir="d:\INST1\backup"
- gv dump dir="d:\INST1\backup"
- gv_login="postgres"
- gv_passwd="nq6N3UrfZwWrvXQepOyJ3K4M/zAeJTIpq7dizEmknpQ"
- gv_joblog_retention="21"

• to encrypt and decrypt password:

Encryp → powershell crypo.ps1 -s "password" Decrypt → powershell crypo.ps1 -d Y -s "encrypted_password"

- 3. Examples for script-executions (for syntax, please see "**README.txt**" for more info) :
 - to show script syntax and documentation:
- powershell pgs_perf.ps1 -h
- to run script en simulation-mode (no real execution):

powershell pgs_perf.ps1 -i INST1 -simu Y powershell pgs perf.ps1 -i INST1

- 4. Inventory of exploitation-scripts: see "List of scripts" for UNIX above
- 5. To uninstall an installation: simply delete the installation-directory

3.2.10 Scheduling exploitation-scripts

to run script :

•

1. For a UNIX host

Once the exploitation-scripts are deployed on the db-host (automatically or manually), they can be scheduled with a dedicated os-account (eg: schedule_osuser) using SUDO mechanism by adding following line to "/etc/sudoers" (os-account for PostgreSQL-installation is postgres here):

schedule_osuser ALL=(postgres) NOPASSWD: /home/postgres/dba_pgs/pgs_backup.sh

Below is an example of exploitation-job scheduling (under "schedule_osuser") :

Job	Command-line	Schedule
BACKUP full	sudo -u postgres …/pgs_backup.sh -i <inst></inst>	Sunday at 10 PM
BACKUP WAL	sudo -u postgres/pgs_backup_wal.sh -i <inst></inst>	Every 60 minutes
(for PITR recovery)	-ArchDir dir	
DUMP full	sudo -u postgres …/pgs_dump.sh -i <inst></inst>	Each day at 11 PM
UPDATE-STAT	sudo -u postgres/pgs_stat.sh -i <inst></inst>	Sunday at 2 AM
SEND2TAPE	sudo -u postgres/pgs_send2tape.sh -i <inst></inst>	Chained to BACKUP
REORG	sudo -u postgres …/pgs_reorg.sh -i <inst></inst>	Saterday at 5 AM

Note

• Schedule for other DBMS (MySQL, Oracle, etc) can be done in a similar way for PostgreSQL

2. For a WINDOWS host

Job	Command-line	Schedule
BACKUP full	powershell\pgs_backup.ps1 -i <inst></inst>	Sunday at 10 PM
BACKUP WAL	powershell\pgs_backup_wal.ps1 -i <inst></inst>	Every 60 minutes
(for PITR recovery)	-ArchDir dir	
DUMP full	powershell\pgs_dump.ps1 -i <inst></inst>	Each day at 11 PM
UPDATE-STAT	powershell\pgs_stat.ps1 -i <inst></inst>	Sunday at 2 AM
SEND2TAPE	powershell\pgs_send2tape.ps1 -i <inst></inst>	Chained to BACKUP

3.2.11 Visualizing collected metrics of an instance

To view the information collected from a DBMS environment (instance), you start by searching for the instance and displaying the detail of the instance.

In the "Instance detail" page, there are several tabs :

● Perf indicator → history of performance indicators and slow SQL queries (via xxx_perf.sh)



- DB List
- FS list
- Maintenance jobs
- Occured errors
- → history of database disk volumes (via pgs_inventory.sh)
- → history of FS disk volumes (via pgs_inventory.sh)
- → list of scheduled exploitation-scripts
- → history of alerts arriving on the instance (via pgs_alert.sh)

3.2.12 Troubleshoot an instance

If there is a performance problem on an instance, you can display DB real-time information to find the root-cause of the issue. To do this, you search the instance and display its detail, and then go to the tab "Activity reporting".

