



IBM i 7.3 – PTFs management

HOW TO MANAGE AND (PARTIALLY) AUTOMATE PTFs DOWNLOAD AND APPLY
PROCESS STARTING WITH IBM I V7.3

Before IBM i v7.3

- ▶ We were used to the good old and well proven manual method to maintain the PTFs level on our systems (a method most commonly known by the IBM i experts community as **P.A.U.L.**) ...



Now starting with IBM i 7.3

You can start to use a new method that I kindly called :

- ▶ **P.A.U.L. 2.0**

- ▶ **PTFs**

- ▶ **A**utomated

- ▶ **U**ppdate &

- ▶ **L**oad

Objectives

- ▶ Manage PTF Groups & cumulative easily using **SQL**
 - ▶ What is installed?
 - ▶ Is the system current?
 - ▶ What is the level installed vs available from IBM?
- ▶ Automatically download, install and maintain PTFs
 - ▶ **CHGSRVA** command updated
 - ▶ **PWRDWN SYS** command updated
 - ▶ Cleaning the system regularly



7.3



PTF status using SQL (1/3)


SELECT *

FROM

SYSTOOLS.GROUP_PTF_CURRENCY;



- ▶ This query will return **the list of GROUP PTFs installed on the system and their status**, level installed, available, etc...
- ▶ See example below :



PTF_GROUP_CURRENCY	PTF_GROUP_ID	PTF_GROUP_TITLE	PTF_GROUP_LEVEL_INSTALLED	PTF_GROUP_LEVEL_AVAILABLE	PTF_GROUP_LAST_UPDATED_BY_IBM	PTF_GROUP_RELEASE	PTF_GROUP_STATUS_ON_SYSTEM
UPDATE AVAILABLE	SF99225	SF99225 730 IBM Open Source Solutions for i	2	3	01/19/2017	R730	INSTALLED
-	SF99252	SF99252 730 Content Manager OnDemand for i - 5770-RD1 7.3	4	4	01/09/2017	R730	RELATED GROUP
INSTALLED LEVEL IS CURRENT	SF99333	SF99333 730 DB2 Web Query for i V2.2.0	2	2	01/10/2017	R730	INSTALLED
INSTALLED LEVEL IS CURRENT	SF99581	SF99581 730 WebSphere App Server V8.5	3	3	12/22/2016	R730	INSTALLED
INSTALLED LEVEL IS CURRENT	SF99703	SF99703 730 DB2 for IBM i	3	3	11/10/2016	R730	INSTALLED
INSTALLED LEVEL IS CURRENT	SF99722	SF99722 730 IBM HTTP Server for i	5	5	12/21/2016	R730	INSTALLED
INSTALLED LEVEL IS CURRENT	SF99723	SF99723 730 Performance Tools	2	2	05/17/2016	R730	INSTALLED
INSTALLED LEVEL IS CURRENT	SF99724	SF99724 730 Backup Recovery Solutions	7	7	12/22/2016	R730	INSTALLED
INSTALLED LEVEL IS CURRENT	SF99725	SF99725 730 Java	3	3	09/05/2016	R730	INSTALLED
INSTALLED LEVEL IS CURRENT	SF99727	SF99727 730 Technology Refresh	1	1	11/10/2016	R730	INSTALLED
INSTALLED LEVEL IS CURRENT	SF99728	SF99728 730 Group Security	11	11	12/13/2016	R730	INSTALLED
INSTALLED LEVEL IS CURRENT	SF99729	SF99729 730 Group Hiper	21	21	01/10/2017	R730	INSTALLED
INSTALLED LEVEL IS CURRENT	SF99730	Current Cumulative PTF Media Documentation	16299	16299	11/11/2016	R730	INSTALLED
INSTALLED LEVEL IS CURRENT	SF99731	SF99731 730 All PTF Groups except Cumulative PTF Package	8	8	01/18/2017	R730	INSTALLED
-	SF99859	SF99859 730 IBM MQ for IBM i - v7.1.0/v8.0.0	2	2	01/19/2017	R730	RELATED GROUP
INSTALLED LEVEL IS CURRENT	SF99875	SF99875 730 Hardware and Related PTFs	6	6	01/18/2017	R730	INSTALLED
INSTALLED LEVEL IS CURRENT	SF99876	SF99876 730 High Availability for IBM i	3	3	11/15/2016	R730	INSTALLED

