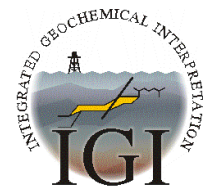


p:IGI+ user guide

p:IGI+ version 1.0.3545.2

(Preview release)

IGI Ltd, Sept 2015



Using this guide

This guide is not intended to be a full manual for p:IGI+, but is designed to illustrate the main features that are currently implemented. We are trying to make p:IGI+ sufficiently intuitive that a full user guide is not needed.

To get the most out of this guide we would strongly advise you to also view the accompanying videos we have made to demonstrate key features in p:IGI+.

These can be found at: <http://www.igild.com/pigiplus-videos.html>

Also to assist with getting starting with p:IGI+ quickly we have also compiled a p:IGI+ Demo File. This can be downloaded from the IGI web site.

All content in this guide is linked. Using the Guide contents page simply click the information desired. To return to the Guide Content simple click:



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Introduction

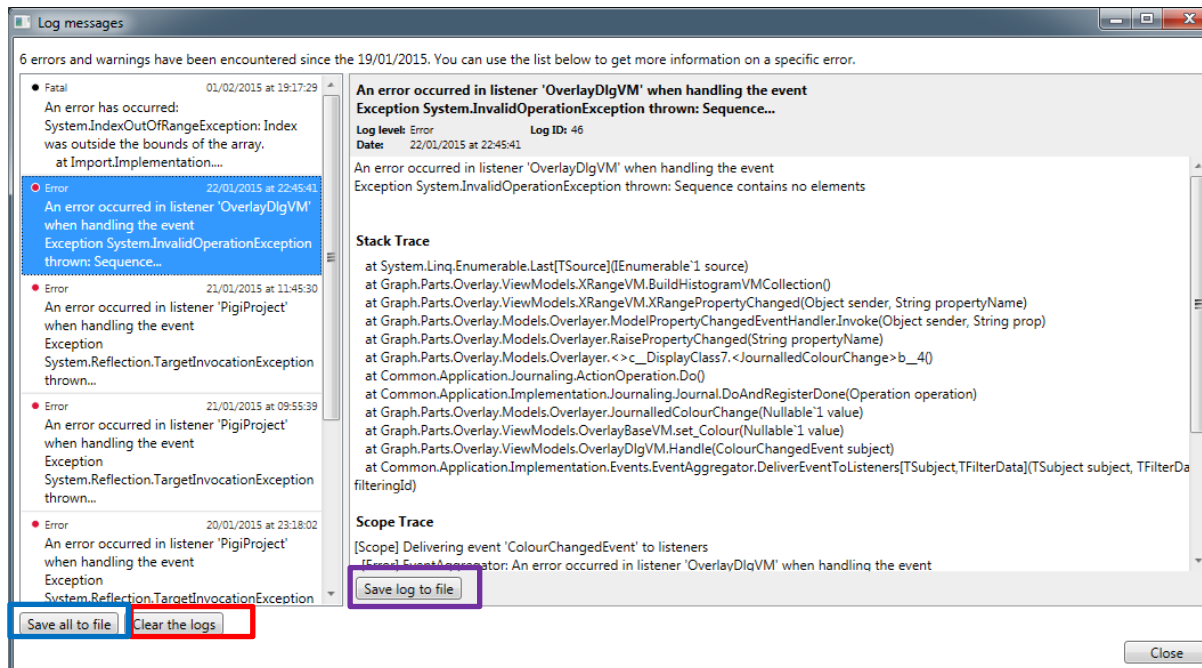


- p:IGI+ remains in active development
 - we are providing this preview release to enable users to gain familiarity with p:IGI+ and provide feedback on recent developments
- Many new features are present
 - and most p:IGI-3 functionality is still supported
- We have focussed on usability and functionality
 - we have tried to make all actions have direct effects, with less need to apply or remember to calculate
 - you will see the impact of changes propagate throughout the system
 - undo is supported across the application
 - we are aware that there is still work to do
 - you might find some areas are not perfectly responsive and you need to wait a little for the application to catch-up
 - graphs are still in active development

Logging and the reporting of errors



- In the unlikely event of encountering a problem we'd really appreciate you notifying us – sending all issues to: pigiplus@igiltd.com
- From the Help -> View logs ... menu item you can see any issues
- It is simple to **save the log file**, **save all log files** or **clear the logs** to start afresh
 - when sending us a log file it would be very helpful if instructions on how to reproduce the issue were also included if possible



p:IGI+ Screen Layout



The screenshot shows the p:IGI+ software interface with the following callout boxes:

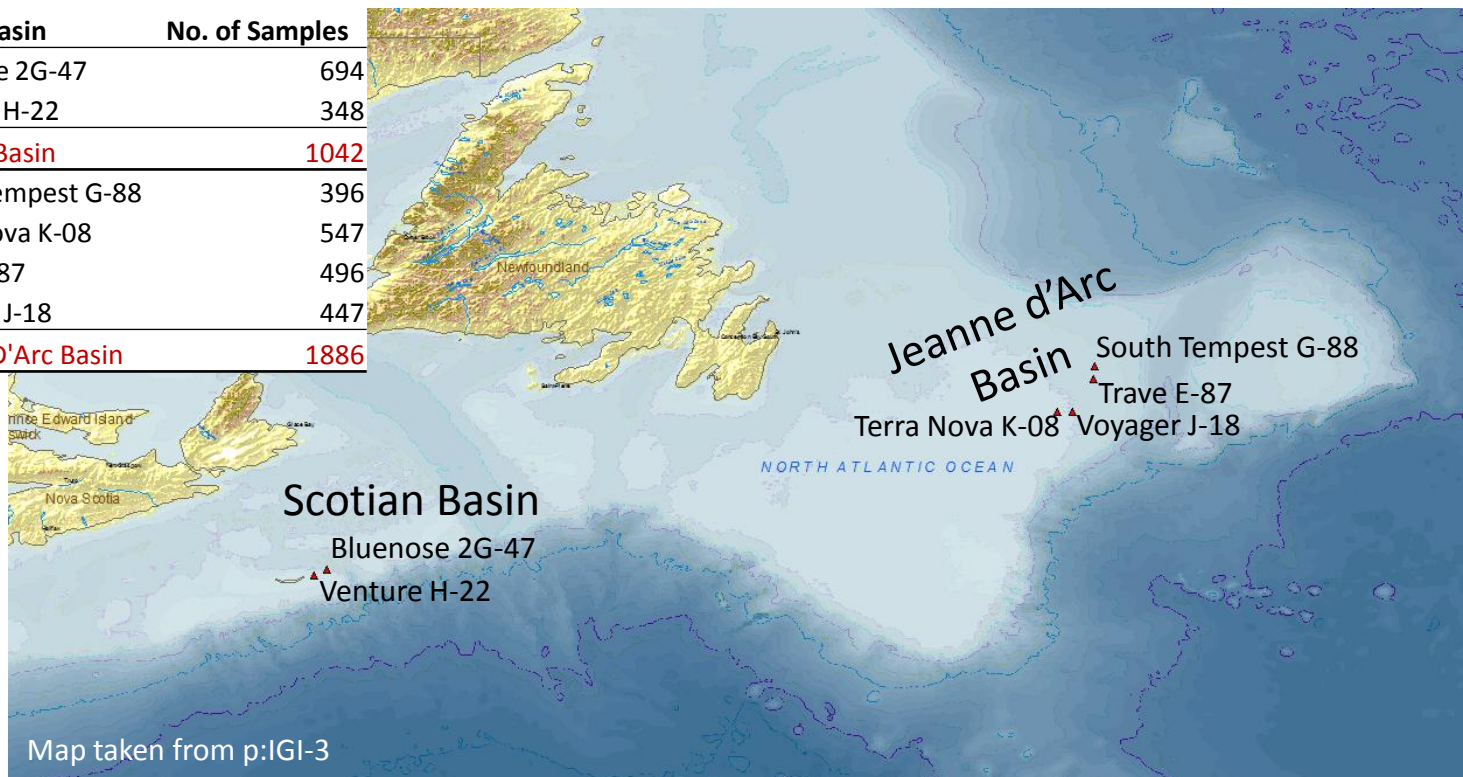
- Conventional Windows menu**: Points to the menu bar (Project, Edit, Data, Page, Graph, Map, Help).
- Toolbars for most common actions**: Points to the toolbar below the menu bar.
- Project workspace Used to open data views & graphs (windows not fixed to this space)**: Points to the main central area of the application.
- Artefact Manager with folders for graphs, pages, etc.**: Points to the right-hand pane containing a hierarchical tree view of project artifacts.
- Artifact Manager filters**: Points to the bottom of the right-hand pane, where filters for the artifact list are located.
- Information / notification area**: Points to the bottom-left corner of the application window.

Application Version: 1.0.3516 Current Context: Artefact Manager

p:IGI+ Demo Project File



Well / Basin	No. of Samples
Bluenose 2G-47	694
Venture H-22	348
Scotian Basin	1042
South Tempest G-88	396
Terra Nova K-08	547
Trave E-87	496
Voyager J-18	447
Jeanne D'Arc Basin	1886



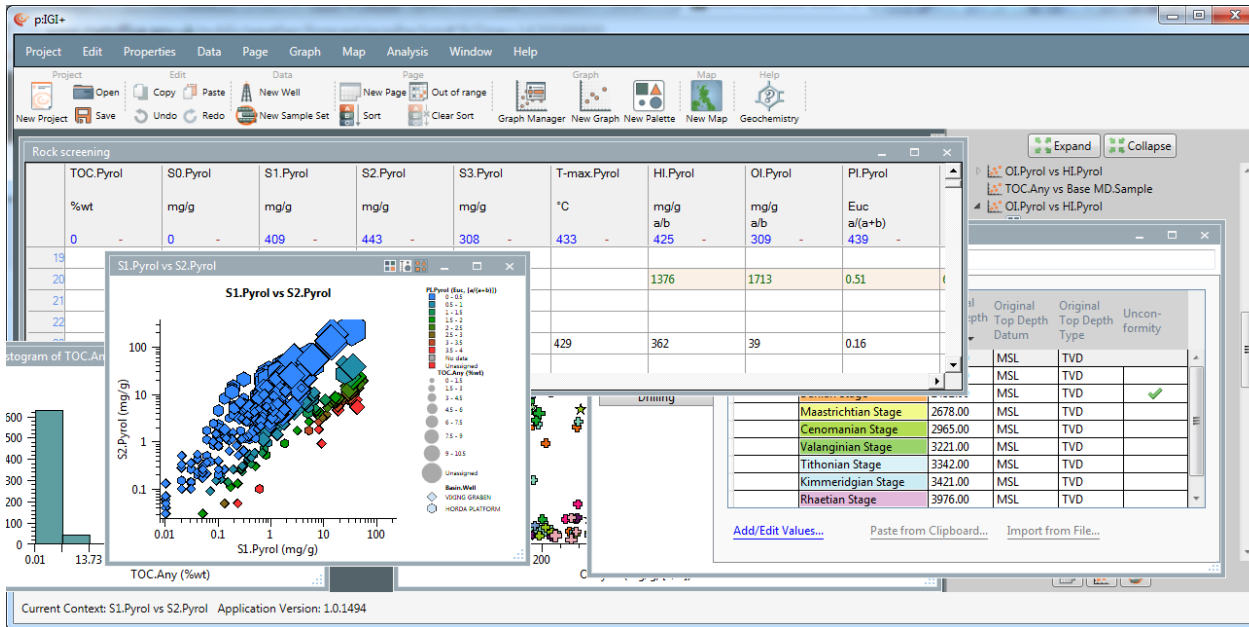
Taken from our recently expanded 2015 East Coast Petroleum commercial geochemical database (49,800 samples from 270 wells) a small subset consisting of ~3,000 samples from 6 wells located in adjacent basins has been compiled into a p:IGI+ demonstration dataset. Both Basins contain samples covering Cenozoic & Mesozoic stratigraphy

Some key observations which can be taken from the Demo Project File while exploring it are presented on the next slide

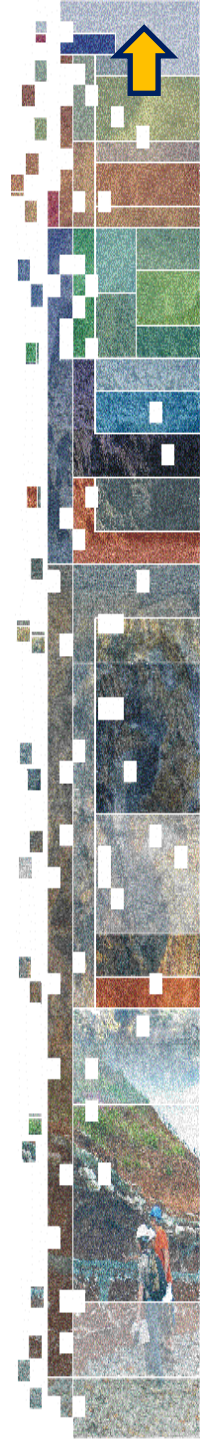
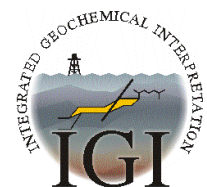
p:IGI+ Demo Project File