Here, the reports are organized into groups according to the topics:

- 1) **Instance** \rightarrow configuration and parameter of the instance
- 2) Session \rightarrow information in current connections to the instance (running queries, blocked sessions)
- 3) **Performance-tunning** \rightarrow find slow queries and their execution plans in the cache
- 4) Security \rightarrow DB users, profiles, roles, login-triggers
- 5) Storage \rightarrow information about tablespaces, datafiles
- 6) **Table** \rightarrow information about tables (size, constraints, FK, statistics, triggers)
- 7) Index \rightarrow information about indexes (size, statistics)
- 8) **KPI** \rightarrow key performance indicators

Note

In order to view the activity reports, the following tasks must already be done:

- "DB-user (remote conn.)" and its "Password" given in "General" tab (section "2/9 Instance attributes")
- DBMS client is installed on website-host (the sql-client command is in PATH variable)

DPM - Inventory -	Instance - db_ × +				-	0	х
\leftarrow \rightarrow C \models			_ p_prod01&host	Q 6	5⁄≣		
=			Connected user:	05e610 (role	ADM)	© Log	sat
Inventory > Instance > General - Instance General info() Parameters () - Session Running queries () Blocked sessions () All sessions () Locks() Transactions () - Performance tuning Caches () Hit-ratio () - Database All databases() - Replication info () - Database All databases() - Replication info () - Database All databases() - Replication info () - Storage Directories() Tablespaces () - Table All tables () Storage Directories() Storage Directories() Storage Circetories() - Table All tables () Storage Directories() - Table All tables () Storage Directories() - Table All tables () Storage Directories() - Table All tables () Storage Circetories() - Table All tables () - Storage Directories() - Table All tables () - Storage Directories() - Table All indexes () - Storage Directories() - Storage Directories() - Key perfindicator KPI check result() DPM400(Database Park Mercyer), 02012	dbprod01 Activity reporting Duration (second)* 3 6 6 6 1 1 0 (6 zows)	fhistory DB (TS) list FID) 1 6791 SELECT - FROM QRT2_LOCKS WHERE SC 6818 SELECT - FROM QRT2_LOCKS WHERE SC 8358 SELECT - FROM QRT2_LOCKS WHERE SC 6316 SELECT - FROM QRT2_LOCKS WHERE SC 6316 SELECT - FROM QRT2_LOCKS WHERE SC 9764 select contextmap0mappingId as	FS list Maintenance jo MED_NAME = 'jSFNClusteredScheduler' AN MED_NAME = 'JSFNClusteredScheduler' AN MED_NAME = 'JSFNClusteredScheduler' AN MED_NAME = 'JSFNClusteredScheduler' AN MED_NAME = 'JSFNClusteredScheduler' AN mappingIl_8_, contextmap0CONTEXT_ID	D LOCK_NAME = : D LOCK_NAME = : CONTEXT_2_8	coured error 1 FOR UPE 1 FOR UPE 1 FOR UPE 1 FOR UPE 1 FOR UPE 2 context	ATE ATE ATE ATE ATE MAPOKST	

3.3 «Supervision» module

You can view all the alerts and errors of the exploitation-scripts (Go to **home-page** \rightarrow "Alerts"):

boose module	Supervision		Homo		Alorte						
10030 110000			TIUTIC	Supervision >	AICITS						
Alerts	Morning che	ck									
DBMS	Host	Insta	ance								
All 🗸	реу			Sear	ch						
1/2 - Alerts di	uring last ①						1	hour ~			
1/2 - Alerts during last @ 1 hour v											
Instance 👔	VirtHost	DBMS 👔	Env 💵	Host 🕼	Alert message	Time 🗍	DBA	lt			
OPEYFR1	u203pey001	ORA	PRD	u203pey001	[Total of alerts] : 1 #@#[ALERT-	2019-09-10 09:40:05		_Bdd_Bdd			
					WARNING]: Freespace in tablespace TEMP 1% <= 1%						
					(warning threshold)!						
OPEYFR1	u203pey001	ORA	PRD	u203pey001	[Total of alerts] : 1 #@#[ALERT- WARNING]: Freespace in	2019-09-10 09:20:04		_Bdd_Bdd			
					tablespace TEMP 1% <= 1%						
					(warning threshold)!						

You can view the result of the "Morning-check" (Go to home-page \rightarrow "Mrorning check") :

1	ex001/superv	vision/#Morning			C Q	Search			☆ 自	+	î	Languages
Alerts	Morning	check										
Check time DB		N Search										
		Search										
												
