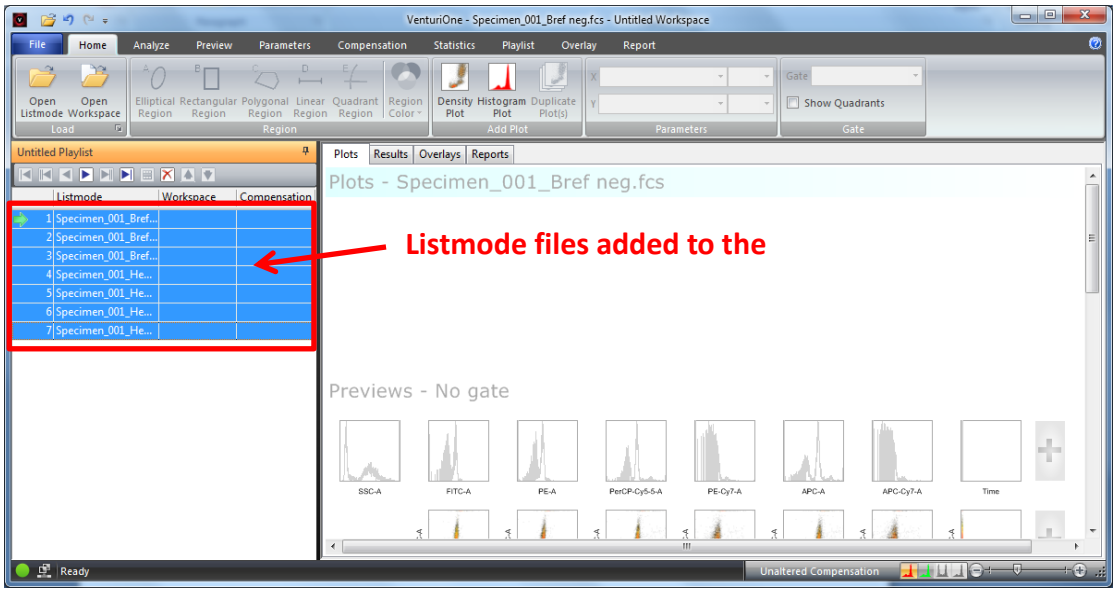
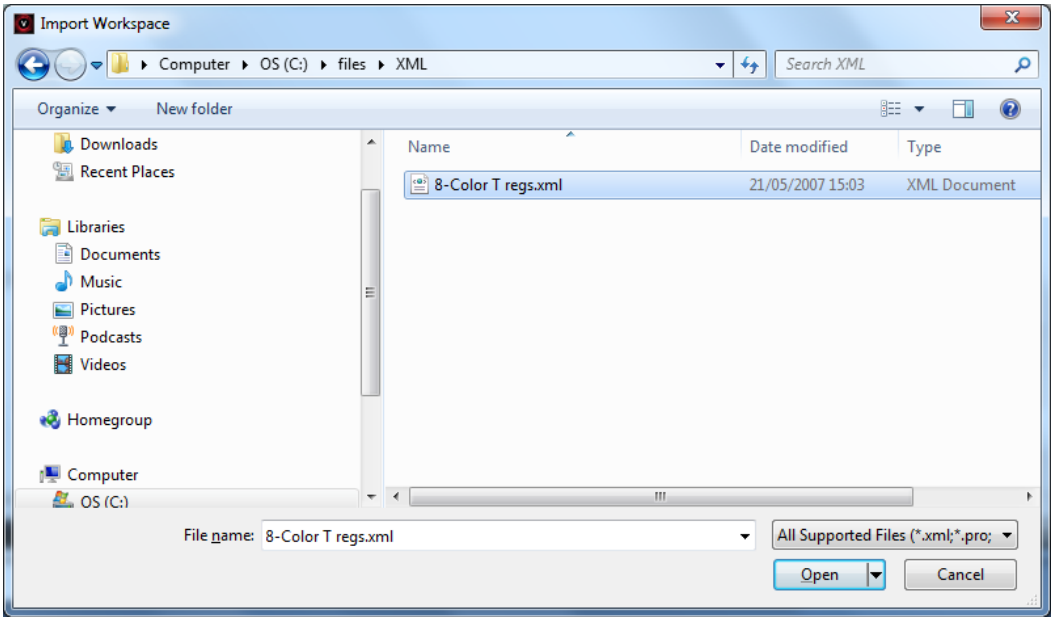
Import Beckman Coulter protocol files, Applied Biosystems Attune Workspace files. BD FACSDiva experiment folder exported files and template files

When importing Beckman Coulter protocol (*.pro) files, AB Attune Workspace (*.gws) files and BD FACSDiva experiment folder exported files or template (*.xml) files you first need to add the required listmode files to the playlist and highlight the relevant items.