- Data from both basins include a variety of samples types including rock cuttings, rock extracts, recovered oils, and optical maturity samples. This enables effective source rock screening, maturity, palaeo-environment and source oil correlation assessment to be conducted (biomarker/isotope analysis is absent from the dataset)
- Geochemical differences in relation to organic matter type & quality between the two basins are stark due to the palaeo-geography and subsequent environmental redox conditions present at the time of deposition
- Burial and thermal histories between the two basin have also differed with Scotian Basin Mesozoic samples located 2km deeper than seen with age equivalent samples in the Jeanne d'Arc basin. This produces completely different petroleum risk assessments between the two basins especially with regards to generation timing / trapping etc...
- Both basins have discovered oil and correlate well against respective Mesozoic kerogen types present. In the Scotian Basin, a maturity difference between basin fluid and the sampled source rock cutting samples is also noted which could see the Early Cretaceous as an important interval of interest
- Given the demo dataset and the capabilities of p:IGI+ the observations and interpretations can all be replicated through a combination of available Autographs, Sample sets and creating new graphs with associated underlays and palettes

Your data in p:IGI+

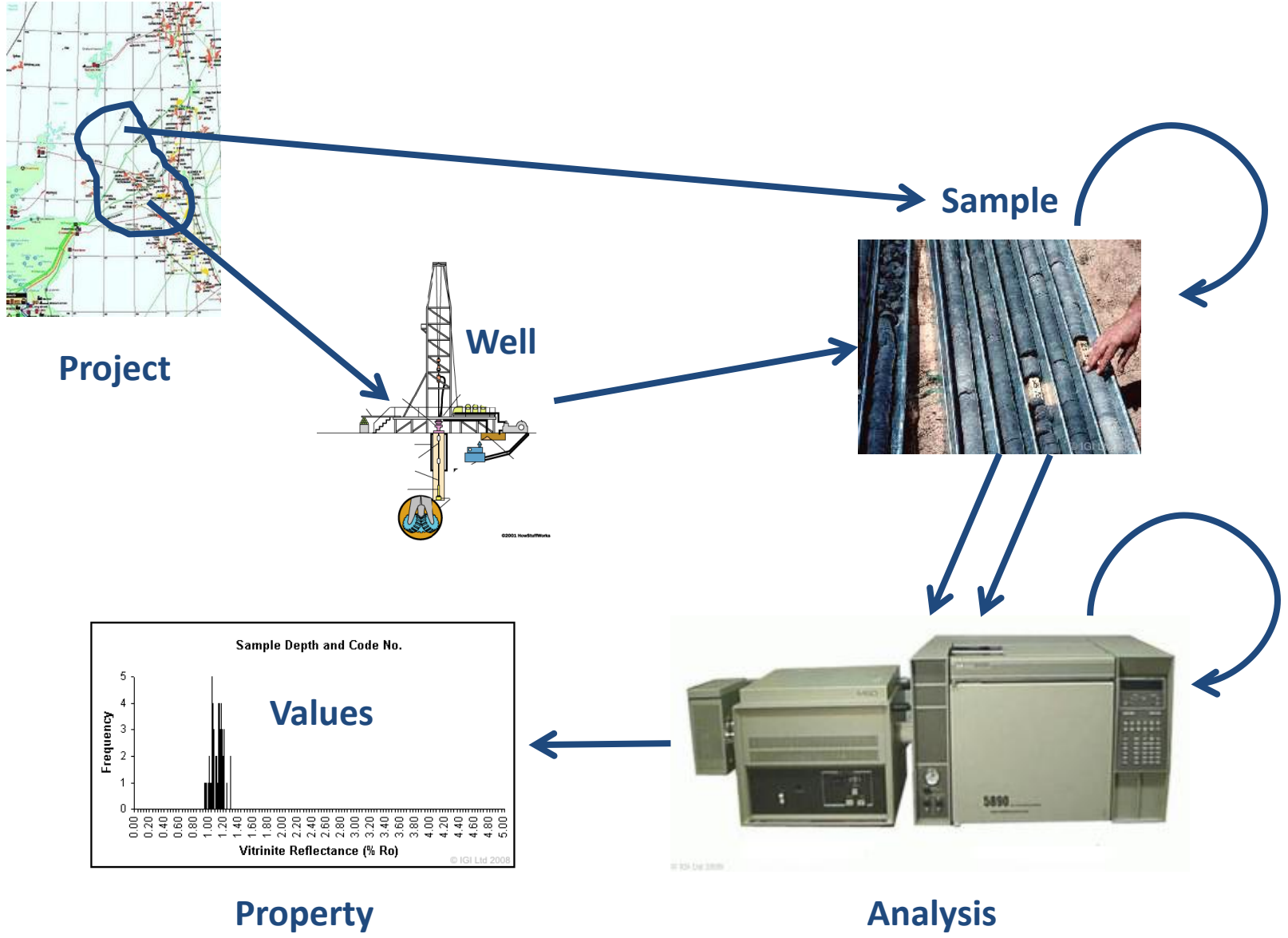


This section focusses on the p:IGI+ data model, describing the basis for this what this means in practice, how we have mapped properties/data from p:IGI-3 and the impact that these changes might have

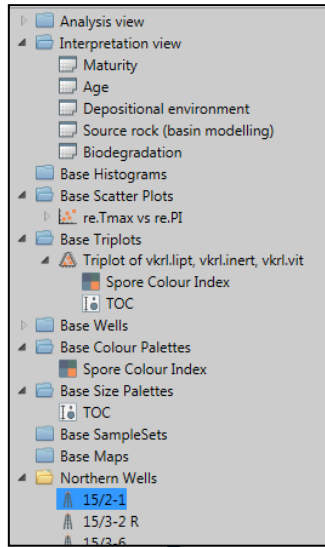




Basic p:IGI + data model in pictures



Basic model in p:IGI+



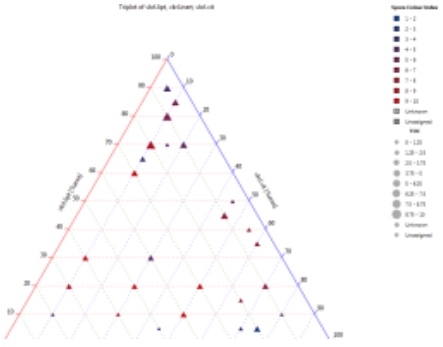
The **project** is a container for all your data (samples) and artefacts (graphs, palettes, sample sets, wells etc)

The **sample** is the most basic element, representing the solid, liquid or gas that is of interest.