							PDF (.pdf)	Expo	rt All		
1/3 - Inaccessi	ble instand	ces ()										
Instance	ţ	VirtHost	11	DBMS	11	Env	11	DBA				11
uwqxx1		1000uwq001		MYS		DEV			Bdd_B	dd		
1 - 1 of 1	PDF	- (.pdf) Y Export	£									
2/3 - PROD ins	tances in t	blackout ©										
2/3 - PROD ins	tances in t	blackout Ø										
2/3 - PROD ins	tances in t	blackout @										
2/3 - PROD ins	tances in t	olackout Ø										
2/3 - PROD ins	tances in t	blackout Ø		ave) @								
2/3 - PROD ins 	tances in t	blackout © hout backup (durir	ng last 8 d	ays) O								
2/3 - PROD ins 3/3 - PROD ins Instance	tances in t tances with	plackout © hout backup (durir	ng last 8 d	ays) Ø	DBMS	11	Env	tt	DBA			11
2/3 - PROD ins 3/3 - PROD ins Instance MySQL57	tances in t tances with	blackout Ø hout backup (durin rtHost 203ptz002	ng last 8 d	ays) Ø	DBMS MYS	11	Env PRD	ti	DBA	Bdd_B	dd	tL

3.4 «Evergreening» module

You can view the instances whose DBMS versions are no longer supported by the publishers (Go to home-page \rightarrow click on "Obsolescence"):

								Connected user.	(group a	dd_bdd, tole kolik)	o rođ
ho	ose module:	Evergreening		Home >	Evergree	aning > Obsoler	Joence				
008	solescence	Life cycle									
-		00110									
4		OPA V	GEODE		Plot		inscance		Rater		
			01001		<u></u>						
_											
1	nstance 11	VirtHost 11	DBMS	Host(s)	Env	Major 🟦 version	Full 11 version	Expired In date	Application(s)		11
C	DEEYFR01	u203eey001	ORA	u203eey001	DEV	11.2	11.2.0.4.0	2015-01-31	GEODE - GESTION	ET TRACABILITE	
0	OFEYFR01	u203fey001	ORA	u203fey001	DEV	11.2	11.2.0.4.0	2015-01-31	GEODE - GESTION O	ET TRACABILITE	
¢	OPEYFR1	u203pey001	ORA	u203pey001	PRD	11.2	11.2.0.4.0	2015-01-31	GEODE - GESTION	ET TRACABILITE	
0	OPEYFR1	u203pey021	ORA	u203pey021	PRD	11.2	11.2.0.4.0	2015-01-31	GEODE - GESTION POLICE	ET TRACABILITE	
0	DREYFR1	u203rey001	ORA	u203rey001	TST	11.2	11.2.0.4.0	2015-01-31	GEODE - GESTION C	ET TRACABILITE	
<	DREYFR1	u203rey021	ORA	u203rey021	TST	11.2	11.2.0.4.0	2015-01-31	GEODE - GESTION	ET TRACABILITE	
									GEODE - GESTION	ET TRACABILITE	

You can view the DBMS lifecycle matrix (Go to **home-page** \rightarrow click "Life cycle") :

		F	G Searci		anguage	
hoose module: Evergr	eening ~	Home > Evergreening	> Evergreening			
Obsolescence L	ife cycle					
		(Your net	Choose a file w lifecycle data)	Browse No file sele	Import	
DBMS	🚛 Major v	version	11	Expired date		11
MYS	8			2050-12-31		
MYS	5.7			2023-10-31		
MYS	5.6			2021-02-05		
MYS	5.5			2018-12-03		
MYS	5.1			2013-12-31		
MYS	5.0			2012-01-09		
ORA	9.2			2007-07-31		
ORA	8.1			2004-12-31		
ORA	12.2			2023-03-31		
ORA	12.1			2018-07-31		
ORA	11.2			2015-01-31		
ORA	11.1			2012-08-31		
	10.0			2010 01 31		

3.5 «Licensing» module

You can view the numbers of CPUs (or CORE) or numbers of connections in the DBMS instances (Go to **home-page** \rightarrow click on "License info"):

→ C' û	0	as https://	w203rex001/Li	F 67 %	⊠ ☆	7 9	Recherche			0	ی د	>
L DPM					Connected	user.	nt januar (group 1	Bd	d_Bdd, rol	e ADM)	01	Logo
hoose module: Lin	ensing		tome > Licensing >	License info								
			inter a containing a	crossing into								
License info Lice	ense policy											
Env DBMS		Application	Host	instanc	8							
Al V Al	~			1		54	arch					
												_
1/2 - Licenses by p	rocessor	To show NB of opu or	core used									
A.1.		uj espicites metanoes										
DBMS	Ja Edit	on		11	NB host	3.1	NB epu	11	NB core		11	
MYS	Com	munity Server				32		141			141	
MYS	MyS	QL Community Ser	ver (GPL)			з		9			9	
ORA	Ente	rprise Edition				47		140			140	
ORA	Stan	dard Edition				7		13			13	
PGS	Stan	dard				10		- 4			4	
PGS	Stan	dard Edition				75		277			277	
SQL	Expr	ess Edition				1		4			4	
SQL	Stan	dard Edition (64-bit	t)			7		13			29	
1 - 8 of 8 2/2 - Licenses by u	PDF (.;	df) V Eyen										
DBMS	11	Edition				11	NB connection				11	
MYS		Community Serve	er								170	
MYS		MySQL Commun	nity Server (GPL)								122	
ORA		Enterprise Edition	n								6980	
		Standard Edition									973	
ORA												
PGS		Standard									63	