Select **Import** and then **Import Workspace** from the **VenturiOne Menu**. This launches the **Import Workspace** dialog:



In this dialog locate and select the desired Beckman Coulter protocol file, Attune .gws file or BD FACSDiva .xml template or folder experiment .xml file and click **Open.** The file is imported into VenturiOne.

If the import fails for any reason an error message is displayed describing the reason for the failure.

If anything that you should be aware happens during the import, an entry is added to the Import Log, which is displayed at the end of the import.

Import of Beckman Coulter Protocols

Beckman Coulter protocol files produced by any of the FC500 series software packages can be imported into VenturiOne.

The Beckman Coulter protocol file is imported into the currently selected playlist item, replacing the workspace of the item. The plots, parameters, regions and gates from the protocol are the imported elements.

Parameters

The parameter names and stain names from the listmode file will be used, not those from the imported protocol.

If a mismatch occurs between the parameters in the listmode file and the parameters from the imported protocol the **Parameter Resolver** dialog **Error! Reference source not found.** will be displayed.

Import of Plots

Plots from the protocol are only imported if there is a corresponding matching plot type for them in VenturiOne. The Import is as follows:

- All dual parameter plots (except those containing Prism parameters) are imported as Density plots.
- All single parameter plots are imported as Single Parameter Histogram plots.
- Tomogram, Surface, Info, Legend, Prism, Overlay plots and FlowPAGEs are not imported.

If some of the plots in the source protocol cannot be imported the following entry is added to the **Import Log**:

> “Some of the plots could not be imported.”

Plot scaling settings are carried across.

> If the plot scales cannot be imported into VenturiOne the following entry is added to the Import Log:
>
> > "Unusable Scale Settings. Some Scale Settings are not valid within VenturiOne. The position of events of imported data may have changed. Please check and adjust all scaling and region positions."

! When the protocol has TrueView enabled the plot in VenturiOne uses V-Log scale with the number of decades set according to the default in VenturiOne. As a result of this the position of events of imported TrueView data may have changed during the import. You should check and adjust all region positions and V-Log settings.

If the source protocol has TrueView enabled, the following entry is added to the **Import Log**:

> "The position of events of imported TrueView/Bi-Exponential data may have changed. Please check and adjust all region positions and V-Log settings."

Plot smoothing and color precedence plot settings from protocols are not imported.

Import of Regions

The import of regions is as per the table below:

Beckman region	VenturiOne region
Polygonal region	Polygonal region
Rectangular region	Rectangular region
Quadrant region – perpendicular quads	Quadrant region – perpendicular quads
Quadrant region – flexi quads	Quadrant region – perpendicular quads; same centre point as original
Elliptical autogate	Polygonal region
Contour autogate	Polygonal region
Linear region	Linear region
Multiple linear region	Linear regions, one per each part of the Multiple Linear region
Single Prism divider	Not imported
Multiple Prism divider	Not imported

If any of the coordinates of the imported regions are outside the plot space they will be cropped at 0 and 1023 as appropriate.

If regions are defined on plots with negative decades (when using TrueView) they will simply be copied across to VenturiOne. This ensures that the regions will be in the correct position. However statistics may differ since the TrueView calculations cannot be reproduced in VenturiOne.

Linked region and region tracking functionality is currently not imported.

! Due to differences in region placement and methods of calculation there might be differences in the values of statistics calculated between other applications and VenturiOne.

Region and Gate names

Region and Gate names will be imported from the protocol and used in VenturiOne.

If any of the names of the imported regions are invalid in VenturiOne, they will be renamed in the default VenturiOne sequence (A, B, C etc). The gates will also be renamed. The following entry is added to the **Import Log**:

> "Unusable region names. Some regions names are not valid within VenturiOne and have been renamed. Gates have not been imported."