A **well** is a mechanism for grouping samples and contains information on depth, datums etc.

Well	Depth	Core	Sample	Depth	Depth	Depth	Depth	Depth	Depth
15/3-2 R	4407.5	Core	VIKING GP						
15/3-2 R	0130-0B	Composite s...	Gas/conden...	VIKING GP					1.30
15/3-2 R	0120-1L	S/Set	Core	VIKING GP	0.2	81	38		
15/3-2 R	0066-2L	S/Set	Core	VIKING GP	0.3	207	129	0.99	
15/3-2 R	0069-2L	S/Set	Core	VIKING GP	0.2	74	132		
15/3-2 R	0072-2L	S/Set	Core	VIKING GP	0.3	144	88	1.05	

- Well summary
- Sample summary
- Geology summary
- Sample physical properties
- Rock screening
- Vitrinite reflectance
- Calculated / derived maturity indicator
- Visual kerogen in reflected light
- Visual kerogen in transmitted light
- Kerogen colour indices
- Extraction of organic matter
- Elemental analysis
- Sample topping
- Sample precipitation
- Gravimetric bulk composition of oil / e
- TLC/FID bulk composition of oil / extra
- Bulk properties of oil / extract



Well	geol. base la n/a	geol. base per n/a	lecc. TOC %wt	re.HI mg/g	re.OI mg/g
VIKING GP	1614	142	687	424	308
VIKING GP			5.5	172	15
VIKING GP			7.2	96	17
VIKING GP			6.2	76	24
VIKING GP			0.8	53	184
VIKING GP			4.4	85	27
VIKING GP			4.0	80	26
VIKING GP			0.7	26	301
VIKING GP			0.6	25	421
VIKING GP			3.5	62	24
VIKING GP			3.6	31	34
VIKING GP			1.6	31	40

Values are the results of the measurements

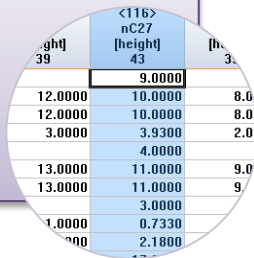
A **property** is something that is measurable and is physically or chemically meaningful

A sample is subject to **analyses**, each of which can generate multiple values for a range of properties

Properties in p:IGI+

- We have defined >1500 common properties
 - in the short term IGI can add further properties if needed

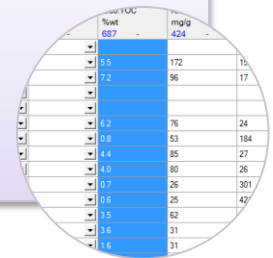
p:IGI+ does not have a limit on the number of properties available



height]	<116> nC27 [height]	[h...
39	43	3.
	9.0000	
12.0000	10.0000	8.0
12.0000	10.0000	8.0
3.0000	3.9300	2.00
	4.0000	
13.0000	11.0000	9.0
13.0000	11.0000	9.
	3.0000	
1.0000	0.7330	
000	2.1800	

- Developed a series of substitution rules to make easy to use
 - e.g. **TOC.Any**
 - but can be precise
 - e.g. **TOC.Leco**

Analysis groups mean properties can be measured many ways



mean TOC	mg/g
687	424
5.5	172
7.2	96
1.2	76
0.8	53
4.4	85
4.0	80
0.7	25
0.4	25
3.5	42
3.4	31
1.4	31

Analysis groups supported in p:IGI+

- Screening
 - bulk oil, bulk PVT (density, pour point, wax content)
 - chemical properties, metals, sulphur content
 - RE, visual kerogen (transmitted and reflected, VR, maturity)
 - gas, PVT
 - water analysis
 - physical rock
- Med/high res
 - extraction
 - sara and *LC
 - elemental, isotopes
 - GC (WO, PY, TE, SAT, HT)
 - GCMS (WO, SAT, ARO)
 - GCMSMS (BIO)
 - GCIRMS
 - gas analysis, gas isotopes
 - PVT (still developing)

p:IGI-3 to p:IGI+ data model: Properties



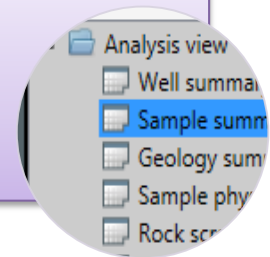
- You got familiar with the order of properties on the pages
 - this has changed in p:IGI+
- User columns were used to add new 'properties'

In p:IGI-3 we had columns

<7> Base-Depth [m]	<16> TOC [%] 237
4017.260	1.11
2310.380	1.65
1743.460	1.24
2328.670	7.5F
493.260	5
960	

- All p:IGI+ pages are 'custom' pages
 - we recommend you retain the IGI structure for the analysis pages
- A property is identified by:
 - **Property.Analysis[Unit]**
 - can easily search in property selection dialogue
- Key is to remember that in p:IGI+ everything is a view on the data!