Source: <http://www.ibmssystemsmag.com/Blogs/i-Can/March-2015/Installed-PTF-Currency/>

PTF status using SQL (2/3)

SELECT PTF_GROUP_ID, PTF_GROUP_TITLE,
PTF_GROUP_LEVEL_INSTALLED,
PTF_GROUP_LEVEL_AVAILABLE,
PTF_GROUP_LAST_UPDATED_BY_IBM
FROM SYSTOOLS.GROUP_PTF_CURRENCY
WHERE PTF_GROUP_CURRENCY =
'UPDATE AVAILABLE'
ORDER BY 1;



- ▶ This query will return **the list of GROUP PTFs for which a new version is available for download** from IBM website
- ▶ See example below :
 - ▶ In this case there is a newer version of SF99225, level 3 is available and level 2 is installed



PTF_GROUP_ID	PTF_GROUP_TITLE	PTF_GROUP_LEVEL_INSTALLED	PTF_GROUP_LEVEL_AVAILABLE	PTF_GROUP_LAST_UPDATED_BY_IBM
SF99225	SF99225 730 IBM Open Source Solutions for i	2	3	01/19/2017

PTF status using SQL (3/3)

SELECT *

FROM SYSTOOLS.GROUP_PTF_CURRENCY

WHERE PTF_GROUP_STATUS_ON_SYSTEM
= 'NOT INSTALLED'

ORDER BY 6;

► This query will return **the list of GROUP PTFs installed for which an new update was downloaded, available on the systems and ready to be installed during the next IPL**

► See example below :

► In this case, PTF SF99225 was downloaded and is now available on the system as a SAVF but not yet installed



PTF_GROUP_CURRENCY	PTF_GROUP_ID	PTF_GROUP_TITLE	PTF_GROUP_LEVEL_INSTALLED	PTF_GROUP_LEVEL_AVAILABLE	PTF_GROUP_LAST_UPDATED_BY_IBM	PTF_GROUP_RELEASE	PTF_GROUP_STATUS_ON_SYSTEM
-	SF99225	SF99225 730 IBM Open Source Solutions for i	3	3	01/19/2017	R730	NOT INSTALLED

Automation



- ▶ To automate the download of PTF Groups and Cumulative Packages :

- ▶ **CHGSRVA ORDPTFAUTO(*YES) ORDPTFGRP(*CUMPKG *ALLGRP)**



- ▶ The above command will create a new scheduled job : **QORDPTFGRP** that you can adapt to your preferences :

			-----Schedule-----				
Opt	Job	Status	Date	Time	Frequency	Recovery Action	Next Submit Date
—	DLTPERMPTF	SCD	*MONTHEND	23:00:00	*MONTHLY	*SBMRLS	31/01/17
—	QORDPTFGRP	SCD	*THU	21:00:00	*WEEKLY	*SBMRLS	26/01/17



- ▶ To apply the downloaded PTFs (SAVF) you can simply do :

- ▶ **PWRDWN SYS OPTION(*IMMED) RESTART(*YES) ENDSBSOPT(*NOJOBLOG) INSPTFDEV(*SERVICE)**



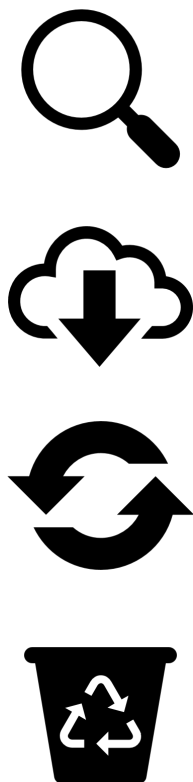
- ▶ You can also manually add another scheduled job **DLTPERMPTF** that will run regularly to clean the system from permanently applied PTFs SAVF



- ▶ Here is the command to schedule **DLTPTF PTF(*PRMAPY)**

Source: <http://www.ibmssystemsmag.com/Blogs/i-Can/December-2016/Automatic-Download-of-Group-PTFs-with-IBM-i-7-3/>

