Leica Geosystems ScanStation PXX

This guide may be used for initial configuration, connection and basic operation of the Leica ScanStation PXX within SA. At this time this includes operation of the P15, P16, P20, P30, and P40 scanners. For more details on instrument operation and configuration, please contact Leica directly.

Hardware Setup

Setup the unit following the manufacturer's directions. The ScanStation requires an Ethernet connection to the machine running SpatialAnalyzer 2016.09.01 or later. Be sure the Leica device power is on and that the batteries are charged.

Software Setup

No additional software installation is required on the computer. However, you must have a FW license installed on the Pxx to connect in SA.

- Under **Status>System Information>Options** is a setting *API Data Access* which must be activated (it is deactivated by default). Contact your Leica Geosystems representative for more information.
- To add a License. Plug a USB key into the scope with a license file in root directory and select tools>>license>>upload.

Starting the Interface

1. Select **Instrument>Add** and choose the Leica Geosystems ScanStation Pxx from the ***Add Instrument to SA*** dialog (Figure 18-7).

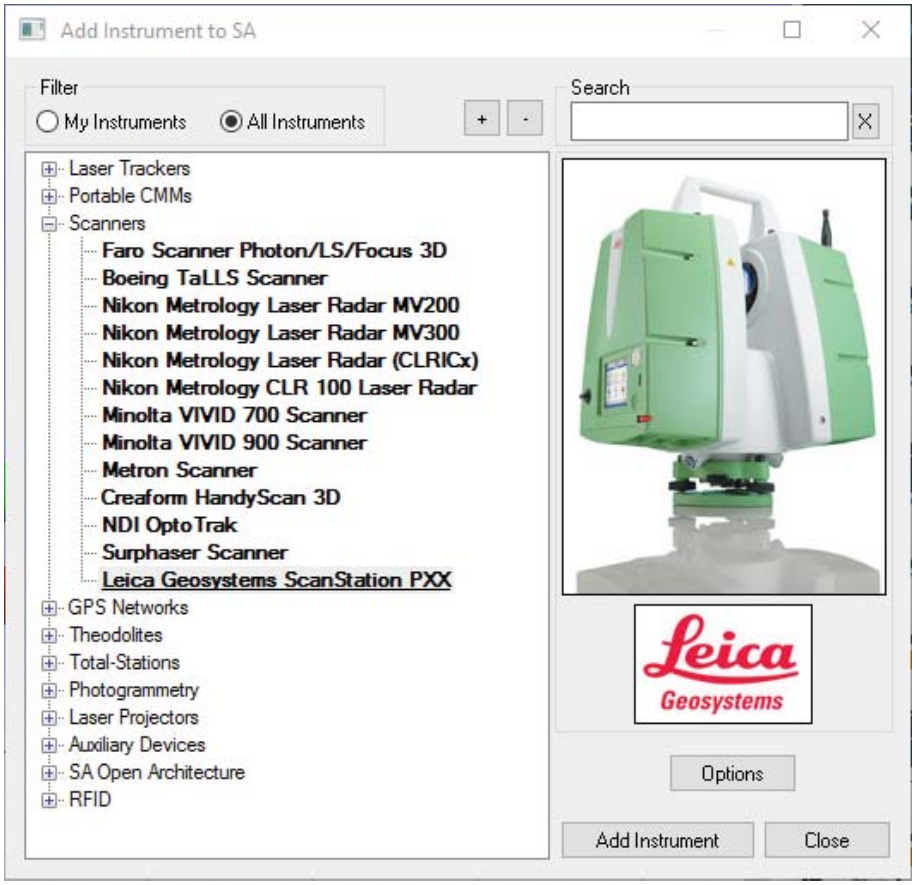

Figure 18-7. Adding the Leica ScanStation PXX to a job.

2. Now run the instrument interface module and connect using the running man icon . This will open the SA interface utility.
3. Select Run Scanner (Figure 18-8) to Start the Scanner Control.

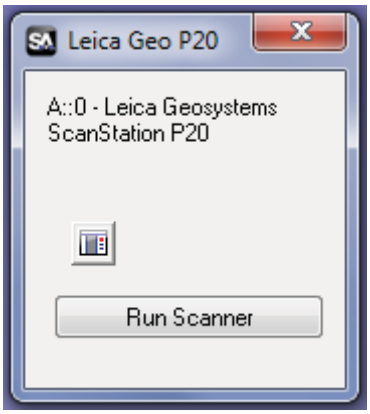

Figure 18-8. The run scanner dialog.