In p:IGI+ we have properties and analyses

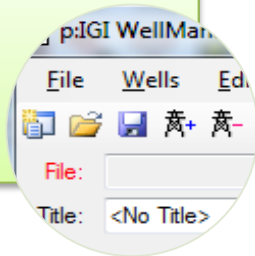


- In the future users will be able to add new properties which will fully integrate with p:IGI+, using the **ig.Share** system

p:IGI-3 to p:IGI+ data model: Wells

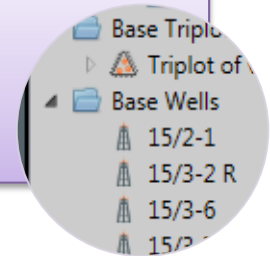
- You had to make a separate well manager file, and then apply this in p:IGI-3
 - updating was not simple
 - datums were not managed

p:IGI-3 had well manager as a separate application



- A well in p:IGI+ can store lots of information
 - datums, MD-TVD mappings
 - tops, logs
- These are integrated so if you change something in a well it will affect other things
 - e.g. changing the formation top depths will re-assign the relevant sample stratigraphy
 - changing a datum will recalculate all depths interactively

p:IGI+ has an integrated well concept

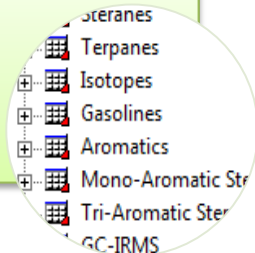


- Replacement of values depends on settings – computed values are automatically over-written, entered values are optional over-written (by deletion of the entered values)

p:IGI-3 to p:IGI+ data model: Molecular data

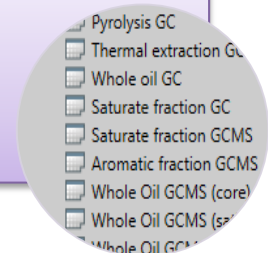
- By molecular data we mean GC, GC/MS and GC/MS/MS data
- This was spread across many pages in p:IGI-3
- Not always terribly logical
- Used the units to define height / area / concentrations, causing confusion
- Import from p:IGI-3 to p:IGI+ of molecular data is challenging because of the complexity of these mappings

p:IGI-3 had pages for molecular data



- Many molecular properties included (600+)
 - can be measured by wide range of analyses
- We have a property indicator for molecular data
 - **Property[Indicator].Analysis [Unit]**
 - height, area, concentration (h, a), unknown
 - can now store all GC* data
 - units are a separate issue

In p:IGI+ we have completely reviewed the molecular properties



- p:IGI-3 molecular data is imported into p:IGI+ with an unknown property indicator by default

p:IGI-3 to p:IGI+ data model: Gas data

- Gas data is naturally complicated
 - there are a range of types of gas data, which measure different aspects of the gases
- Units were used to identify the type of gas data, but this suggested conversion was possible!

p:IGI-3 had pages for gas data

- Gas data is split into two main types
 - sample gas (headspace / isotube etc)
 - mud-gas logs (planned feature)
- We have a property indicator for gas data too
 - `Property[Indicator].Analysis [Unit]`
 - volume, mass, mole, or unknown fraction
 - again, units are separate issue
 - conversion between indicators may be possible if complete mixture is known

In p:IGI+ we have completely reviewed gas properties

- p:IGI-3 gas data is imported into p:IGI+ with an unknown property indicator by default

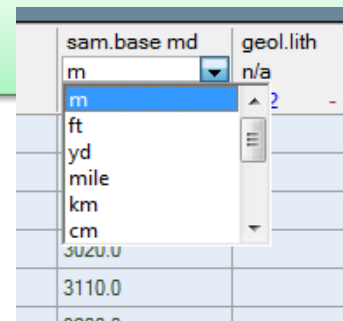
p:IGI-3 to p:IGI+ migration: Units and unit groups

Most unit groups and units stay the same

- mappings from p:IGI-3 to p:IGI+ should be fine for most properties

Changes to fractional units

- mass e.g. %wt, ppt (mg/g), ppm ($\mu\text{g/g}$), ppb (ng/g)
- volume e.g. %vol, ppt (cm^3/l), scf/bbl
- mol e.g. %mol, ppt, ppm
 - conversion requires special functions



sam.base md	geol.lith
m	n/a
3110.0	
3200.0	

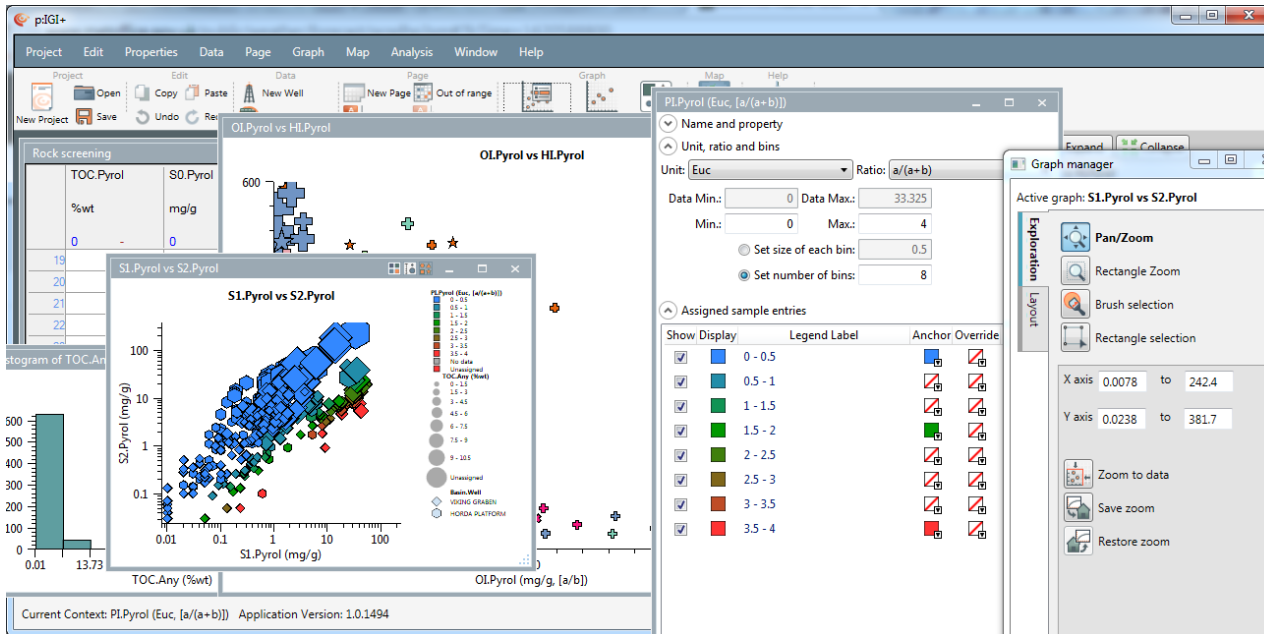
Ratios (a/b , $a/(a+b)$, b/a , $b/(a+b)$) are separated from the units

- import of ratio formats assumes the default p:IGI+ ratio at present, except for p:IGI-3 import which assumes the data is always stored as (a/b) which is true in p:IGI-3 files

