IBM® Power® Draw Installation and Usage Guide

Overview

IBM® Power® Draw is a chargeable product created by the Technology Expert Labs team. IBM® Power® Draw creates interactive diagrams that detail the hardware and configuration of a Power virtualized environment based on capture files collected by the capture module. IBM® Power® Draw is distributed as a Multiplatform Java JAR file that can be executed on any platform that has a version 1.8 or higher Java Runtime Environment, including IBM i, AIX, Linux, and Windows. On IBM i, an install process provides commands to facilitate running the process in that environment. A license key is required for each Power system serial number that you wish to draw.

The IBM® Power® Draw product includes a separate capture module, which is distributed in a separate install jar file. Please see the PowerCapture Installation and Usage Guide for instructions.

IBM i Installation

To install or update IBM® Power® Draw on IBM i:
- Transfer the distribution jar file (typically named pwrdraw.jar) to the IBM i IFS using the method of your choice: ACS, FTP, SCP, etc. The file must be transferred as a binary file.
- Open the PASE execution environment with the command: CALL QP2TERM
- Change to the directory where you uploaded the jar file: cd directoryname
- Execute the jar file: java -jar pwrdraw.jar
- The install process will look similar to:

```
 $
> cd /home/vgreene
 $
>  java -jar pwrdraw.jar
Looking up existing version
No current properties installed
Installing new version
Creating Save file
CRTSAVF FILE(QZRDPWRDRW/QZRDPWRDRW) TEXT('PowerCapture')
CPC7301: File QZRDPWRDRW created in library QZRDPWRDRW.

228096 bytes copied to QZRDPWRDRW.FILE
RSTLIB SAVLIB(QZRDPWRDRW) DEV(*SAVF) SAVF(QZRDPWRDRW/QZRDPWRDRW) MBROPT(*ALL)
ALWOBJDIF(*ALL) RSTLIB(QZRDPWRDRW)
CPC3703: 3 objects restored from QZRDPWRDRW to QZRDPWRDRW.

DLTF FILE(QZRDPWRDRW/QZRDPWRDRW)
CPC2191: Object QZRDPWRDRW in QZRDPWRDRW type *FILE deleted.
```

- Press F3 to exit the PASE terminal environment.
- IBM® Power® Draw will have created or updated the library QZRDPWRDRW and created the directory /QIBM/QZRDPWRDRW if it does not already exist.

IBM i License Codes

Option 1 – If you have the PowerHA Toolkit (library QZRDHASM):
- Use the QZRDHASM/ADDPRDACS command to add the license codes for each serial number.

Option 2
- Open the PASE execution environment with the command: CALL QP2TERM
- Execute the command:
  java -jar /QIBM/QZRDPWRDRW/QZRDPWRDRW.jar -k serialnum,liccode
- Repeat for each serial number and license code.
- Press F3 to exit the PASE environment.
- On any given system, you should only need to run this command once per serial number.

IBM i Usage

On IBM i, the PWRDRW command is installed in the QZRDPWRDRW library. You can add QZRDPWRDRW to your library list or run it directly as QZRDPWRDRW/PWRDRW.

The command parameters are:

CAPTURE (required) – Capture File Name - This is the input filename for the capture file that contains all the collected information that will be used to create the diagram. This is a text file that is produced by the capture module PWRCAP command as it retrieves Power system configuration data from the HMC. The capture file should be stored in the /QIBM/QZRDPWRDRW/draw_captures/ directory. By default, the capture module will store the capture files in this directory.

DRAWING (required) – Select the drawing types that will be created.
> *NETWORK creates drawings that include all virtualized network elements, including Shared Ethernet Adapters and associated virtual adapters and virtual switches, SR-IOV adapters, physical, and logical ports, and vNIC connections.
>
> *VNIC creates drawings that include SR-IOV adapters, physical, and logical ports, and vNIC connections.

*STORAGE creates drawings that show all storage connections: Virtual Fibre Channel (NPIV), and Virtual SCSI (vSCSI).

*ALL creates drawings that show all network and storage connections.

You can specify multiple values to draw multiple drawing types. The default is the *ALL drawing.

OUTPREFIX (optional) – Output prefix – This is the prefix used for all output (drawing) file names created.   The output file names created are in the form prefix_systemname_type.svg where systemname is the name of the system from the capture file, type is network, vnic, storage, or all depending on the DRAWING option, and prefix is the value specified for this parameter. If the prefix is omitted, the prefix and "_" underscore separator are omitted.   The SVG diagrams will be created in the directory /QIBM/QZRDPWRDRW/draw_graphics/ The directory will be created if it does not exist.

MNGSYS - Managed Systems list - defaults to *ALL. You may specify a list of one or more managed system names to draw. If specified, only system names that match the specified case sensitive names will be drawn. The default of *ALL draws all systems in the specified capture file.

LPAR - LPAR List - defaults to *ALL. You may specify a list of one or more client lpar names matching regular expressions to draw. If specified, the drawing will only include client lpars with names that match the regular expressions in the supplied list. The match is case sensitive. The default of *ALL draws all the lpars on the selected systems. For example, a simple substring match is a regular expression – for example, specifying "PROD" would match lpar names PROD01, PRODLPAR, and ACCTPROD. More complex regular expressions are also possible e.g. "PROD[0-9]{2}" to match lpar names containing PROD and two numbers. The regular expression syntax used is Java 1.8. Please note that it is not necessary to understand regular expressions as a simple list of lpar names will also work.

