

COMBINED RELEASE NOTES FOR AUSTRALIS, VERSION 6.06

Australis Version 6.06 enhancements

25 August 04

Virtually all the new features included in *Australis* 6.06 relate to the 3D View and are accessible via the menu shown below, which is accessed by right-clicking in the 3D View window:

View Camera Stations	Ctrl+C
View Scalebars	Ctrl+S
View Discrepancy Vectors	Ctrl+V
View Normal Vectors	Ctrl+N
View Point Error Ellipsoids	Ctrl+E
View Camera Station Precision as	▶
View Imaging Rays	Ctrl+R
View 3D Point Labels	Ctrl+T
<hr/>	
Increase View Scale	▶
Decrease View Scale	▶
<hr/>	
Distance	Ctrl+D
Best Fit	▶
321...	
Delete	Del
Relabel	Return
<hr/>	
Create Image	Ctrl+I
Create Image by Aim Point	Ctrl+Shift+I
Draw lines	Ctrl+L

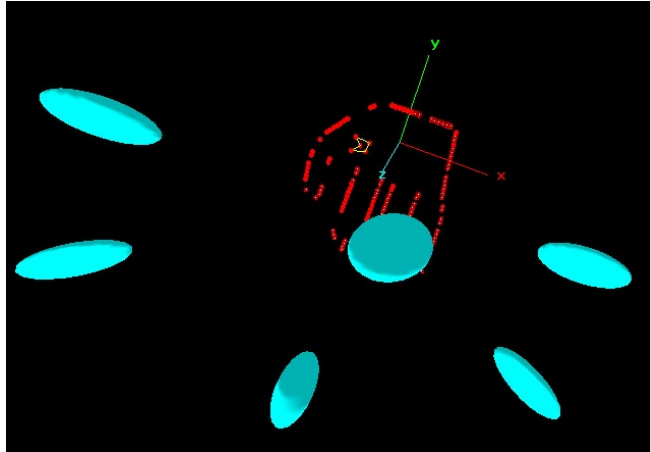
1. **Addition of point labels in the 3D view.** Point labels can be turned on and off by either right-clicking within the 3D view and selecting/deselecting **View 3D Point Labels** or by toggling the hot key command **Ctrl + T**.
2. **Drawing lines between points in the 3D view.** Point-to-point lines can be drawn in the 3D View by selecting **Draw Lines** in the menu above or via the **Ctrl + L** hot-key combination. With *draw lines* selected, highlight a single point, after which a line will be drawn to each subsequently highlighted point. To stop this point-to-point line building, either click away from the point field in the window, or deselect **Draw Lines** (or toggle **Ctrl + L**).

Bringing the cursor over a line segment will generate a listing of the line end point labels and the point-to-point distance (in the project units).

To delete a line segment, simply click on the line to highlight it, and then select the **DEL** key. Or, use **SHIFT+click** to multi-select lines. You will be asked to confirm the deletion.

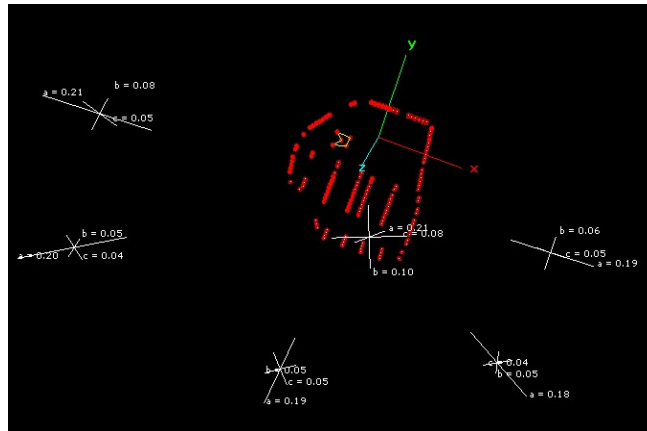
You can build a string of line segments between points by highlighting multiple points (via a mouse drag over the points). However, this can only be expected to produce the desired results for points which form a line of low curvature.

3. **Plotting Error Ellipsoids for camera stations within the 3D View.** There are two options to provide measures of camera station precision within the 3D View, namely the plotting of error ellipsoids, and the plotting of just the semi-axes of these ellipsoids. To plot station error ellipsoids, right-click and select **View Camera Station Precision as | Ellipsoids**, or select **Ctrl + A**. The keyboard combinations **Ctrl + 3** and **Ctrl + 4** can be used to enlarge and reduce the plot scale of the ellipsoids. Plot scale variation is also available via the **Increase View Scale** and **Decrease View Scale** options within the menu shown above. A sample of a station ellipsoid plot is shown below.



Note: Where both station and point error ellipsoids are displayed, the display scaling (Ctrl+3 & +4) will operate uniformly on all displayed ellipsoids.

