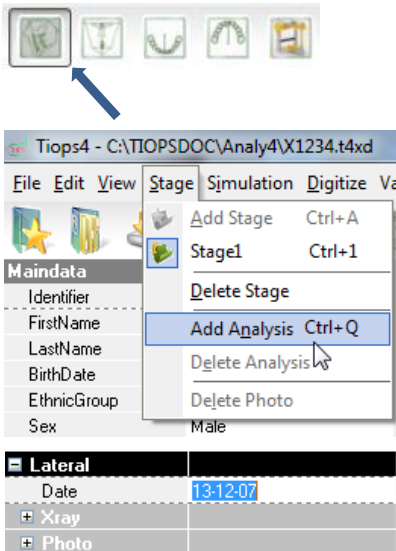


Adding a Lateral Headfilm Analysis

Export the Lateral headfilm to your desktop (or elsewhere) as a .jpg (or a .bmp) file and name it to be easily identified later.

See: http://www.tiops.com/downloads/T4UG/T4UGProgramBasics_DigitalImageFiles.pdf

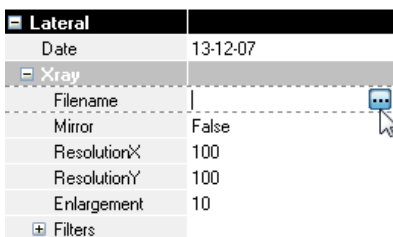


1. After entering the Stage Data you are now ready to perform the **Lateral Analysis**. Make sure that the lateral view icon is selected (see arrow).

2. To add a **Lateral Analysis** to a Stage hold the key **Ctrl** and press **Q**. Alternatively you can use the **Stage** pull down menu and click **Add Analysis**.

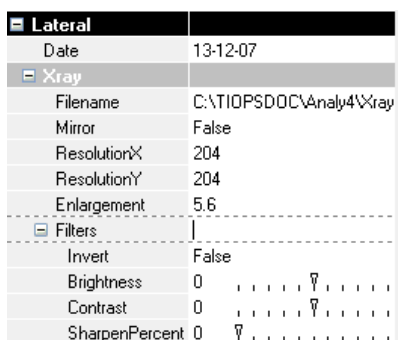
This opens an additional series of information under the heading **Lateral**. Check that the Date of the headfilm is correct as the program uses the entered Stage Date as a default for the headfilm.

Note: Using the arrow key scroll down the list while checking or entering information.

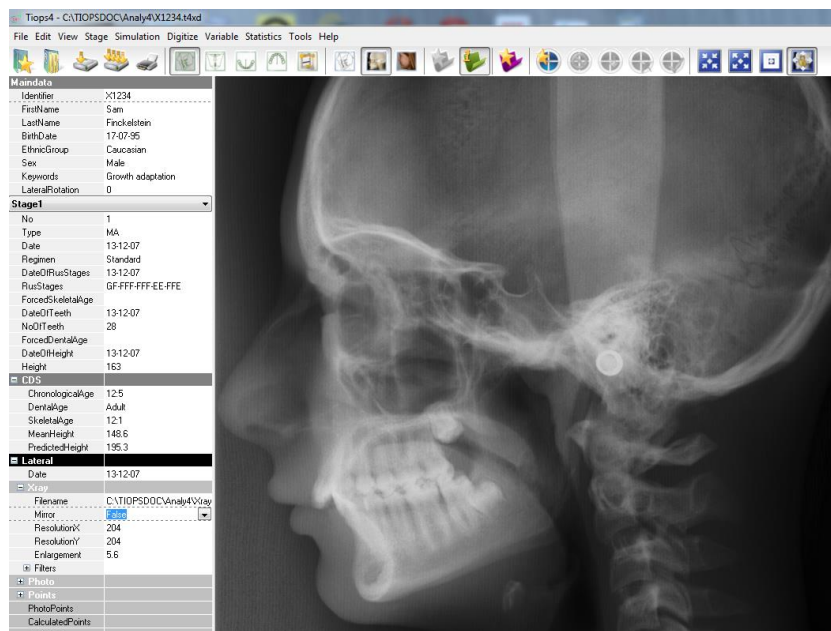


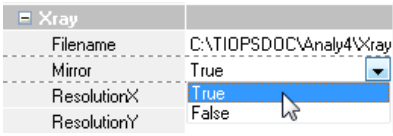
3. Scroll down to Filename and either hold the key **Ctrl** and press **→** or click the radio button. This opens by default the Xray folder in the Analy4 directory. Now browse to locate the actual picture file and open it to be added to the Analysis. Press the Consolidate button to save the image file in the Analy4\Xray folder in the automatically created dedicated subfolder.