Example



```
Work with Job Schedule Entries                                IBMIV7R3
                                                            27/01/17 07:52:21 CET

Type options, press Enter.
 2=Change  3=Hold  4=Remove  5=Display details  6=Release
 8=Work with last submission 10=Submit immediately

-----Schedule-----
Opt  Job          Status  Date      Time      Frequency  Recovery  Next
-----
  _  QEZDKWKMTHTH  SCD      *FRI      12:00:00  *WEEKLY    *NOSBM    27/01/17
  _  PTFSTS        SCD      *ALL      06:00:00  *WEEKLY    *SBMRLS   28/01/17
  _  DLTPERMPF     SCD      *MONTHEND 23:00:00  *MONTHLY   *SBMRLS   31/01/17
  _  DELMYSPLF     SCD      *WED      05:00:00  *WEEKLY    *SBMRLS   01/02/17
  _  QORDPTFGRP    SCD      *THU      18:00:00  *WEEKLY    *SBMRLS   02/02/17
  _  IPLPTF        SCD      *FRI      06:10:00  *WEEKLY    *SBMRLS   03/02/17


Parameters or command
==>
F3=Exit  F4=Prompt  F5=Refresh  F6=Add  F9=Retrieve
F11=Display job queue data  F12=Cancel  F17=Top  F18=Bottom

Bottom
```

Time T1 - 2 avail. updates identified

26/01/17 07:30:00

PAGE 1



TITLE	STATUS	CURRENCY	INSTALLED_LEVEL	AVAILABLE_LEVEL	LAST_UPDATED
SF99252 730 Content Manager OnDemand for i - 5770-RD1 7.3	RELATED GROUP	-	4	4	01/09/2017
SF99859 730 IBM MQ for IBM i - V7.1.0/v8.0.0	RELATED GROUP	-	2	2	01/19/2017
SF99722 730 IBM HTTP Server for i	INSTALLED	UPDATE AVAILABLE	5	6	01/23/2017
SF99729 730 Group Hiper	INSTALLED	UPDATE AVAILABLE	21	22	01/24/2017
Current Cumulative PTF Media Documentation	INSTALLED	INSTALLED LEVEL IS CURRENT	16,299	16,299	11/11/2016
SF99225 730 IBM Open Source Solutions for i	INSTALLED	INSTALLED LEVEL IS CURRENT	3	3	01/19/2017
SF99333 730 DB2 Web Query for i V2.2.0	INSTALLED	INSTALLED LEVEL IS CURRENT	2	2	01/10/2017
SF99581 730 WebSphere App Server V8.5	INSTALLED	INSTALLED LEVEL IS CURRENT	3	3	12/22/2016
SF99703 730 DB2 for IBM i	INSTALLED	INSTALLED LEVEL IS CURRENT	3	3	11/10/2016
SF99723 730 Performance Tools	INSTALLED	INSTALLED LEVEL IS CURRENT	2	2	05/17/2016
SF99724 730 Backup Recovery Solutions	INSTALLED	INSTALLED LEVEL IS CURRENT	7	7	12/22/2016
SF99725 730 Java	INSTALLED	INSTALLED LEVEL IS CURRENT	3	3	09/05/2016
SF99727 730 Technology Refresh	INSTALLED	INSTALLED LEVEL IS CURRENT	1	1	11/10/2016
SF99728 730 Group Security	INSTALLED	INSTALLED LEVEL IS CURRENT	11	11	12/13/2016
SF99731 730 All PTF Groups except Cumulative PTF Package	INSTALLED	INSTALLED LEVEL IS CURRENT	8	8	01/18/2017
SF99875 730 Hardware and Related PTFs	INSTALLED	INSTALLED LEVEL IS CURRENT	6	6	01/18/2017
SF99876 730 High Availability for IBM i	INSTALLED	INSTALLED LEVEL IS CURRENT	3	3	11/15/2016

