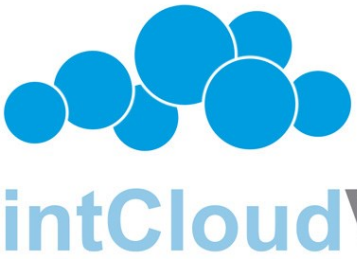

Large point cloud visualization for Petrel

Release Notes

Version 1.0

September 2013

Mirage Technologies S.L.

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Trademarks

About these Release Notes

This document refers to the PointCloudViz v1.0 plug-in for Petrel 2013.1, released in September 2013.

For a description of the installation process, see the Installation Guide.

To find help in using PointCloudViz within the Petrel application, read the *PointCloudViz User Guide*, follow the help instructions in the *Installation Guide* or open the *.chm* file in the plug-in installation folder.

Typestyle Conventions

The following conventions are observed throughout this guide:

- **Bold** text is used to designate literal file and folder names, dialog titles, names of buttons, icons, and menus, and terms that are objects of a user selection.
- *Italic* text is used for word emphasis, defined terms, manual titles and variables representing files or paths.
- Monospace text (`Courier`) is used to show literal text as you would enter it, or as it would appear onscreen.

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Version compatibility

PointCloudViz 1.0 runs on *Petrel 2013.1*, and it should also work fine on 2013.X versions. Please download a higher version of PointCloudViz for later Petrel releases.

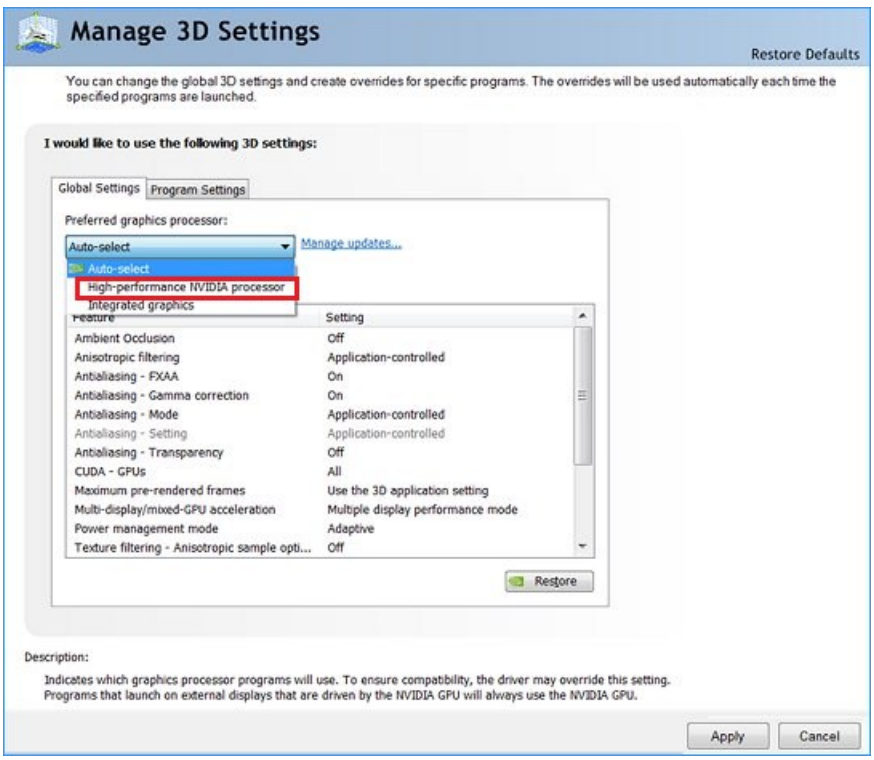
Supported and recommended platforms

PointCloudViz runs on the Ocean platform for Petrel, so it will work fine on any platform (hardware and software) recommended in the *Petrel 2013 Release Notes*.

Because PointCloudViz makes extensive use of graphics acceleration and main memory, these are the two key performance factors for interactive visualization. The high-end options in the Petrel recommended hardware list should be chosen if you plan to work with large LiDAR and point cloud datasets.

Make sure the most powerful graphics card is selected as the default card to be used by Petrel. Some laptop and desktop systems include an integrated Intel graphics system as well as an additional, more powerful card (NVIDIA hardware is recommended for Petrel).

You can verify this default choice in the *NVIDIA control panel* accessible from your system control panel. If you go to the **Manage 3D settings** section and see a **Preferred graphics processor** dropdown control, select in it the "High performance NVIDIA processor" option.