You can view the license policies (Go to **home-page** \rightarrow click "License policy") :

			• •
DPM		Connected user: Connected user	© Lo
oose module: Licensing	Hom	e > Licensing > License policy	
License Info			
1/2 - Licenses by processor			
DBMS	15	Policy	11
MeeseBB		Ne	
Mysgl		No (only support is chargeable)	
Oracle		Yes (by Core)	
PostgreSQL		No	
SQL Server		Yes (by CPU)	
Sybase		Yes (by CPU or by Host)	
2/2 - Licenses by user connect	ion Jà	Policy	11
MongoDB		No	
		No (only support is chargeable)	
Mysql		Yes (by named-user)	
Mysql Oracle		No	
Mysql Oracle PostgreSQL			
Mysql Oracle PostgreSQL SQL Server		Yes (by CAL)	

3.6 **«Refresh»** module

You may need to refresh the data of a **database** (USER in oracle) of an environment (eg: DEV) by another environment (eg: PROD). **DB-Refresh** module may accomplish the task:

- Create a **refresh** for a DB in an instance with backup on db-host or from another host (eg: **original instance**)
- Modify an existing refresh which has not yet been executed
- Delete a refresh
- Note: this module may be disabled (see "Park setting" in "Administration" page) !

→ C' D	0 6 25	https://w20	3rex001/D	BRefresh 🗉	80 % ***	S ☆ Q Reci	hercher 👱 🕅	. 🖽 🛎 😈
📥 ОРМ					Connected	user: The light of the light o	p Bdd_Bdd, role AD	MM) ∯ Logo
Choose modul	e: Refresh	~	Home > F	Refresh				
Refresh In	stance DB n	ame Created	by	Status				
				AI	 s 	earch		
Refresh 11	Instance 11	VirtHost	DBMS IT	DB	Created by	Schedule time	Execution end	Status 11
RF00000072	OEEYFR01	u203eey001	ORA	SEEYFR4		IMMEDIATE	2020-11-27 13:11:32	EXEC_OK
RF00000071	OEEYFR01	u203eey001	ORA	SUEYFR1		IMMEDIATE	2020-11-26 18:10:54	EXEC_OK
RF00000070	ORXQFR1	u203rxq001	ORA	AUTOMIC_UP1		IMMEDIATE	2020-11-26 09:50:42	EXEC_OK
RF00000069	OETTFR01	u203ett021	ORA	PSS		IMMEDIATE	2020-11-24 16:54:31	EXEC_FAILED
RF0000068	ORXQFR1	u203rxq001	ORA	AUTOMIC_UP1		IMMEDIATE	2020-11-16 12:00:34	EXEC_OK
RF0000067	PGS5432	1203662001	PGS	db1		IMMEDIATE	2020-10-22 11:17:50	EXEC_FAILED
RF0000066	PGS5432	1203bb2001	PGS	ppjsxx01		IMMEDIATE	2020-10-22 10:06:49	EXEC_FAILED
RF00000085	OREYFR1	u203rey021	ORA	SREYFR1		IMMEDIATE	2020-10-12 11:42:24	EXEC_OK
RF0000063	OPGLFR2	u203psy042	ORA	PULSE	teres ()	IMMEDIATE	2020-10-07 12:46:00	EXEC_OK
RF0000062	OPGLFR2	u203psy042	ORA	PRODAVAL	Statistics	2020-10-07 12:35	2020-10-07 12:41:35	EXEC_OK

3.7 **«Delivery»** module

You can manage the deliveries of the SQL scripts (usually corresponding to DB-CHANGE) in this module:

- Create a **delivery** for an instace with a list of SQL scripts (accessible from your desktop)
- Modify an existing **delivery** which has not yet been executed
- Delete a delivery
- Note: this module may be disabled (see "Park setting" in "Administration" page) !