Additionally you are offered an option to delete the temporary file on the desktop.



4. The headfilm will now appear in the window ready to digitize, but check these entries before proceeding with the digitizing procedure: **Mirror, Resolution, Enlargement and Filters** (See below).



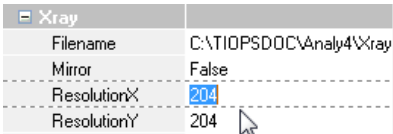


- If the lateral headfilm faces to the right then click **Mirror** and select **True** or press the key **T**. During the digitizing process the profile has to face to the left.



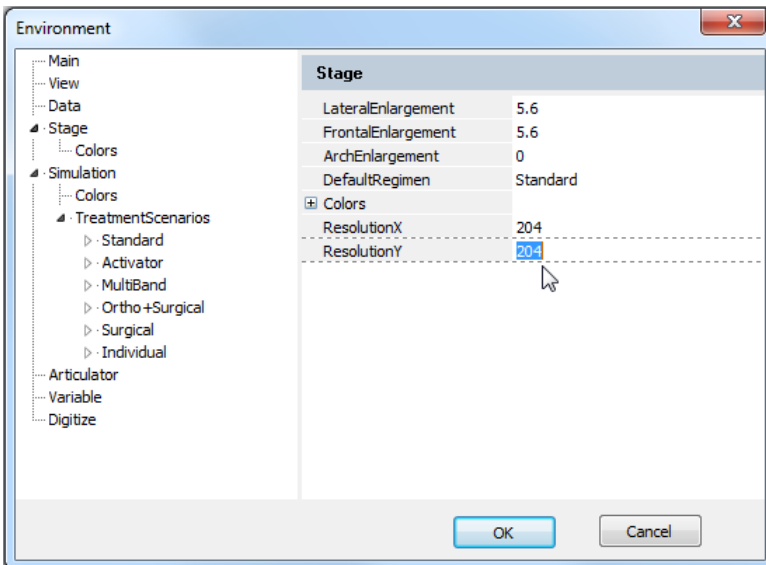
After completion of the digitizing process the profile can be oriented facing to the right by changing the **FaceOrientation** in Tools/Environment Options.../View.

Please remember to set it back before starting a new digitizing procedure.



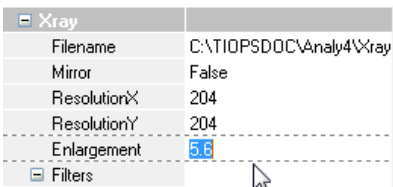
- The resolutionX and -Y are normally automatically read from the .jpg file header, but it is not unusual that the information is displayed incorrectly.

If your .jpg headfilm files taken on your own equipment have been analyzed to have other values, these can be preset to **System Defaults** opening:



Tools/Environment Options.../Stage.

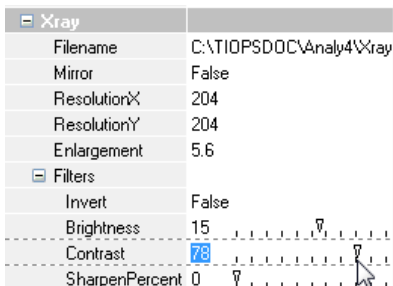
Note: In case you have preset values in your Environment Options settings they may have to be changed for the particular analysis when the headfilm to be analyzed is derived from another source with different resolution values.



- The Enlargement of the headfilm is displayed based on the System Default, in this example set to 5.6%. If the headfilm has a scale included, the Tiops4 program can calculate the enlargement. Point the cursor at a mark on the scale, hold down the left mouse button and draw a line to either the 30, 40 or 50 mm mark.