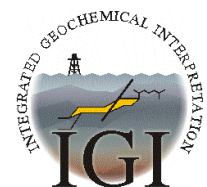
Can only convert between units within the same unit group:

- e.g. Unitless, Mass Ratio, Volume ratio, Mol ratio, Isotope ratio, Length, Temperature, Pressure, Mass, Density, Volume, Flow rate, Permeability, Conductivity, Velocity, Time, Thermal Conductivity
 - the dimensionless natural unit is called the Euclid [Euc]

Working in p:IGI+



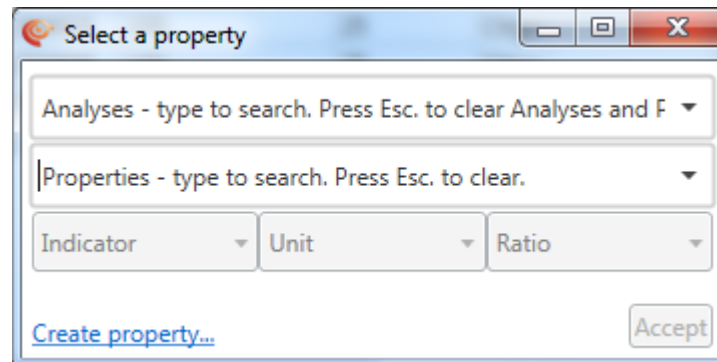
This section reviews the core functionality in p:IGI+
While not exhaustive; many minor features and capabilities are not highlighted, it reflects the preview release status of p:IGI+



Working with p:IGI+ Introduction



- The start point to working with p:IGI+ is either via:
 - a new blank project, into which data is imported
 - opening a p:IGI-3 project, which includes both project data and associated project artefacts e.g. graphs
- Data can be imported via one of the following sources:
 - data import from a Text based Ascii file (supporting a range of formats)
 - data import from a p:IGI-3 file
- Throughout the application the property selector is used to search and apply the appropriate properties to the task in hand. Search is possible via both Analyses & Properties for ease of use



Importing data from Text files



- Following Project > New import can be found on the Project > Import data > menu item
- Importing data from text files (ASCII) Project > Import data > Text file (ASCII)
 - p:IGI+ performs auto-encoding of your selected file layout and shows you a preview, but if it gets it **wrong you can manually correct it**

Stage 1 of 2: Configuring the file reader.

Preview of the import of up to first 100 lines of the file:

Well	Basin	Sample ID	Base-Depth	DatumName	Latitude	Longitude	Water depth	well.kb elev	sam.type	sam.top md	geol.base ls	geol.base per	geol.lith	TOC	S1	S2
			m		degrees	degrees	m	m		m				%wt	kg/t	kg/t
15/2-1	VIKING GRABEN		2740	Kelly Bushing	58.755361	1.594606	109	25	Cttgs		SHETLAND GP			0.39		
15/2-1	VIKING GRABEN		2840	Kelly Bushing	58.755361	1.594606	109	25	Cttgs		SHETLAND GP			0.33		
15/2-1	VIKING GRABEN		2930	Kelly Bushing	58.755361	1.594606	109	25	Cttgs		SHETLAND GP			0.27		
15/2-1	VIKING GRABEN		3020	Kelly Bushing	58.755361	1.594606	109	25	Cttgs		SHETLAND GP			0.36		
15/2-1	VIKING GRABEN		3110	Kelly Bushing	58.755361	1.594606	109	25	Cttgs		SHETLAND GP			0.33		
15/2-1	VIKING GRABEN		3200	Kelly Bushing	58.755361	1.594606	109	25	Cttgs		SHETLAND GP			0.35		
15/2-1	VIKING GRABEN		3290	Kelly Bushing	58.755361	1.594606	109	25	Cttgs		SHETLAND GP			0.33		
15/2-1	VIKING GRABEN		3350	Kelly Bushing	58.755361	1.594606	109	25	Cttgs		SHETLAND GP			0.45		
15/2-1	VIKING GRABEN		3440	Kelly Bushing	58.755361	1.594606	109	25	Cttgs		SHETLAND GP			0.27		
15/2-1	VIKING GRABEN		3530	Kelly Bushing	58.755361	1.594606	109	25	Cttgs		SHETLAND GP			0.29		
15/2-1	VIKING GRABEN		3620	Kelly Bushing	58.755361	1.594606	109	25	Cttgs		SHETLAND GP			0.27		
15/2-1	VIKING GRABEN		3710	Kelly Bushing	58.755361	1.594606	109	25	Cttgs		CROMER KNOLL GP			0.4		

Autodetected: Property delimiter: Tab, Sample delimiter: New line (LF), Optional Wrapping Symbol: *

User-defined: Do units of measure exist?: Yes, Units of measure on line: 2, Data starts on line: 3

Buttons: Cancel, Back, Next, Finish

Importing data from Text files

- Using aliases to help, p:IGI+ tries to link incoming properties to properties in the p:IGI+ property model
 - following initial auto linking any suggested link can be **manually refined**
- During linking p:IGI+ tries **to link both properties, and units if present**
- Filtering is used to focus on those links which p:IGI+ isn't sure about or failed to link

Filter by minimum warning level: Show all cases. ▾

Stage 2 of 2: Linking properties and units.
Preview of (up to) the first 100 lines of the file being imported:

Well	Basin	Sample ID	Base-Depth	Latitude	Longitude	Water depth	well.kb elev	Type	top depth	Base Lstrat	cstrat (base)	lithology	T.O.C.	S-1	S-2	S-3	T-max	H.I.	OI	
15/2-1	VIKING GRABEN		2740	58.755361	1.594606	109	25	Cttgs		SHETLAND GP			%wt	mg/g	kg/t					
15/2-1	VIKING GRABEN		2840	58.755361	1.594606	109	25	Cttgs		SHETLAND GP			0.33							
15/2-1	VIKING GRABEN		2930	58.755361	1.594606	25		Cttgs		SHETLAND GP		0.27								
15/2-1	VIKING GRABEN		3020	58.755361	1.594606	should not be here	109	25	Cttgs		SHETLAND GP			0.36						
15/2-1	VIKING GRABEN		3110	58.755361	1.594606	109	25	Cttgs		SHETLAND GP			0.33							
15/2-1	VIKING GRABEN		3200	58.755361	1.594606	109	25	Cttgs		SHETLAND GP			0.35							
15/2-1	VIKING GRABEN		3290	58.755361	1.594606	109	25	Cttgs		SHETLAND GP			0.33							