Import of Gates

When possible, gates' names and logic are reproduced exactly from the source protocol.

If the source protocol contains gate names which are invalid in VenturiOne, they will be renamed in the default VenturiOne sequence (A, B, C etc.). The following entry is added to the **Import Log**:

> "Unusable Gate names. Some Gate names are not valid within VenturiOne and have been renamed."

When the gate logic is violated by the exclusion of non-supported plot types, gates will not be reproduced. The following entry is added to the **Import Log**:

> "Unable to import Gates" Gate logic could not be reproduced because required plot(s) could not be imported. Gates have not been imported."

If the source protocol contains region names with spaces these names will be enclosed in quotation marks when used in gate logic.

Import BD FACSDiva experiment folder exported files

FACSDiva experiment folder contains listmode files from an experiment and an XML file that contains workspace information for the listmode files in the experiment.

Elements from a FACSDiva Normal worksheet are imported from the XML file for the LMD files selected in the **Playlist** only where the selected file is referenced in the XML file.

Elements from a Global worksheet are always imported (as long as parameters match) to all currently selected playlist items.

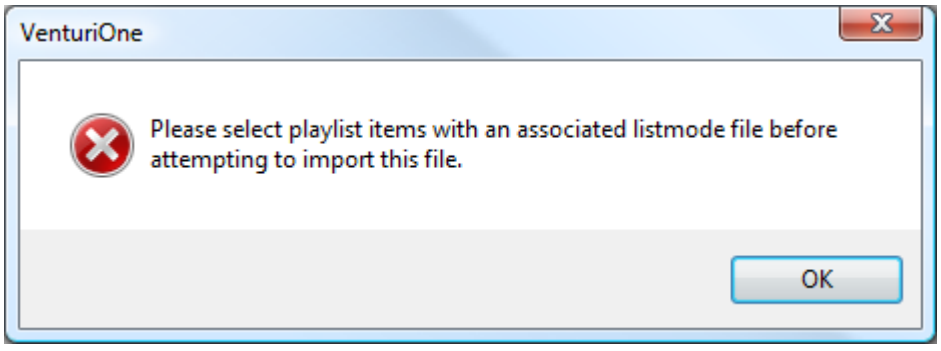
Any selected playlist items without a listmode file are skipped. In this case the following warning will be added to the **Import Log**:

> "Unable to import file to this item as there is no listmode file."

Any selected playlist items whose listmode file is not specified in the Diva xml will be skipped. In this case the following warning will be added to the **Import Log**:

> "Unable to import file to this item as the listmode file is not specified in the workspace."

If no playlist items are selected the following message is displayed:



Select **OK** to close the message; the file is not imported.

The import of parameters, plots, regions and gates is the same as for .zip.

Import BD FACSDiva templates

FACSDiva template XML file contains workspace information and references to for the LMD files. The actual LMD files are not present.

Elements from a FACSDiva Normal worksheet are imported from the XML file for the LMD files selected in the **Playlist** according to file index.

Elements from a Global worksheet are always imported (as long as parameters match) to as many selected playlist items as are referenced in the xml.

If the number of indexed files in the xml file exceeds the number of selected items in the **Playlist**, then the remaining elements will not be imported.

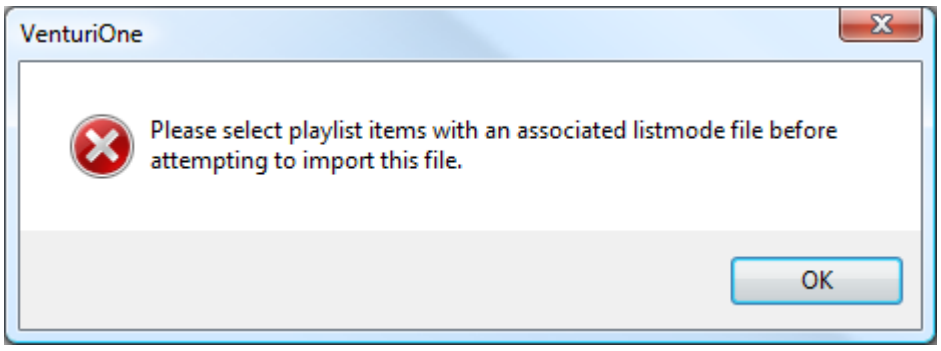
Any selected playlist items without a listmode file will be skipped. In this case the following warning will be added to the **Import Log**:

> "Unable to import file to this item as there is no listmode file."