COMPACT – Compact Mode (optional) – Compact mode draws the virtualization diagrams with one vertical line per VIOS rather than the original one vertical line per physical connection. This produces a diagram that is more compact and easier to navigate interactively than the non-compact mode which produces much larger diagrams that show all connections without overlap. This defaults to *NO.

The PWRDRW command executes very quickly, even for very detailed capture files, so it is suitable for interactive execution, but it may also be run in batch as needed.

PWRDRW produces log files in the /QIBM/QZRDPWRDRW/logs directory in files stdout.txt and stderr.txt. If there are any problems in the generated diagram, please check these log files for relevant messages. The WRKLNK and DSPF commands can be used to examine the logs, which are simple IFS text files. It is also worth noting that the text popup for the heading at the top of the generated diagrams also includes any warnings from the capture and draw processes.

Upon completion, the SVG diagrams will be in the /QIBM/QZRDPWRDRW/draw_graphics/ directory. These are SVG/XML text files that can be viewed in any modern browser. Typically, you will want to transfer these files to a PC or web server using any IFS capable IBM i tool: ACS, FTP, SCP, etc.

The diagrams can be sent via email but be aware that they contain detailed information about the collected environment, including IP addresses, hardware serial numbers, wwns, mac addresses, system and partition names, etc. that may be considered private.

AIX/Linux/Windows Installation

- Transfer the distribution jar file (typically named pwrdraw.jar) to the location of your choice in the filesystem.   There is no installation required -- you can run the process from the jar file in any directory as long as you have a Java runtime environment (JRE) at 1.8 level or higher available.

AIX/Linux/Windows License Codes

IBM® Power® Draw licensing is based on the serial numbers of the systems that are drawn, rather than the system where the IBM® Power® Draw code is executed. To create a diagram for a specific system, you must register/store the license code for that system's serial number with this option.

On any system with a version 1.8 or higher Java Runtime environment, you can execute the pwrdraw.jar file using the Java command with options:

java -jar pwrdraw.jar -k serialnum,liccode

-k serialnum,liccode – Validates and store the license key for a specific serial number. On any given system, you should only need to run this command once per serial number.

AIX/Linux/Windows Usage

On any system with a version 1.8 or higher Java Runtime environment, you can execute the pwrdraw.jar file using the Java command with options:

java -jar pwrdraw.jar [-f [draw]|[drawnetwork][,drawstorage][,drawvnic][,drawall] [-i inputCaptureFile]
    [-o outputFileName] [-m managedSystemList] [-l partitionList] [-a userAttributeFiles] [-c]]
    |[-k serialnum,liccode]

-f [draw]|[drawnetwork][,drawstorage][,drawvnic][,drawall] (optional) – Draw Type –
Specify a comma-separated list of the drawings to create:

       draw – Creates all the available diagrams. If the -f parameter is omitted, this is the default.

       drawnetwork - Creates diagrams that include all virtualized network elements, including Shared Ethernet Adapters and associated virtual adapters and virtual switches, SR-IOV adapters, physical, and logical ports, and vNIC connections.

       drawvnic - Creates diagrams that include SR-IOV adapters, physical, and logical ports, and vNIC connections.

drawstorage - Creates diagrams that show all storage connections: Virtual Fibre Channel (NPIV), and Virtual SCSI (vSCSI).

drawall - Creates diagrams that show all network and storage connections.

-i – Input Capture File Name - This is the input filename for the capture file that contains all the collected information that will be used to create the diagram. This is a text file that is produced by the capture module as it retrieves Power system configuration data from the HMC. The capture file must be located in the draw_captures/ directory under the current directory. By default, the capture module will store the capture files in this directory.

-o (optional) – Output prefix – This is the prefix used for all output (drawing) file names created.   The output file names created are in the form prefix_systemname_type.svg where systemname is the name of the system from the capture file, type is network, vnic, storage, or all depending on the -f option, and prefix is the value specified for this parameter. If the prefix is omitted, the prefix and "_" underscore separator are omitted.   The SVG diagrams will be created in the directory draw_graphics/ below the current directory. The directory will be created if it does not exist.

-m - Managed Systems list – (optional). You may specify a list of one or more comma-separated managed system names to draw. If specified, only system names that match the specified case sensitive names will be drawn. The default if omitted draws all systems in the specified capture file.

-l LPAR List (optional)   You may specify a comma-separated list of one or more client lpar names matching regular expressions to draw. If specified, the drawing will only include client lpars with names that match the regular expressions in the supplied list. The match is case sensitive. The default if omitted draws all the lpars on the selected systems. A simple substring match is a regular expression – for example, specifying "PROD" would match lpar names PROD01, PRODLPAR, and ACCTPROD. More complex regular expressions are also possible e.g. "PROD[0-9]{2}" to match lpar names containing PROD and two numbers. The regular expression syntax used is Java 1.8. Please note that it is not necessary to understand regular expressions as a simple list of lpar names will also work.

-a User Attribute files (reserved) – Reserved for future use.

-c Compact mode (optional) – Compact mode draws the virtualization diagrams with one vertical line per VIOS rather than the original default of one vertical line per physical connection. This produces a diagram that is more compact and easier to navigate interactively than the non-compact mode which produces much larger diagrams that show all connections without overlap. Omitting this flag results in the generation of the original non-compact diagrams.