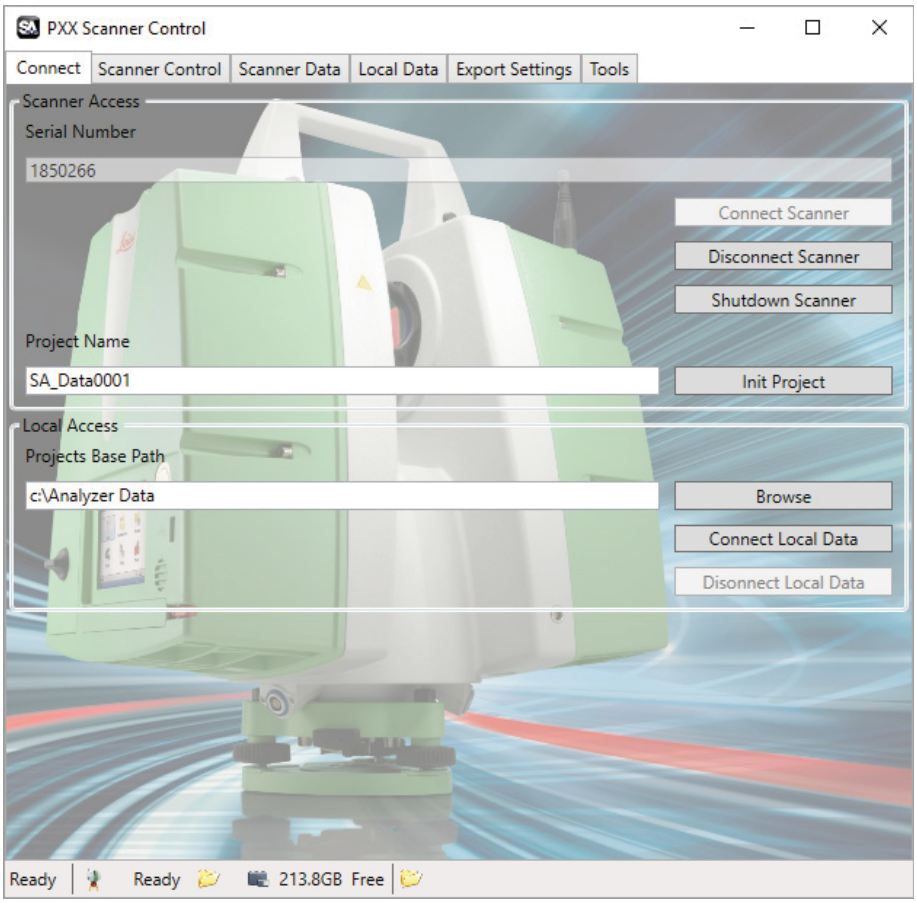

Figure 18-9. PXX Scanner control dialog.

Scanner Control Dialog

When the ***PXX Scanner Control*** dialog appears the connection to the scanner still needs to be established and the project initiated. To do so:

1. Enter the instrument's serial number and click Connect Scanner. The scanner uses a DHCP connection so an IP address identification is not necessary.
2. Enter the project name and press Init Project (Figure 18-9). This will specify the directory for the scan data on the scope. When set this Project will be listed on the status bar at the bottom of the Control Dialog.

The Local Access Project Base Path is currently not used by SA.

Export Settings

The *Export Settings* tab (see Figure 18-10) in the ***PXX Scanner Control*** dialog defines the scan filter definitions and the scan transfer location on the local machine. The *Export Path* defines the location on the local machine where scan files will be transferred.

The advanced settings are master controls for filter options not typically changed for scans unless needed for a particular application.