Refine the linking to p:IGI+ properties and units: Show all cases. ▾

Set bulk property indicators for import
Gas properties:
Molecular properties:

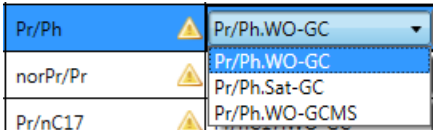
[Save linking file...](#)
[Load linking file...](#)
[Restore default linking](#)

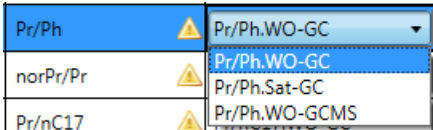
Property				Indicator			Units of Measure			Ratio Format					
Include	Edit Link	Status	Name In File	Selected Property	Modified	Status	Selected Indicator	Modified	Status	Uom In File	Selected Uom	Modified	Status	Selected Ratio	Modified
<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	Well	Name.Well					<input checked="" type="checkbox"/>		n/a				
<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	Basin	Basin.Well					<input checked="" type="checkbox"/>		n/a				
<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	Sample ID	Name.Sample					<input checked="" type="checkbox"/>		n/a				
<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	Base-Depth	Base MD.Sample					<input checked="" type="checkbox"/>	m	m				
<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	Latitude	Lat.Well					<input checked="" type="checkbox"/>	degrees	*				
<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	Longitude	Long.Well					<input checked="" type="checkbox"/>	degrees	*				
<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	Water depth	Water dpth.Well					<input checked="" type="checkbox"/>	ft	ft				

Cancel Back **Import** Finish

- Once happy with the linking you can **save an import linking template**
- You can reset to the default linking too if you like

Importing data from Text files

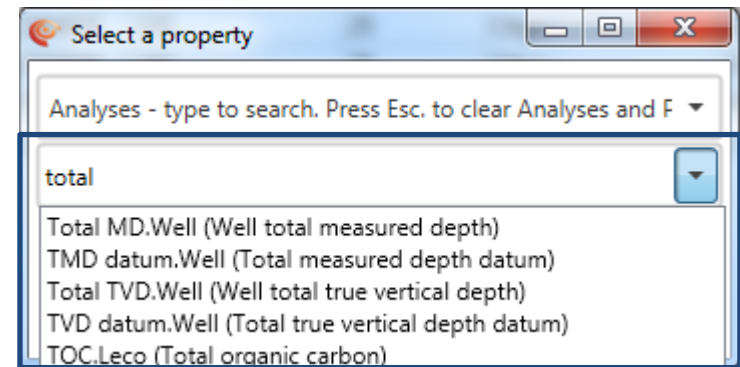
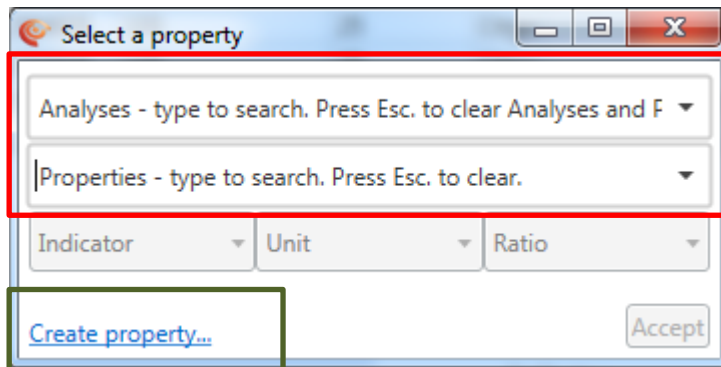
- Linking properties during import is a key stage
 - you can **exclude columns** from import if you are not sure
 - some will be auto-linked and you can review these and alter them
 - if a property has multiple link options to several analyses, the default will be chosen, but the others can be **selected from a dropdown**

 - if the property cannot be auto-linked you need to do this **manually using the property selector**
 - you can set the **property indicator** individually or as a bulk change (next slide), as well as the **units** and **ratio**
 - do not alter the ratio unless you are confident the ratio is different from the default provided
 - a visual indication is given if you **alter any of the suggested mappings**



		Property				Indicator		Units of Measure			Ratio Format				
Include	Edit Link	Status	Name In File	Selected Property	Modified	Status	Selected Indicator	Modified	Status	Uom In File	Selected Uom	Modified	Status	Selected Ratio	Modified
<input checked="" type="checkbox"/>		✓	Well	Name.Well					✓		n/a				
<input checked="" type="checkbox"/>		⚠	Basin	Basin.Well					✓		n/a				
<input checked="" type="checkbox"/>		✓	Sample ID	Name.Sample					✓		n/a				
<input checked="" type="checkbox"/>		✓	Base-Depth	Base MD.Sample					✓	m	m				
<input checked="" type="checkbox"/>		⚠	Latitude	Lat.Well					✓	degrees	°				
<input checked="" type="checkbox"/>		⚠	Longitude	Long.Well					✓	degrees	°				
<input checked="" type="checkbox"/>		✓	Water depth	Water dpth.Well					✓	ft	ft				

Importing data from text files - properties

- Selecting properties uses the property selector, which is used throughout p:IGI+
 - you can select using **dropdowns for the analysis and then property**, or simply **type to search in the property box**, which will bring a filtered list of properties with that string in them



- you can also set the indicator, unit and ratio if they are applicable to the chosen property
- if p:IGI+ does not contain the property you want to link to at import you can create a **project property for this column** (see next page)



Project properties

- Project properties are new properties the user can create that exist only in that p:IGI+ project
 - however, if you save a template of an artefact that uses project properties, these properties are stored too, and on sending the artefact to another user / project the project properties are re-created