PM	Connected	l user: e\yl	huang (group	_Bdd_Bdd, r	ole ADM)			ტ Logout
hoose module	e: Delivery	~	Home > De	elivery				
elivery Inst	ance Modifie	d by	Status All	∽ Sear	ch			
↓1 Delivery	Instance	↓1 VirtHost	DBMS	Modified II	Schedule 11 time	Execution 11 start	Duration 11 (second)	L1 Status
DL00000239	OPTTFR1	u203ptt021	ORA	Bdd_Bdd		2019-08-26 12:53:04	6	EXEC_OK
DL00000238	OPTTFR1	u203ptt021	ORA	Bdd_Bdd		2019-08-06 15:16:03	2	EXEC_OK
DL00000237	OPTTFR1	u203ptt021	ORA	\yhuang		2019-07-30 15:42:04	8	EXEC_OK

3.8 «Administration» module

In this module:

- 1. You can view website activity logs (go to "Administration" \rightarrow click "Activity log" tab) :
 - All user LogIn/LogOut (succeeded or failed)
 - All changes for instance, hosts, application, users

			ininit = iogs/tac	ne-tablecogre	Djecthame-oty	pe o						-	
📥 DPM					Connected u	ser. Ferm	liptica in	group 📾	Bdd_B	dd, role AD	M)	₫ La	090
Choose module: Administr	ation	- H	ome > Admini	stration > Activ	vity log								
Activity log Park se	tting	Mig. assistan	t Passwor	d coding									
Object name	Obje	ct type	Operator		Period								
	AI				3-days	~	Sea	rch					
	0.00					1000	-						
Object name	11	Object type 👔	Operation				11	Operated	time 17	Operato	or	11	
AFARIA (w203mp001): 5	SQL	INST	COLLECT_ME	TRIC				2020-12-1	8 17:12:17	territor pl	-		
AFARIA (w203mp001): 5	SQL	INST	COLLECT_ME	TRIC				2020-12-1	8 17:09:52	and the second s	-		
AFARIA (w203mp001): 5	SQL	INST	COLLECT_ME	TRIC				2020-12-1	8 17:06:00	1 milety			
AFARIA (w203rmp001): 5	SQL	INST	COLLECT_ME	TRIC				2020-12-1	8 17:03:19	tenente (pl	_		
AFARIA (w203rmp001): 5	SQL	INST	DEPLOY_SCR	PT				2020-12-1	8 17:02:59	determine (#	Contraction of		
DPM_GET_METRO (job)	JobError	D.1dpm/log/get	_metro_202012	18_165300_pid109	04.joblog	view	2020-12-1	8 16:54:45	distances (er\s	-	
AFARIA (w203mp001): 5	SQL	INST	COLLECT_ME	TRIC				2020-12-1	8 16:38:45	trunie/pl	-		
AFARIA (w203rmp001): 5	SQL	INST	SCHEDULE_JC	B				2020-12-1	8 16:30:41	famolike/(#			
AFARIA (w203mp001): 5	SQL	INST	COLLECT_ME	TRIC				2020-12-1	8 16 28 31	(mentile)(d	-		
	105	INST	DEPLOY SCR	PT				2020-12-1	8 16:27:17		The Party of the P		
AFARIA (w203rmp001): 5	State 1	TO THE L											

- 2. You can do some settings (eg: number of lines displayed in the pages) : Go to Administration → Click «Park setting» → ...
- 3. You can be assisted to migrate an existing park to DPM (Administration \rightarrow click «Mig. assistant»):
 - The idea is to import the applications, instances and hosts from text-files
 - Each text file contains a type of object (eg: APPLICATION)
 In the header of script <dpm dir>\bin\import obj.ps1, you may view the format for the files
 - You can proceed to upload a file by clicking «Import object» button
- 4. You can encyt or decrypt password (used in «dpm.conf» for exploitation-scripts) graphically

3.9 Set up HTTPS for the website

It is possible to change website setting via "IIS Manager" tool (%windir%\system32\inetsrv\InetMgr.exe):

- View the website settings (site directory, IP, port, application pool, etc.)
- Start/stop website,start/stop scheduled-tasks etc.