- *Remove Intensity Overload Pixels*. This option is checked by default and removes any pixels that have an overload intensity such as pixels taken from a mirror or reflector. The location of the pixels are typically incorrect.
- *Remove Mixed Pixels*. This option is checked by default. It removes pixels that have a mix of return intensities indicating that the target is not reliable, typically occurring on edges of surfaces.
- *Remove Low Quality Pixels*. This option is unchecked by default but allows you to receive pixels with a low quality return.
- *Mixed Pixel Filter*. This is considered Leica's "Intelligent Area Filter". It will smooth out the data based upon the relative position of adjacent points in the scan. The degree that this is done is based upon the slider setting. To turn it off, slide the Area Filter slider to *Min*.

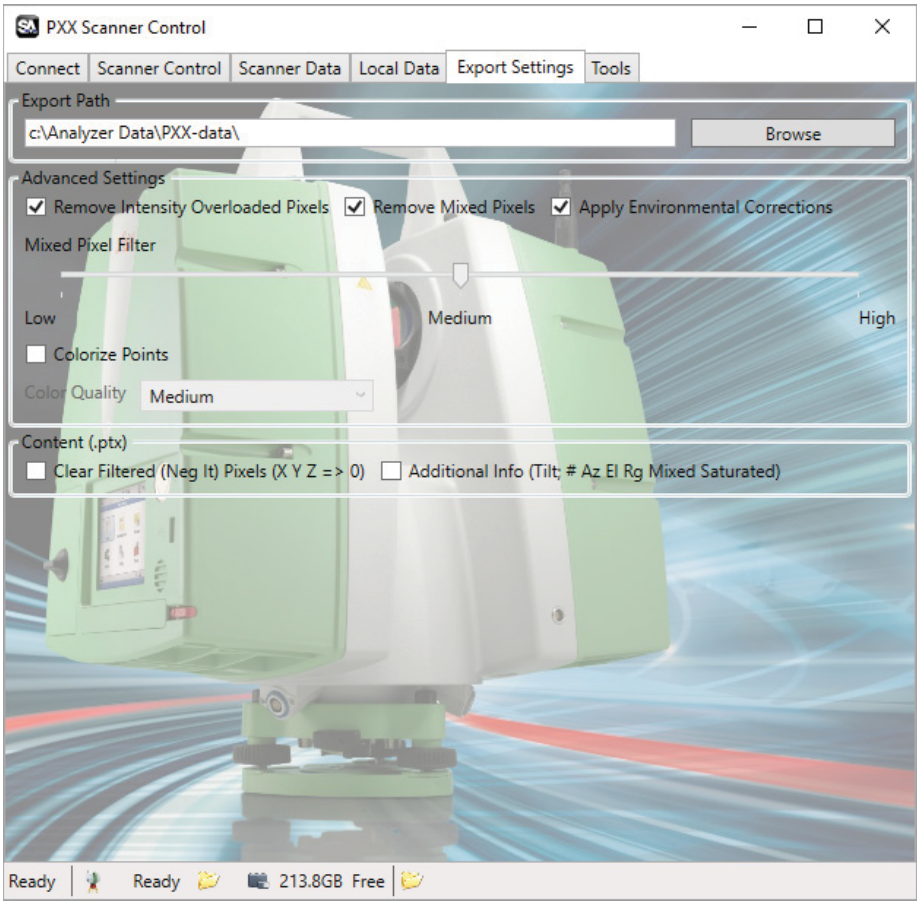

Figure 18-10. Export Settings tab.

Scanner Control

The *Scanner Control* tab defines the scan and controls (start/stop/pause/resume) (Figure 18-11).