What's new in PointCloudViz 1.0

Since 1.0 is the first release of the plug-in, all its features will be new to Petrel users.

The main functions provided by PointCloudViz are:

- Load LiDAR and point cloud data in the most common formats: .LAS, .LAZ and .XYZ (plain text point list).
- Point clouds are automatically processed so that it can be viewed interactively regardless of the original size.
- Seamless visualization of LiDAR data together with any other Petrel-supported data in 2D and 3D windows.
- Projection from any coordinate reference system supported by Petrel.
- Multiple display options: single color, color per point, intensity per point, color multiplied by intensity, and classification. The available options for a specific dataset depend on its point data attributes.
- Integrated into Petrel data exploration tools like intersection planes and picking.

For details about PointCloudViz features and usage, please refer to the **plug-in help** in the Petrel **Help** menu.

Domain objects and PointCloudViz

Core Petrel domain objects

It is important to note that *PointCloudViz does not interact (render, use or modify) any domain objects* already defined in Petrel core or in other plugins. Therefore, PointCloudViz operation should not cause any change in these objects as part of a Petrel project, either during a work session or when saving the project.

PointCloudViz custom domain objects

When PointCloudViz is installed, the set of domain objects supported by Petrel is extended with *two new custom domain objects*:

- **Point clouds** container. This object is created automatically at the top level of the Input Tree tab of the Petrel Explorer when a new point cloud is added to Petrel. There is always only a single instance of this object in the project.
- **Point cloud** object. This object represents each of the point cloud datasets added to Petrel. It will be placed under the point cloud container folder in the Input tree.

It must be noted that these objects are not instanced until the user adds an actual point cloud dataset to the project.

If instances of these objects exist when a project is closed, their properties are saved into the project files by using serialization. However, the original and the processed point cloud data are only stored in the project file as references to their locations, not embedded in the project (see the "Moving the point cloud data" topic in the PointCloudViz help).

Petrel GUI changes

When PointCloudViz is installed, the Petrel graphical user interface is extended with these new elements:

- PointCloudViz toolbar
- Menu option to change the visibility of the PointCloudViz toolbar
- Wizard to insert point cloud data
- Custom Display settings page for the point cloud object
- Insert point cloud menu option
- Plug-in help menu

In addition, the set of *supported data formats* is extended with a new entry for point cloud data, so the **Import data** menu command can be used to load point clouds.

Note that all these additions are performed when the Petrel application runs but will disappear if the plug-in is disabled or uninstalled.

Refer to the PointCloudViz plug-in help in the Petrel Help menu for further information about these GUI components.

Plug-in configuration

PointCloudViz can only be configured by using the generic plug-in property settings in the standard Petrel GUI. No other configuration files or environment variables are used.

Third-party software components

PointCloudViz uses two well-known third-party open-source libraries. These are lightweight components automatically included in the PIP installation package, so no action is needed from the user to integrate them:

- LibLAS, a standard-compliant LiDAR data translation toolset. It is represented by the **liblas.dll** y **liblas_c.dll** files. Its BSD license allows for use and distribution in commercial software.
- SQLite, a SQL-compliant lightweight database engine, distributed as **sqlite3.dll**. SQLite is a public domain library and therefore allows for use and distribution without any restrictions.

Known issues

Issue	Solution or workaround
Memory increases a lot when I add a point cloud datasets, and then as I move around. Memory consumption multiplies as I add more datasets.	PointCloudViz uses a memory cache to page in and out point cloud data. To reduce memory usage of a dataset, reduce the number of points per tile, when the pyramid cache is generated. If you plan to display multiple point clouds that are located in the same or contiguous areas, add them as a single object by using multiple input sources in the Insert point cloud wizard.
The original coordinate reference system of the point cloud input data is not displayed in the object settings dialog.	This is an Ocean limitation. The issue has been marked for a future fix by the SLB Ocean team.
History for the point cloud object is not visible.	History data has not been implemented yet for point clouds, since no changes can be performed on these objects as of version 1.0. It may be implemented in the future.
Point cloud does not display after moving the pyramid cache data or the Petrel project to a different location	This happens because the original point cloud data is not accessible from the new location, and/or the pyramid cache can't be read nor recreated in its original location. Remove the point cloud in the project and add it again. See the "Moving the point cloud data" topic in the PointCloudViz help.