How Does Print Studio Connect to Print Manager?

Autodesk Print Studio makes multiple calls to Print Manager to get the list of printer types, materials, profiles, and connected printers. However, the first call Print Studio makes at start up is this call:

http://localhost:9998/version

This call returns the following data:


```
{"api":{"major":1,"minor":0,"commit_id":"0000000000000000000000000000000000000000","short_commit_id":"000000"},"core_technology":{"commit_id":"4ca0192f5cfcf0960cbf33be0004b467ff89d219","format_version":6,"short_commit_id":"4ca019"},"print_definition":{"schema":4,"revision":7}}
```


The schema and revision numbers indicate whether Print Studio's cached database needs updating. If the schema / revision number combination is higher than that of the cached database, Print Studio requests new printer types, materials and profiles from Print Manager and stores this data and the version information in its cached database. If the version numbers are the same, Print Studio uses the information already retrieved from the cached database. Therefore, if you are making manual changes to print manager printer types, profiles and materials you need to change this version information number manually.

TIP: Since it is common to make many changes to the database during development. To avoid the tedious task of bumping the version number every time you need to see changes, you can delete the cache manually, forcing Print Studio to retrieve and use the new data.

Windows: <user>\AppData\Local\Autodesk\Print Studio\printDB

MacOS /Users/<user>/Library/Application Support/com.autodesk.spark.printstudio/printDB

The version file is located here: https://github.com/spark3dp/print-manager/blob/master/spark-print-data/version.json. .

If the version information dictated that Print Studio needs to update the cached database, Print Studio will make these three calls:

http://localhost:9998/printdb/printertypes

http://localhost:9998/printdb/profiles

http://localhost:9998/printdb/materials

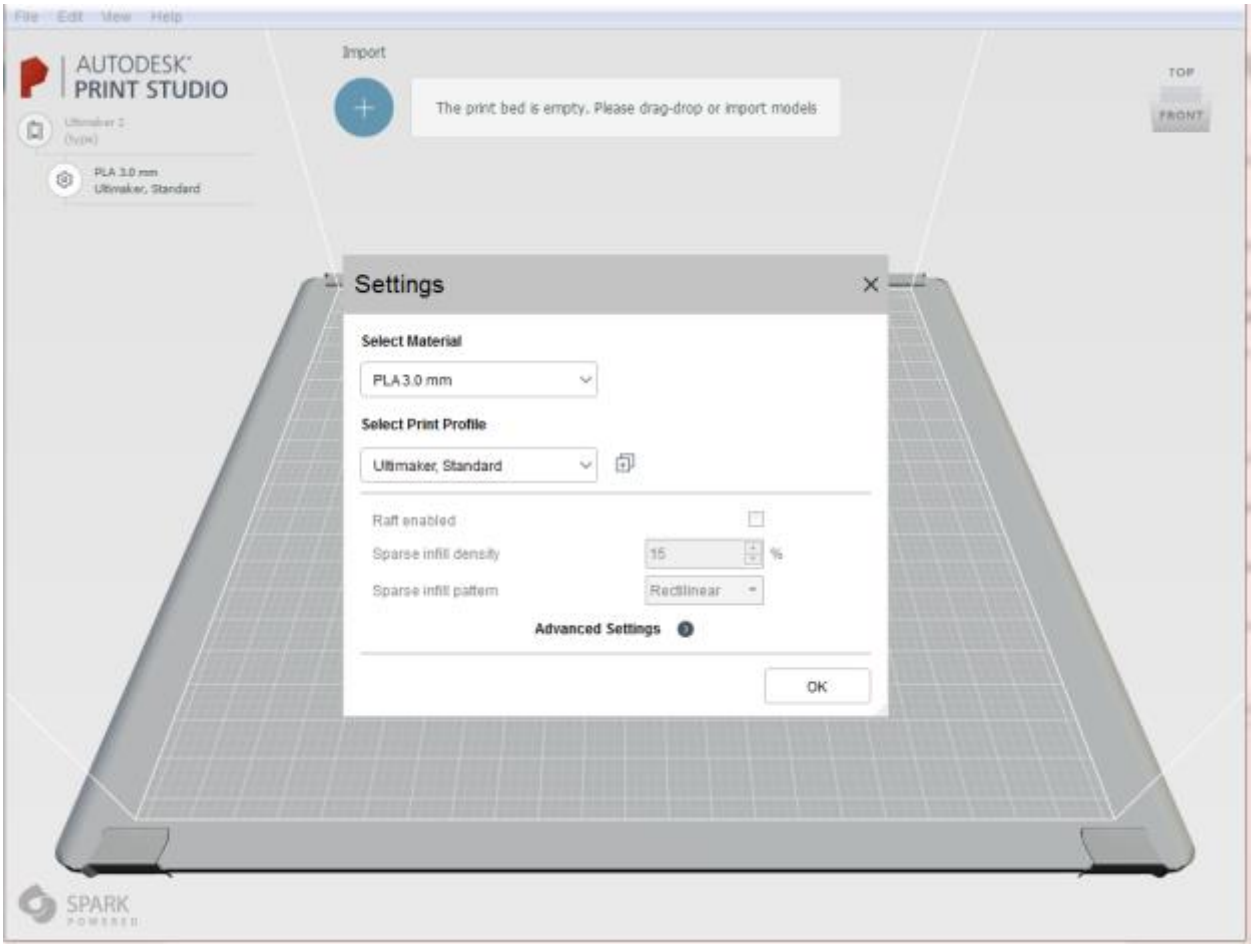
The data returned from these calls is stored in the JSON files listed below, which are part of the Print Manager data. Edit these files in order to add a printer.