*** END OF REPORT ***

Time T2 – After scheduled download



27/01/17 06:00:00

PAGE 1

TITLE	STATUS	CURRENCY	INSTALLED_LEVEL	AVAILABLE_LEVEL	LAST_UPDATED
SF99252 730 Content Manager OnDemand for i - 5770-RD1 7.3	RELATED GROUP	-	4	4	01/09/2017
SF99722 730 IBM HTTP Server for i	NOT INSTALLED	-	6	6	01/23/2017
SF99729 730 Group Hiper	NOT INSTALLED	-	22	22	01/24/2017
SF99859 730 IBM MQ for IBM i - v7.1.0/v8.0.0	RELATED GROUP	-	2	2	01/19/2017
Current Cumulative PTF Media Documentation	INSTALLED	INSTALLED LEVEL IS CURRENT	16,299	16,299	11/11/2016
SF99225 730 IBM Open Source Solutions for i	INSTALLED	INSTALLED LEVEL IS CURRENT	3	3	01/19/2017
SF99333 730 DB2 Web Query for i V2.2.0	INSTALLED	INSTALLED LEVEL IS CURRENT	2	2	01/10/2017
SF99581 730 WebSphere App Server V8.5	INSTALLED	INSTALLED LEVEL IS CURRENT	3	3	12/22/2016
SF99703 730 DB2 for IBM i	INSTALLED	INSTALLED LEVEL IS CURRENT	3	3	11/10/2016
SF99723 730 Performance Tools	INSTALLED	INSTALLED LEVEL IS CURRENT	2	2	05/17/2016
SF99724 730 Backup Recovery Solutions	INSTALLED	INSTALLED LEVEL IS CURRENT	7	7	12/22/2016
SF99725 730 Java	INSTALLED	INSTALLED LEVEL IS CURRENT	3	3	09/05/2016
SF99727 730 Technology Refresh	INSTALLED	INSTALLED LEVEL IS CURRENT	1	1	11/10/2016
SF99728 730 Group Security	INSTALLED	INSTALLED LEVEL IS CURRENT	11	11	12/13/2016
SF99731 730 All PTF Groups except Cumulative PTF Package	INSTALLED	INSTALLED LEVEL IS CURRENT	8	8	01/18/2017
SF99875 730 Hardware and Related PTFs	INSTALLED	INSTALLED LEVEL IS CURRENT	6	6	01/18/2017
SF99876 730 High Availability for IBM i	INSTALLED	INSTALLED LEVEL IS CURRENT	3	3	11/15/2016

*** END OF REPORT ***

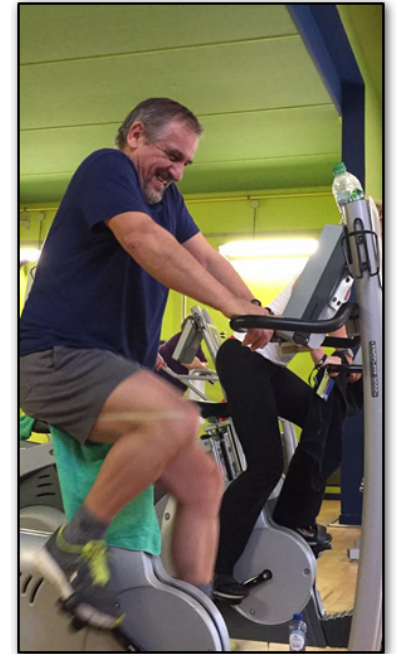
Time T3 – Status after scheduled IPL

27/01/17 06:34:17

PAGE 1

TITLE	STATUS	CURRENCY	INSTALLED_LEVEL	AVAILABLE_LEVEL	LAST_UPDATED
SF99252 730 Content Manager OnDemand for i - 5770-RD1 7.3	RELATED GROUP	-	4	4	01/09/2017
SF99859 730 IBM MQ for IBM i - v7.1.0/v8.0.0	RELATED GROUP	-	2	2	01/19/2017
Current Cumulative PTF Media Documentation	INSTALLED	INSTALLED LEVEL IS CURRENT	16,299	16,299	11/11/2016
SF99225 730 IBM Open Source Solutions for i	INSTALLED	INSTALLED LEVEL IS CURRENT	3	3	01/19/2017
SF99333 730 DB2 Web Query for i V2.2.0	INSTALLED	INSTALLED LEVEL IS CURRENT	2	2	01/10/2017
SF99581 730 WebSphere App Server V8.5	INSTALLED	INSTALLED LEVEL IS CURRENT	3	3	12/22/2016
SF99703 730 DB2 for IBM i	INSTALLED	INSTALLED LEVEL IS CURRENT	3	3	11/10/2016
SF99722 730 IBM HTTP Server for i	INSTALLED	INSTALLED LEVEL IS CURRENT	6	6	01/23/2017
SF99723 730 Performance Tools	INSTALLED	INSTALLED LEVEL IS CURRENT	2	2	05/17/2016
SF99724 730 Backup Recovery Solutions	INSTALLED	INSTALLED LEVEL IS CURRENT	7	7	12/22/2016
SF99725 730 Java	INSTALLED	INSTALLED LEVEL IS CURRENT	3	3	09/05/2016
SF99727 730 Technology Refresh	INSTALLED	INSTALLED LEVEL IS CURRENT	1	1	11/10/2016
SF99728 730 Group Security	INSTALLED	INSTALLED LEVEL IS CURRENT	11	11	12/13/2016
SF99729 730 Group Hiper	INSTALLED	INSTALLED LEVEL IS CURRENT	22	22	01/24/2017
SF99731 730 All PTF Groups except Cumulative PTF Package	INSTALLED	INSTALLED LEVEL IS CURRENT	8	8	01/18/2017
SF99875 730 Hardware and Related PTFs	INSTALLED	INSTALLED LEVEL IS CURRENT	6	6	01/18/2017
SF99876 730 High Availability for IBM i	INSTALLED	INSTALLED LEVEL IS CURRENT	3	3	11/15/2016