You can set up **HTTPS** protocol for **website**:

- 1. Create a self-signed certificate named "DPM_CERT" (or use the one provided by WINDOWS): Main page (home page) → Server certificates → Create a self-signed certificate
- 2. Add a new link to the certificate by going to the "DPM" site
 - Link $\dots \rightarrow$ Add $\dots \rightarrow$ fill in the elements below and add the link:
 - Choose «https» for «Type»
 - Enter the **IP** (same as in http-link)
 - Choose the **port** (different from the http-link. If **443**, then no need to specify it in URL)
 - Choose the «SSL certificat» (you may use the one supplied by Windows)
- 3. Update the port in file **<installation_dir>\conf\dpm.conf** (\$env:website_port)

You can now access the website via https with URL below:

https://<host>:<http_port> (eg: <u>https://w203rex001</u>:443)

3.10 DPM manager

To facilitate the management of various DPM components, there is a graphic utility :

- On the desktop, there is the icon "DPM manager"
- This utility is also available in WINDOWS "Start" menu

. Component info		
WEBSITE (name in IIS is "DPM"):	Started	IIS manager
SCHEDULED-JOB ("DPM_GET*" in task-schedul	er): Started	Task scheduler
DB (IP: VX11110DMSQL001 - Port: 1433 - Db: db_d	pm): Up	SQL Server client
Start website Stop website Start jobs	Stop jobs Refresh	status
Start website Stop website Start jobs Update password ("RE" ITE\IF RTWS New password :	Stop jobs Refresh	status IS and task-scheduler) eduler

In this utility, you can do the actions below:

- Stop/start/status of website and 4 scheduled-job
- Launch tool "IIS manager" to view/modify the parameters of website "DPM" in IIS
- Launch "Task-Scheduler" tool to manage 4 scheduled jobs ("DPM GET *")
- Launch "SQL Server Management Studio" tool to connect to website DB
- Spread password change of the **Windows-account** of **website**. In fact, website ("DPM" ApplicationPool in IIS) is started with a Windows-account (AD or Workgroup), if the password of this account changes, it should be changed in the **website** too (since this password is hardcoded in **IIS** website and scheduled-jobs). To do this, you can proceed as follows:
 - Enter new password in "New password" and then click «Update in IIS and task-scheduler» button

4 FAQ

- 1. How to check if IIS is activated ? If the command "%windir%\system32\inetsrv\InetMgr.exe" exists, then IIS is activated.
- 2. Where are the log files for IIS ?
 - Run "IIS Manager" ("%windir%\system32\inetsrv\InetMgr.exe"):
 - In Main-page → Double-click "Logging":
 - In the dialog box, search in "Directory" (default: "%SystemDrive%\inetpub\logs\LogFiles")
- 3. What are the powershell scripts used by website ?

The scripts used by **DPM** website are in **<dpm_dir>\bin**:

get_metrol.ps1 \rightarrow retrieve the metrology and integrate it into the website DB

These scripts can be called directly by website or they can also be used manually by a DBA

4. Where are the DBMS exploitation-scripts stored for deployment ?

With website, you can easily deploy DB exploitation-scripts to db-hosts.

These exploitation-scripts are stored in directory "<dpm dir>\dba script" :

- **pgs unix** \rightarrow exploitation-scripts for PostgreSQL under UNIX (Linux)
- **pgs win** \rightarrow exploitation-scripts for PostgreSQL under WINDOWS
- ...
- 5. Where are the log files for website or instance manipulation ?

In case of issues of website or various instance manipulation, there may be some log files generated.

The directory "**<dpm_dir>\log**" contains all log files of DPM :

- ERRORLOG.txt \rightarrow error log files for website
- get_metro_20171010_155107.joblog → log file for script get_metro.ps1
- ..

6. How to connect to a host in DMZ?

If a DB host is in DMZ, so accessible under another IP, you can map the host to the IP in the file

"c:\windows\system32\drivers\etc\hosts" with the format below:

<IP accessible> <hostname>

7. How to supervise the website ?

The script "**dpm_dirbinsupervise_website.ps1**" allows to check website status in IIS (if DOWN, send a mail). You may schedule it in "**Task-Scheduler**" as follows (option "**Run with highest privileges**" should be checked for the job):

powershell <dpm_dir>\bin\supervise_website.ps1 <mail_address> <mail_server>

8. How to backup DPM ?

In order to do a disaster recovery for DPM, 3 elements should be backed up:

- 1. Configuration file
- → "<dpm_dir>\conf\dpm.conf"
- 2. SSH keys
 3. website DB
- \rightarrow "<dpm_dir>\conf\pub.ssh" and "<dpm_dir>\conf\private.ssh"
- → "SQL Server Management Studio" may backup a database