The enlargement is now listed on the bottom left of the screen



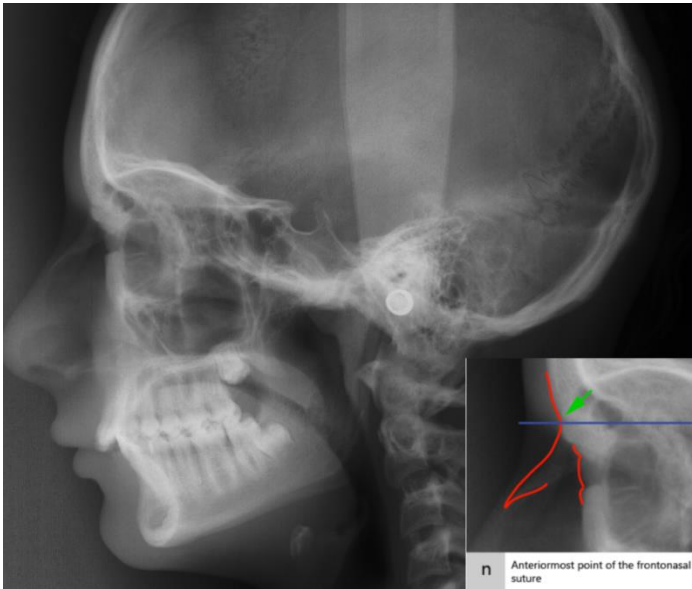
- In the sub segment **Filters** it is possible to change the normal negative image to a positive choosing **True** instead of False in the field **Invert**.

You can adjust the **Brightness** of an image, the **Contrast** and even **Sharpen** the image as needed, using the sliders or typing in new numerical values. The program remembers the changes when you open the file the next time, but the file itself is not modified.





9. To start the Digitizing process hold the key and press the key or click on this icon:



With a new image opened you are now ready to start the digitizing process. Use the left mouse button and click on the anatomical point Nasion (n) followed by Sella Anterior (sa), located at the intersection of the anterior contour of Sella Turcica and the NSL. Now a line will be drawn between these two points and the picture is oriented with the NSL horizontally. Through the digitizing process you will be guided by **Landmark Definition Pictures** and the Landmark to be digitized is listed on the bottom left of the screen.