*** END OF REPORT ***



Search History Log using SQL

```
SELECT MESSAGE_ID, MESSAGE_TIMESTAMP,  
MESSAGE_TEXT  
  
FROM TABLE(QSYS2.HISTORY_LOG_INFO(CURRENT  
TIMESTAMP - 5 DAY)) A  
  
WHERE MESSAGE_TEXT LIKE 'PTF installation%' OR  
MESSAGE_TEXT LIKE 'Loading of PTF%' OR  
  
MESSAGE_TEXT LIKE 'PTFs installed%' OR  
MESSAGE_TEXT LIKE '%PTF group%' OR  
MESSAGE_TEXT  
  
LIKE 'PWRDWN SYS%' OR MESSAGE_TEXT LIKE  
'%IPL %'  
  
ORDER BY message_timestamp DESC;
```

MESSAGE_ID	MESSAGE_TIMESTAMP	MESSAGE_TEXT
CPF0934	2017-01-27 06:19:07.100288	IPL completed.
CPF3112	2017-01-27 06:18:59.593920	Data base IPL recovery complete.
CPC8351	2017-01-27 06:18:46.940288	IPL recovery of commitment definition *DFTACTGRP for job 000000/QSYS/SCPF completed.
CPI8356	2017-01-27 06:18:46.524544	IPL recovery of commitment definition *DFTACTGRP for job 000000/QSYS/SCPF started.
CPF0965	2017-01-27 06:18:30.688000	IPL options used.
CPI0C04	2017-01-27 06:17:59.534464	IPL from machine area ##MACH#B.
CPF0903	2017-01-27 06:17:49.040768	Unattended IPL in progress.
CPF0901	2017-01-27 06:11:11.643904	PWRDWN SYS command issued by user MICHELF and is being processed.
CPI0995	2017-01-27 06:11:11.593664	PWRDWN SYS command issued with parameters specified.
CPC3610	2017-01-27 06:11:11.078080	PTFs installed successfully.
CPF0930	2017-01-27 06:11:11.069888	PWRDWN SYS command in progress.
CPC3D87	2017-01-27 06:10:47.506304	Loading of PTFs completed successfully.
CPI3D94	2017-01-27 06:10:00.809728	Loading of PTFs started.
CPI362F	2017-01-27 06:10:00.188736	PTF installation process started.
CPI35E9	2017-01-26 18:04:51.316096	PTF group SF99722 level 4 deleted.
CPI35E8	2017-01-26 18:04:51.215168	PTF group SF99722 level 6 created.
CPI35E9	2017-01-26 18:01:27.596288	PTF group SF99729 level 20 deleted.
CPI35E8	2017-01-26 18:01:27.486080	PTF group SF99729 level 22 created.

In Summary



- ▶ Easy to maintain your system up to date – no more excuses!
- ▶ The power of DB2 for i SQL services
- ▶ **I would NOT recommend to automate PTFs apply on a Production system!**
 - ▶ Review cover letters and documentation first!
 - ▶ You can automate your PTF level currency check
 - ▶ You can even automate the Cumulative PTF package and PTF Groups download
 - ▶ But please don't automate the PTF apply on a Production system, you want to keep some manual control here
 - ▶ But at least if you urgently need a certain PTF level, there is a high chance it's already on your system ready to be applied...