Any selected playlist items whose listmode file is not specified in the Diva xml will be skipped. In this case the following warning will be added to the **Import Log**:

> "Unable to import file to this item as the listmode file is not specified in the workspace."

If no playlist items are selected the following message is displayed:



Select **OK** to close the message; the file is not imported.

The import of parameters, plots, regions and gates is the same as for .zip experiments.

Import Applied Biosystems Attune workspace files

Parameters

The parameter names and stain names from the listmode file will be used, not those from the imported protocol.

If a mismatch occurs between the parameters in the listmode file and the parameters from the imported protocol the **Parameter Resolver** dialog **Error! Reference source not found.** will be displayed.

Attune software allows you to change the parameter name on a per plot basis; this information is not saved in the listmofe file and hence is not imported into VenturiOne.

Import of Plots

The import of plots is as follows:

- Dual parameter Density plots are imported as Density plots.
- Dual parameter Dot plots are imported as Color Precedence plots.
- Histogram plots are imported as Single Parameter Histogram plots.

Plot titles will be imported.

Scaling of Plots and Parameters

All Attune axis types are imported,

Attune LinLog parameters will be imported as V-Log parameters. The V-Log Linearity setting will default to 63% and the V-Log Negative Section will default to 100%. These settings should be adjusted as required.

The histogram Count axis will be imported as Linear.

The maximum scale value possible is 8388607 for all parameters.

The minimum scale value is -8388608 for V-Log, 0 for Linear and 1 for logarithmic parameters.

Zooming

Plot parameters that have a manual scaling selected but are set to the default values will not be treated as zoomed parameters.

Zooming in VenturiOne is Parameter based not plot based, if multiple zoom levels are used for one parameter the lowest “Minimum” value and the highest “Maximum” value for each parameter will be used when imported.

If an individual parameter has zooming present on multiple plots scales (Linear, Logarithmic or LinLog), the most appropriate value for the imported parameter will be selected. Imported plots not matching the selected value will be set to display as unzoomed in the workspace after import.

Import of Regions and Quadrants

The import of regions and quadrants is as per the table below:

Attune Quadrant	VenturiOne Quadrant	Notes
Histogram	Linear	Regions are equally spaced on the Y axis i.e. 1/2 plot height for 1 region, 1/3 plot height for 2 regions etc.
Rectangular	Rectangular	

Oval	Ellipse	
Polygon	Polygonal	
Bi-Marker	Linear	2 linear regions are created.
Quadrant	Quadrant	All quadrant nodes imported as vertical and horizontal lines. If lines are disjointed they are aggregated into one and positioned at half their difference.

Import of Gates

The functionality referred to as back gates in Attune software equates to per plot Color Precedence configuration. VenturiOne does not support per plot Color Precedence.

Imported gating strategy is such that parent gate is always ungated and the gate equation is the full expanded equation.

Quadrant gates will be sandwiched by brackets i.e. (R1>1).

Invalid Characters and Length

The imported workspace is checked for invalid characters and replaced with valid characters where needed. These non-fatal warnings are appended to the Import Log for each workspace processed. The following table details the invalid characters.

Workspace Area	Invalid Characters	Replace Characters
Plot Title	[]	{}
Regions Quads and Gates	/*^!&|()\"\t	All replaced with '_' (underscore)
Regions Quads and Gates	" " (Consecutive spaces)	All "__" (2 underscores)

Plot title length is limited to 50 characters.

Region names have leading and trailing spaces removed.

If a region name is truncated on import or if a region name consists entirely of invalid characters then the affected region will be renamed to the next available region letter.

Imported region names are tested for uniqueness and if necessary are appended with an incrementing suffix i.e. '_1', '_2', '_3' etc until they are unique.

For imported quadrants, the name of node 1 will form the basis for the remaining nodes in that quadrant. A quadrant of names R1, R2, R3 and R4 will become R1>1, R1>2, R1>3 and R1>4.