Landmark	Relation	Definition	Mandatory
FrontalPlane	141	Vertical X-ray reference point 1 - Created automatically on digital images	
HorizontalPlane	142	Vertical X-ray reference point 2 - Created automatically on digital images	
Nasion	143	Anterior point of the frontonasal suture	
SellaAnterior	144	Point at the intersection of the anterior contour of the sella turcica and the NSL - Transferred to subsequent stages	
SellaPosterior	145	Point at the intersection of the posterior contour of the sella turcica and the NSL - Transferred to subsequent stages	
Sella	146	Center of Sella Turcica. The upper level is defined by a line from the Anterior to the Posterior Sella	
Basion	147	Anterior inferior point of the anterior margin of foramen magnum	
PosteriorInferiorPoint	148	Point at the inferior margin of the foramen magnum	
PosteriorSuperiorPoint	149	Point at the superior margin of the foramen magnum	
PosteriorInferiorPoint	150	Point at the inferior margin of the foramen magnum	
PosteriorSuperiorPoint	151	Point at the superior margin of the foramen magnum	
PosteriorInferiorPoint	152	Point at the inferior margin of the foramen magnum	
PosteriorSuperiorPoint	153	Point at the superior margin of the foramen magnum	
PosteriorInferiorPoint	154	Point at the inferior margin of the foramen magnum	
PosteriorSuperiorPoint	155	Point at the superior margin of the foramen magnum	
PosteriorInferiorPoint	156	Point at the inferior margin of the foramen magnum	
PosteriorSuperiorPoint	157	Point at the superior margin of the foramen magnum	
PosteriorInferiorPoint	158	Point at the inferior margin of the foramen magnum	
PosteriorSuperiorPoint	159	Point at the superior margin of the foramen magnum	
PosteriorInferiorPoint	160	Point at the inferior margin of the foramen magnum	
PosteriorSuperiorPoint	161	Point at the superior margin of the foramen magnum	
PosteriorInferiorPoint	162	Point at the inferior margin of the foramen magnum	
PosteriorSuperiorPoint	163	Point at the superior margin of the foramen magnum	
PosteriorInferiorPoint	164	Point at the inferior margin of the foramen magnum	
PosteriorSuperiorPoint	165	Point at the superior margin of the foramen magnum	
PosteriorInferiorPoint	166	Point at the inferior margin of the foramen magnum	
PosteriorSuperiorPoint	167	Point at the superior margin of the foramen magnum	
PosteriorInferiorPoint	168	Point at the inferior margin of the foramen magnum	
PosteriorSuperiorPoint	169	Point at the superior margin of the foramen magnum	
PosteriorInferiorPoint	170	Point at the inferior margin of the foramen magnum	
PosteriorSuperiorPoint	171	Point at the superior margin of the foramen magnum	
PosteriorInferiorPoint	172	Point at the inferior margin of the foramen magnum	
PosteriorSuperiorPoint	173	Point at the superior margin of the foramen magnum	
PosteriorInferiorPoint	174	Point at the inferior margin of the foramen magnum	
PosteriorSuperiorPoint	175	Point at the superior margin of the foramen magnum	
PosteriorInferiorPoint	176	Point at the inferior margin of the foramen magnum	
PosteriorSuperiorPoint	177	Point at the superior margin of the foramen magnum	
PosteriorInferiorPoint	178	Point at the inferior margin of the foramen magnum	
PosteriorSuperiorPoint	179	Point at the superior margin of the foramen magnum	
PosteriorInferiorPoint	180	Point at the inferior margin of the foramen magnum	
PosteriorSuperiorPoint	181	Point at the superior margin of the foramen magnum	
PosteriorInferiorPoint	182	Point at the inferior margin of the foramen magnum	
PosteriorSuperiorPoint	183	Point at the superior margin of the foramen magnum	
PosteriorInferiorPoint	184	Point at the inferior margin of the foramen magnum	
PosteriorSuperiorPoint	185	Point at the superior margin of the foramen magnum	
PosteriorInferiorPoint	186	Point at the inferior margin of the foramen magnum	
PosteriorSuperiorPoint	187	Point at the superior margin of the foramen magnum	
PosteriorInferiorPoint	188	Point at the inferior margin of the foramen magnum	
PosteriorSuperiorPoint	189	Point at the superior margin of the foramen magnum	
PosteriorInferiorPoint	190	Point at the inferior margin of the foramen magnum	
PosteriorSuperiorPoint	191	Point at the superior margin of the foramen magnum	
PosteriorInferiorPoint	192	Point at the inferior margin of the foramen magnum	
PosteriorSuperiorPoint	193	Point at the superior margin of the foramen magnum	
PosteriorInferiorPoint	194	Point at the inferior margin of the foramen magnum	
PosteriorSuperiorPoint	195	Point at the superior margin of the foramen magnum	
PosteriorInferiorPoint	196	Point at the inferior margin of the foramen magnum	
PosteriorSuperiorPoint	197	Point at the superior margin of the foramen magnum	
PosteriorInferiorPoint	198	Point at the inferior margin of the foramen magnum	
PosteriorSuperiorPoint	199	Point at the superior margin of the foramen magnum	
PosteriorInferiorPoint	200	Point at the inferior margin of the foramen magnum	

The position of the headfilm will continuously change to the most suitable position for digitizing the specific landmark.

You can simultaneously use the zoom functions (F9-F10-F11) to make it easier to locate a given landmark:



Landmarks can be either Mandatory or Optional. When arriving at a Mandatory landmark it is accompanied by the following sound (click):



10. Then next two landmarks to digitize are Sella (s) and then Basion (ba). Once again a line connecting the two is drawn.