https://github.com/spark3dp/print-manager/blob/master/spark-print-data/materials.json

https://github.com/spark3dp/print-manager/blob/master/spark-print-data/printertypes.json

https://github.com/spark3dp/print-manager/blob/master/spark-print-data/profiles.json

Once these files have been edited, Print Studio can display the new printer's profile in the application's user interface.

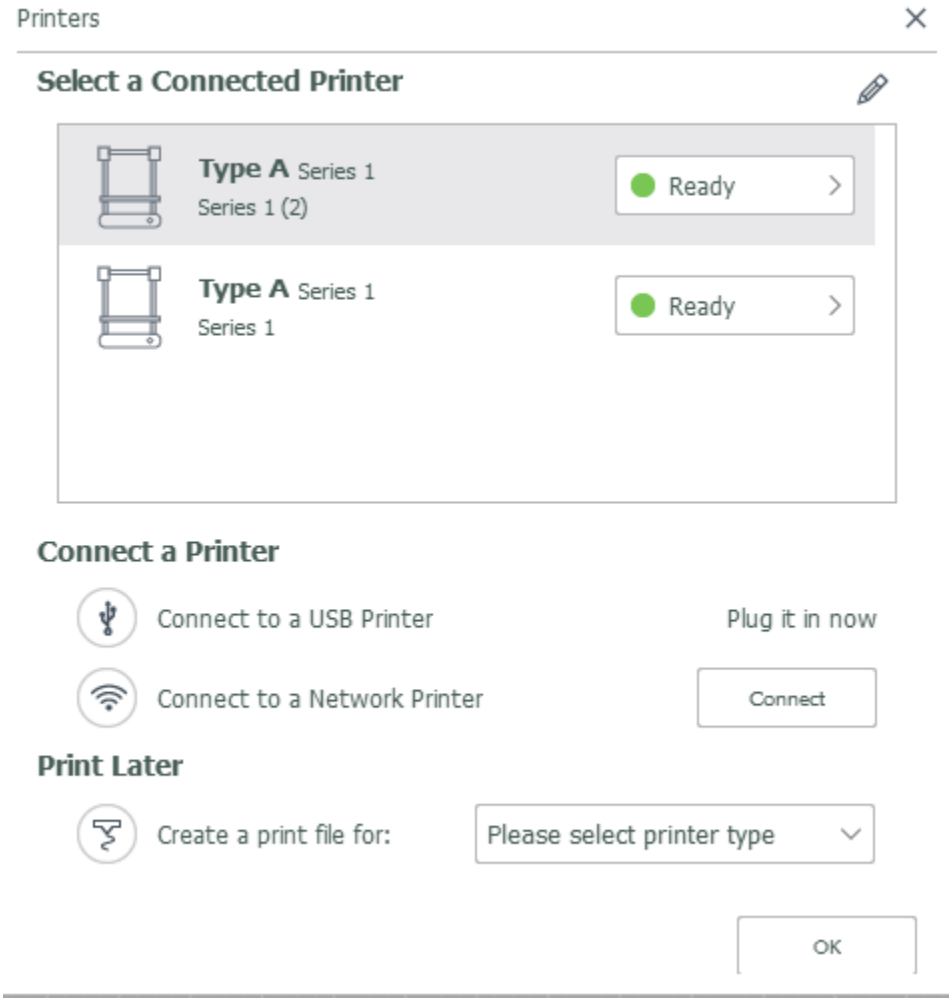


Print Studio can also display the printers that are connected. To do this, it calls Print Manager:

http://localhost:9998/print/printers

This call returns all the printers connected to Print Manager by USB, network, and serial connections.

This enables Print Studio to display the connected printers in the Printers dialog:



Print Studio is now ready to print. When its Print or Export buttons are clicked, Print Manager is activated.

Print Studio then generates the correct neutral printable format for the supported DLP or FDM printer being used, according to that printer's definition in the printertypes.json file where each "printer type" is declared to be either

```
"technology": "DLP"
```

or

```
"technology": "FDM"
```

Setting the printer technology allows Print Manager to generate the appropriate neutral file format for that printer. Once this format is generated, Print Studio calls

makes this call to Print Manager:

`http://localhost:9998/print/trays/translate`

with these inputs:

`Job Name`

`File ID` (the neutral file)

`Printer Type ID`

`Profile ID`

`Material ID`

As a response to the command, Print Manager uses the `Printer Type and ID` to generate the printer file appropriate for the target printer. The name of this file is the returned value of the command, and the file is sent to the printer.

See the readme for more information: https://github.com/spark3dp/print-manager/blob/master/spark-print-mgr/printableTranslation/README.md

Once the printable file has been generated, Print Studio commands Print Manager to create the job using the call:

`http://localhost:9998/print/jobs`

The input for this call includes the Printer ID, i.e. the ID of one of the connected printers.

The response returns a job ID.

When that job is created, the printable (file) is set using this call:

`http://localhost:9998/print/jobs/100/setPrintable`

with this input:

`file_id` (the printable file)

Finally the printer is started using this call:

`http://localhost:9998/print/printers/10/print`

Control is handed over to Print Manager, which controls the job from this point on. Once the job has been handed over to the Print Manager, its status is displayed at:

http://localhost:9998/console/#/printers.

Connecting Open Source Print Manager to Print Studio.

This section informs the reader on how to connect their local version of print manager with the installed version of Print Studio.

Please note: there are 2 ways you can modify print Manager source.

1) Fork https://github.com/spark3dp/print-manager
2) Modify the installed version that gets installed with Print Studio.[1]
    a. /Library/AutodeskPrintManager
    b. C:\Program Files\Autodesk\Autodesk Print Studio\PM

Once you are done with the modifications these are the steps to make the installed version of Print Studio work with your modifications.

Print Manager is a service that runs on OS X® and Windows®. To run your own version, you simply run the server located in spark_print_manager.

```
node server.js
```

This will start print manager on the default port 9998.

However, you do need to kill the service that is running as part of the installation. This service will restart when the machine reboots.

Here are the OS specific notes if you need to terminate the process.

OS X

Killing the service in the Activity Monitor doesn't work. It is set to keep it alive, so it will keep re-starting.

To stop the service, enter

```
$ sudo launchctl unload -w /Library/LaunchDaemons/com.autodesk.printmanager.plist
```

[1] You should copy these directories to avoid destroying your installed version.