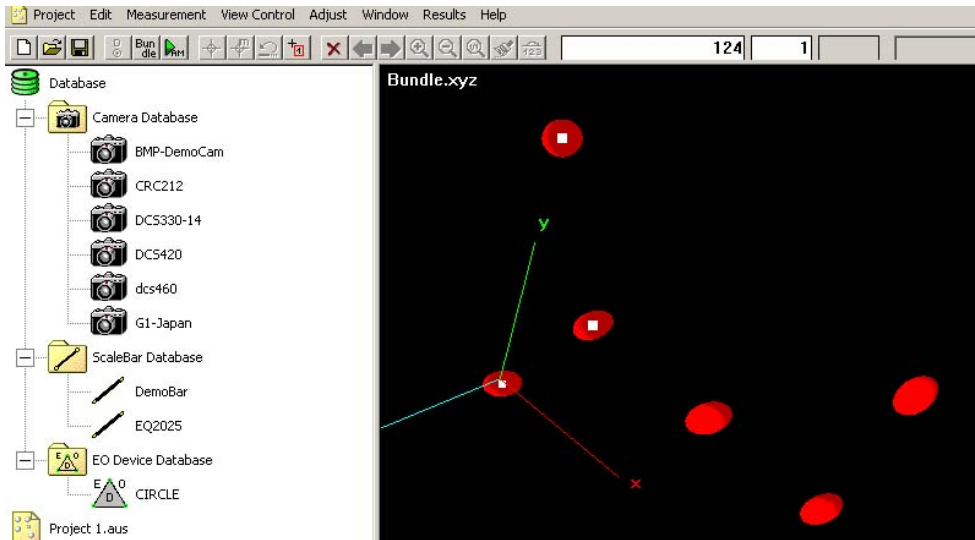
As an alternative to plotting the shaded ellipsoids, it is possible by selecting **View Camera Station Precision as | Axes** to plot just the three semi-axes, which are annotated with their numerical values, as indicated in the figure below. Note that camera stations cannot be viewed while ellipsoids or semi-axes are displayed.



It is possible to generate a text file *stationsQxx.txt* containing the 3x3 covariance matrices relating to each camera station position (ie related to XYZ coordinates). This is effected by choosing **Project/Preferences|Output** and ticking the *Covariance Matrices* box, and then re-running the bundle adjustment.

Output of ellipse parameters for simulated image points. There is now an option to output a text file for each simulated image, which lists point label, x, y, a_1 , a_2 and θ , where a_1 and a_2 are the semi-axes of the 2D target blob ellipse and θ is the angle between the x-image axis and semi-minor ellipse axis. The file *imagename_ellipses.txt* of 2D ellipse information is only produced when the **Measurements|Simulate Image Command** is selected, and it is therefore not likely to be employed by most *Australis* users. When selecting **Simulate Images**, which is accessible from the *Measurement* menu when an 'image' (point positions only) is displayed, the user will need to also tick the box next to *store ellipse information*.

1. As of Version 6.03, *Australis* has a full simulation capability. See the separate Users Guide for the simulation function: *Australis Guide to Simulation-V6.03.pdf*.
2. *Australis* now displays error ellipsoids within the 3D Graphics View (right-click in the 3D view and select **View Error Ellipsoids** or **CTRL E**). To change the plot scale of the ellipsoids, right-click in the 3D View and select **Increase View Scale| Error Ellipsoids**.
3. You can change the discrepancies/error ellipsoid scale to a certain value: clicking on the displayed scale value (bottom of screen), will bring up a dialog to set the scale.
4. Associated 3x3 covariance matrices for each triangulated point can be output via a Preferences option: **Project| Preferences| Output| Covariance matrices of 3D points**.
5. To show imaging rays to highlighted points or camera stations in the 3D graphics View, you must now use **CTRL+R** instead of just **R**. Also to enlarge or reduce the camera size, you must now use **CTRL+1** or **CTRL+2** instead of just **1** or **2**.
6. The '**R**' button for displaying imaging rays in the 3D now works with highlighted camera stations as well as highlighted points. Highlight a single station, hit **R** and you will get just the rays from that station. Highlight more than camera station and you will get all associated rays. Note that the rays are not displayed for disabled images.
7. There's now a multi-stage select/un-select in the 3D view. The new selection works for both camera stations and points
 - left click: current selection is removed and new selected items add to selection.
 - left click + SHIFT key: new selected items are ADDED to current selection.
 - left click + CTRL key: new selected items are REMOVED from current selection.
8. There are two new functions invoked with toolbar buttons. These control re-labelling and deletion of points from the 3D View. The two toolbar buttons are only available when 1 or more points is highlighted within the 3D View. See the figure below.
 - a) The first function is a *3D Point Delete* option. Once the points to be deleted are highlighted, either select the toolbar button with the red cross (see below), hit DEL or right-click in the 3D View and select delete. You will be asked if you wish to delete the associated image coordinate observations as well.



- b) The second function is for re-labelling the point IDs (numbers or alphanumeric labels).
- i) For a single point, highlight the point in the 3D View, type the desired label into the label box on the toolbar (or you can just start typing, without the label field being specifically selected), and select either the 're-label' button on the toolbar (the button with the + and the 1 in a red square, as above) or just ENTER. Note that the labels of the image points will also change when the 3D file being viewed is either the current DRIVER file or the CONTROL file, only.
 - ii) For re-labelling multiple points, which are assumed to be within a highlighted line of points, the procedure is slightly different: First, highlight the point string to be re-labelled; Second select the re-label toolbar button, which will generate a dialog box. Here you enter any desired invariant prefix to the new labels (eg NEWLBL1) as well as the desired number increment (eg 2). You can also select the direction of the re-labelling (eg top to bottom, left to right, etc). Third, select OK and a beep will indicate the relabelling has been completed. In our example, the new label sequence for the line would then be NEWLBL1, NEWLBL3, NEWLBL5, etc. The rules regarding the re-labelling of referenced imaged points are the same as for a single point re-labelling.

Release Notes for Version 6.01

January, 2004

1. The XYZ axes for any 3D object point file can be set interactively via a so-called 3-2-1 process (Users Manual, Section 9.2)
2. Imaging rays can be shown in the 3D graphic view, individually or collectively (Manual, Section 7.2) *NOTE the change to this in Point 5 above.*
3. 3D data files can now be output in DXF format (Manual, Section 3.2.6)
4. Camera stations can be added as object points to any 3D data file (Manual, Section 7.1.7)