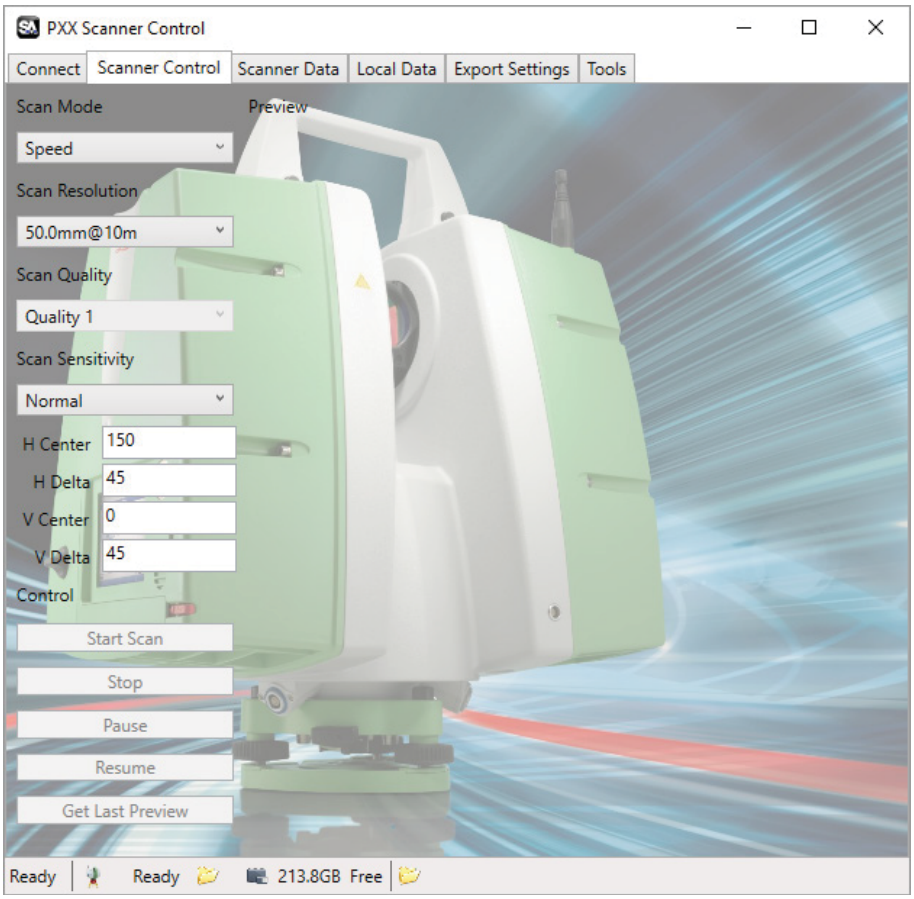

Figure 18-11. Scanner Control tab.

- *Scan Resolution*. This setting defines the density of the cloud. You can chose from 7 preset scan resolution settings defined as the distance between adjacent scan points at the distance specified. This represents the angular spacing of individual points. The points will be closer together at a closer distance and wider at a great distance based on this angular setting. The default setting when connecting to SA is the lowest resolution.
- *Scan Quality*. This setting defines accuracy for a particular point. Higher accuracy results in an increase in the overall measurement time.
- *H Center*. Defines the horizontal angle clockwise about the scanner start location to the center of the scan.
- *H Delta*. Defines the horizontal angular width of the scan about H center.
- *V Center*: Defines the Vertical angle about the scanner start location to center of the scan.
- *V Delta*. Defines the vertical angular width of the scan about V center.