11. The following landmark Condylion (cd) is optional and is accompanied by the following sound (click):



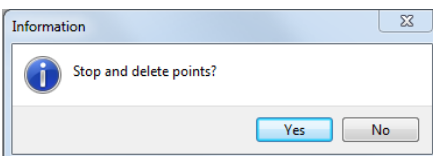
To skip the landmark click on:



12. If at any time a mistake is made you can go back landmark by landmark by clicking:



13. Clicking on this icon deletes all registered landmarks and lets you start all over again:



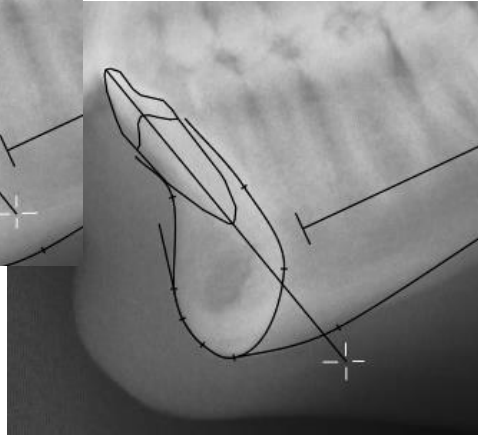


14. Entering teeth into Tiops4:

When you have entered the Spinal Point (sp/ANS) you will see a lower incisor floating when you move the mouse. The tooth will continue to float until you anchor the incisal edge by clicking after it has been placed a **short distance away** from the correct location.

The inclination can now be changed by moving the mouse sideways (Do not click!!).

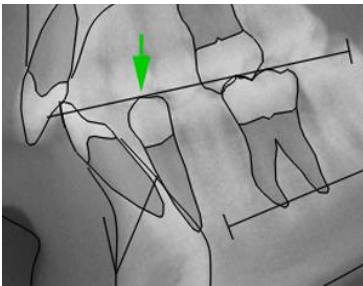
When the correct inclination is present the tooth can then be translated to the correct position of the incisal edge by simultaneously holding down the **<shift>** key and sliding the mouse until the correct position is reached. The final inclination is determined by clicking the left mouse button when the overall position is satisfactory. This locks the tooth into place.



15. The next tooth to be entered is the lower first molar. Then the upper central incisor is digitized and finally the upper first molar.

Note: The size of the incisors and molars are by default set to an average as it is convenient when superimposing consecutive headfilms.

The size of these teeth can however be individualized. Go to the menu option **Digitize** and then **unclick Standard Tooth Length**. Now you can size the length of the roots of the incisors and molars to better fit the headfilm image.

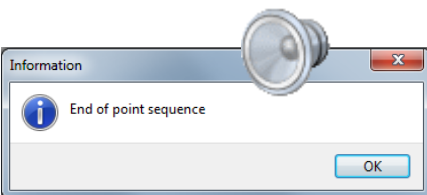


pop Cusp tip of the first lower premolar

16. Once the teeth are correctly placed continue by digitizing the cusp tip of the lower first bicuspid (pop). This together with the medial cusp of the lower first lower molar the so-called functional occlusal plane (OLf, Ricketts/Tiops).

17. Now follows a series of soft tissue points and after completing these optional landmarks the hyoid bone (hy), the TuberMaxillaer (tu), the AdenoidProminence1 (ad1) and the AdenoidProminence2 (ad2) are entered.

18. Complete digitization of all landmarks and when you reach the last of these the message box **End of point sequence** is to be accepted. The **Points** list is automatically opened and incorrectly digitized landmarks can be corrected by scrolling to select the actual point and re-digitize.



Points	
re1	[-10467,14751]
re2	[-8542,-13481]
re3	[12119,16291]
na	[-7621,-2195]
cbr1	[-6469,0]
sa	[0,0]
n	[-6469,0]
s	[416,0]
ba	[6583,1467]
cd	[3098,-2174]
ar	[3024,-3191]
rls	[2760,-4922]
rli	[2853,-6690]

19. Save the analysis by holding the key

and press the key



or click on:



20. If you try to close the program without saving the data you will be prompted to do so.

It is always a good idea to save your data after completing each step of the analysis so if anything goes wrong you can close the program and reopen it again to continue the analysis without losing your data.