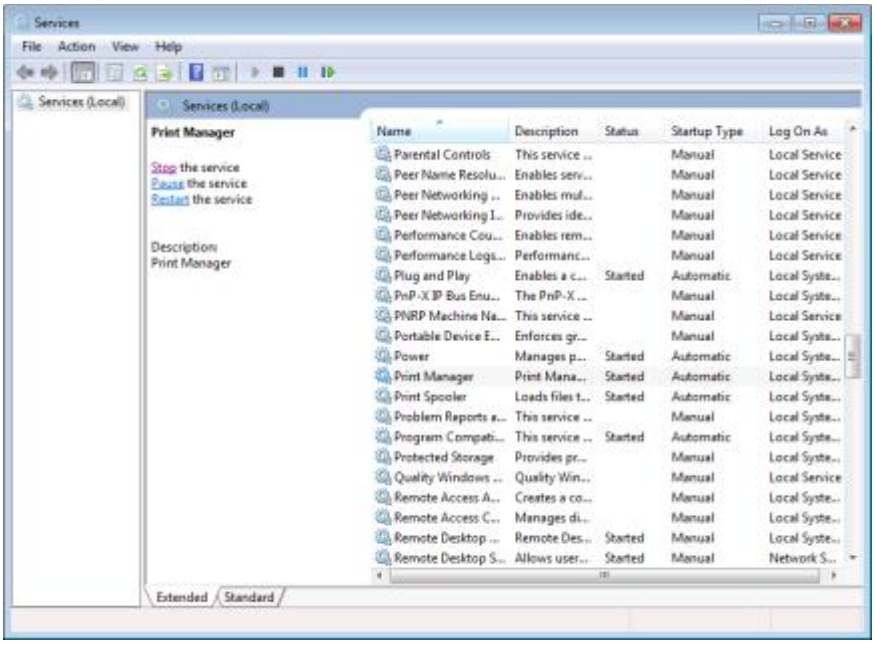
To restart the service, enter

```
$ sudo launchctl load -w /Library/LaunchDaemons/com.autodesk.printmanager.plist
```

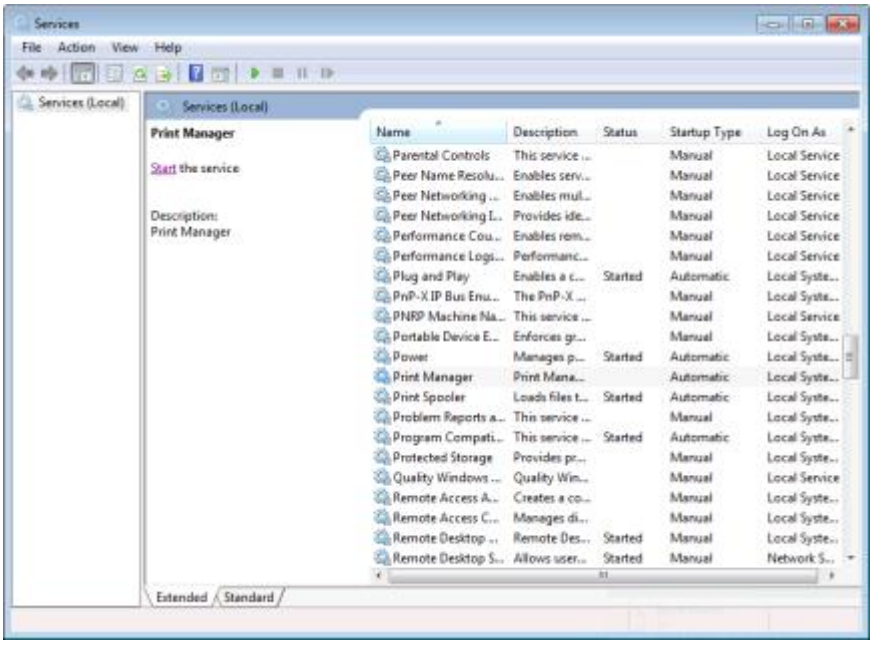
Windows

To stop the service

1. Open the Services Management console. Or from the Start menu, click Run and enter `%windir%\system32\services.msc`
2. Find the Print Manager Service and click Stop.



To restart the service, click Start.


Services
File Action View Help
Services (Local)
Services (Local)
Print Manager
Start the service
Description:
Print Manager
Name
Description
Status
Startup Type
Log On As
Parental Controls
Peer Name Resolu...
Peer Networking ...
Peer Networking I...
Performance Cou...
Performance Logs...
Plug and Play
PnP-X IP Bus Enu...
PNRP Machine Na...
Portable Device E...
Power
Print Manager
Print Spooler
Problem Reports a...
Program Compati...
Protected Storage
Quality Windows ...
Remote Access A...
Remote Access C...
Remote Desktop ...
Remote Desktop S...
Extended
Standard