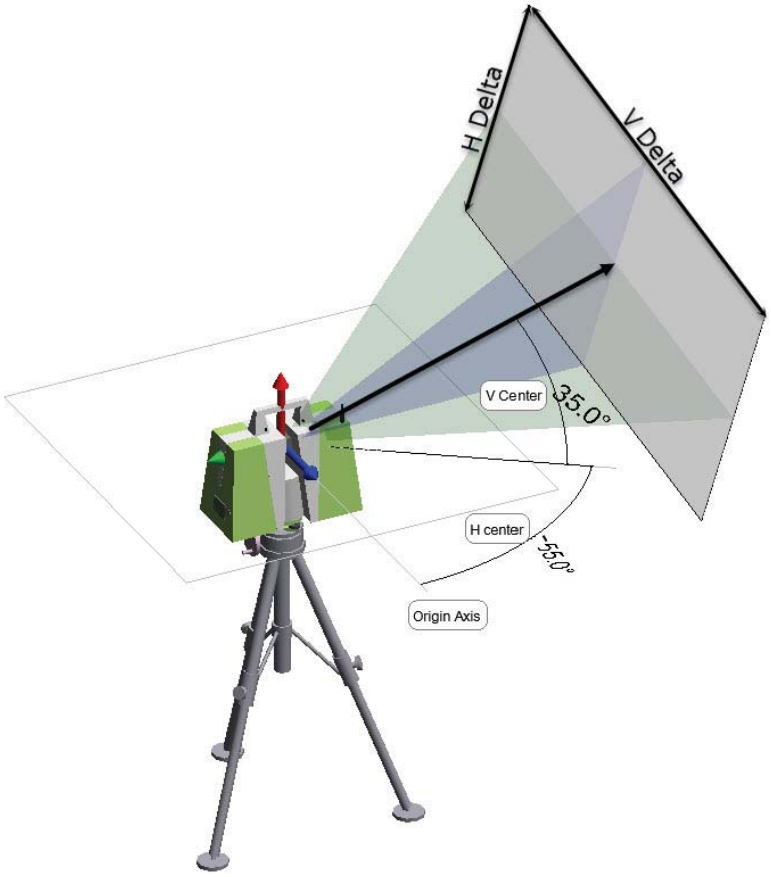

Figure 18-12. Scanning orientation.

Scanner Data

The *Scanner Data* tab provides a view of scan data on the instrument as well as transfer options (see Figure 18-13).

- Refresh Tree. This button updates the tree list on the interface with the latest scan data available from the instrument.
- *Tree View*. This section contains a static list of all the scans available from the instrument at the time the tree was last updated. To ensure you have the latest scan information, click Refresh Tree.
- *SA Cloud Data*. This information is sent with the scan and used to define it in the SA job once the transfer is complete. Note that if you do not increment the name you can send multiple clouds to SA that are merged. This can be quite helpful if you have made several scans from the same instrument plant.
- *Right Panel*. The right hand panel of this tab displays information on the selected scan as well as a preview of that scan. The colors in the preview are based upon point return intensity.

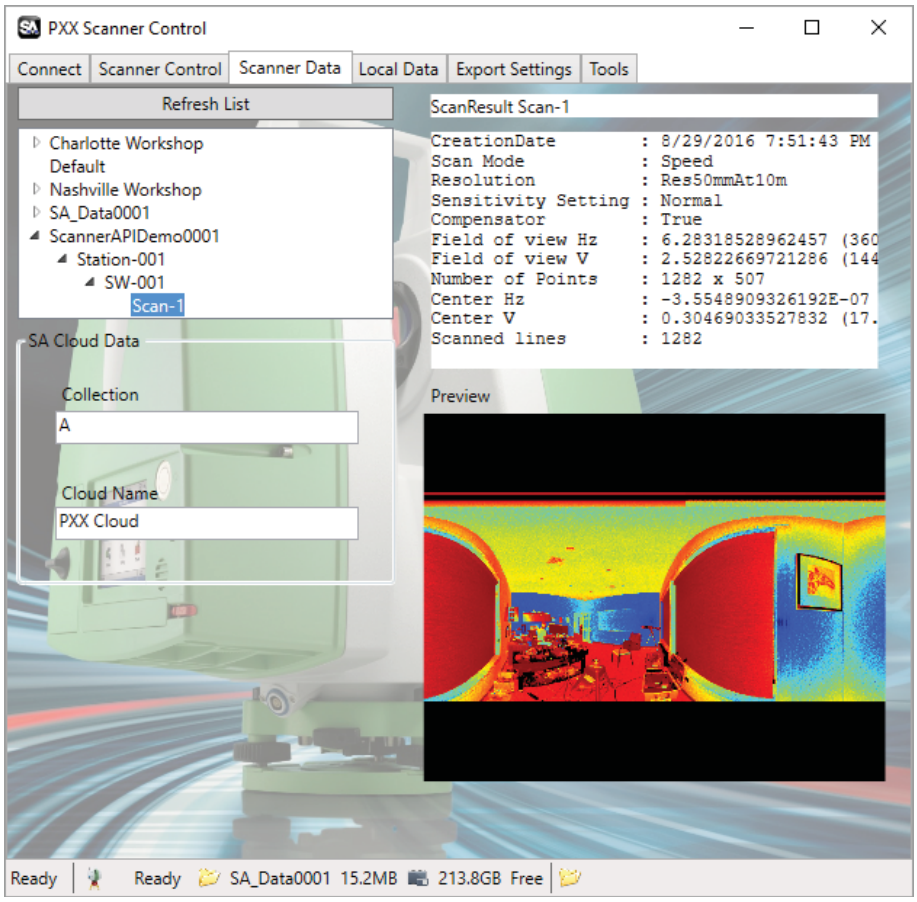

Figure 18-13. Scanner data tab.