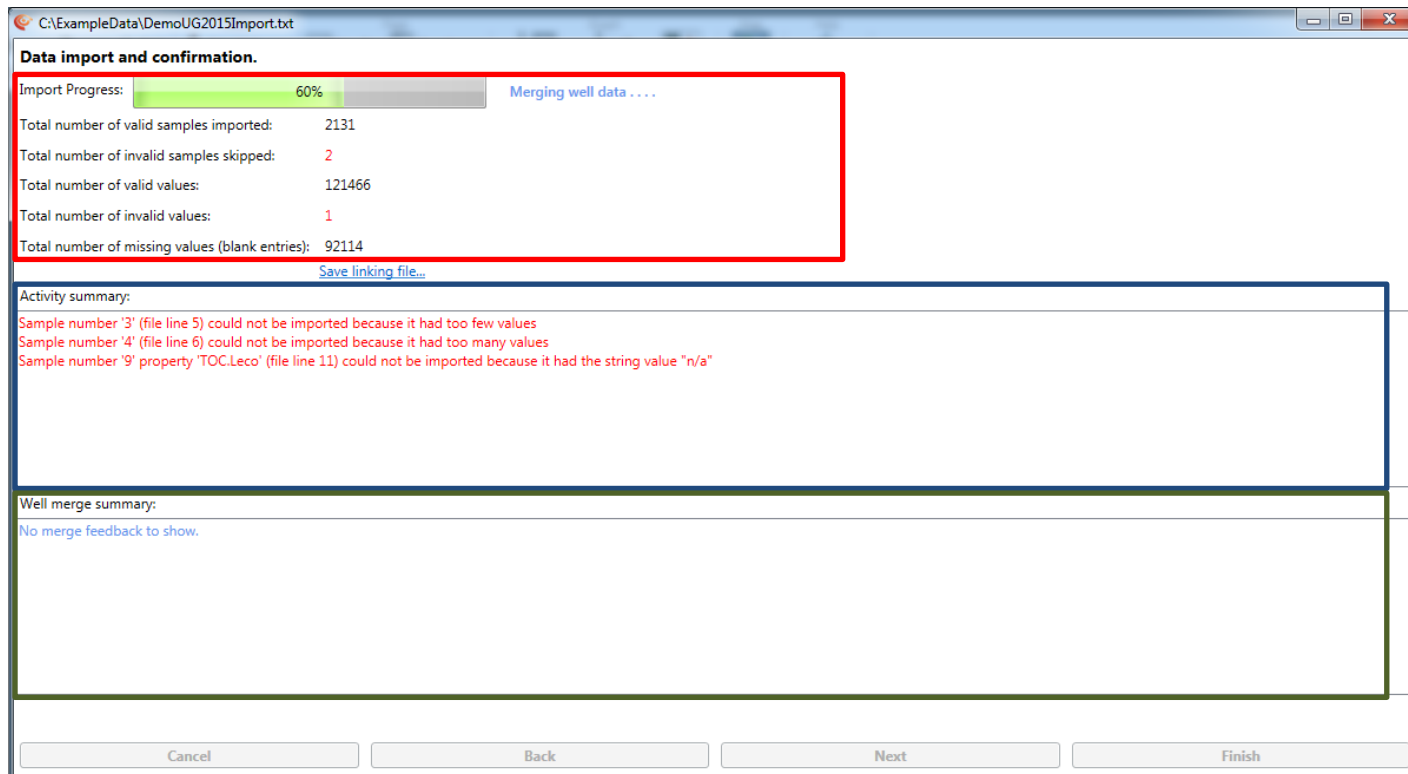
The screenshot shows the 'Create Project Property' dialog box with the following fields and values:

- Property type: Standard
- Data Type: Numerical
- Short name: New property
- Long name: My new property for a special purpo
- Analysis group: Custom
- Unit group: Unitless
- Default unit: Euc
- Default d.p.: 1
- Default ratio: NoRatio

Buttons: Create, Cancel

- you can create a range of types of project properties:
 - standard: normal observation with no indicator
 - can be numerical, in which case you assign units of measure, or text
 - gas: for gas data which includes indicators for the ratio (volume, mass, mol)
 - molecular: for GCxx data with indicators for area, height and concentrations
 - you can assign to any analysis group, but we recommend using the custom analysis group
 - you can give it a short and long name – short is used most widely, but the long name can be useful for search for it
- Project properties are complete properties and will appear throughout the system just like the IGI properties, but only in that project / template

Import summary



- The import summary shows you **progress of the import** (which can take some time for large data sets) and reports any errors:
 - errors in the data rows are reported in the activity summary, e.g. rows with too many or too few values or data values that could not be imported, e.g. text in numeric columns
 - any issues in merging well data (this is done on well name) where there are conflicts detected in the data being imported
- You can also save a linking template here if you forgot to do that previously

Importing data from p:IGI-2/3 files



- Importing data from a p:IGI-2/3 file: Project > Import data > IGI-2/3
 - Following a similar process to importing from a text file p:IGI+ will start by autolinking p:IGI-2/3 properties to properties in p:IGI+
 - you can **redefine our mapping** if you choose
 - When importing **molecular and gas data, property indicators can be assigned on bulk**
 - currently p:IGI+ does not support import of **user columns** due to the challenges in mapping them

Stage 2 of 2: Linking properties and units.

Preview of (up to) the first 100 lines of the file being imported:

Name	Source/Lab	Company	Date	Asset	Asset	Area	Area	Country	Country	Basin	Basin	Location	Location	General	Well	X-Coord.	X-Coord.	Y-Coord.	Y-Coord.	UTM Z
sample1						Shelf Edge	Shelf Edge							This is the general column	64/18-2	-3.986	-3.986	50.3769	50.3769	
sample2						Shelf Edge	Shelf Edge							Measure-IT	64/07-9	-4.169	-4.169	51.2378	51.2378	
sample3						Shelf Edge	Shelf Edge							Lab-Petro	64/07-9	-4.169	-4.169	51.2378	51.2378	
sample4						Shelf Edge	Shelf Edge							Measure-IT	64/07-9	-4.169	-4.169	51.2378	51.2378	
sample5						Shelf Edge	Shelf Edge							Lab-Petro	64/07-9	-4.169	-4.169	51.2378	51.2378	
sample6						Shelf Edge	Shelf Edge							Measure-IT	64/07-9	-4.169	-4.169	51.2378	51.2378	
sample7						Shelf Edge	Shelf Edge							UK-PetroLab	64/18-2	-3.986	-3.986	50.3769	50.3769	
sample8						Shelf Edge	Shelf Edge							UK-PetroLab	64/18-2	-3.986	-3.986	50.3769	50.3769	
sample9						Shelf Edge	Shelf Edge							Measure-IT	64/07-9	-4.169	-4.169	51.2378	51.2378	

Refine the linking to p:IGI+ properties and units:

Filter by minimum warning level: Show all cases.

Set bulk property indicators for import

Gas properties:

Molecular properties:

Save linking file...
Load linking file...
Restore default linking

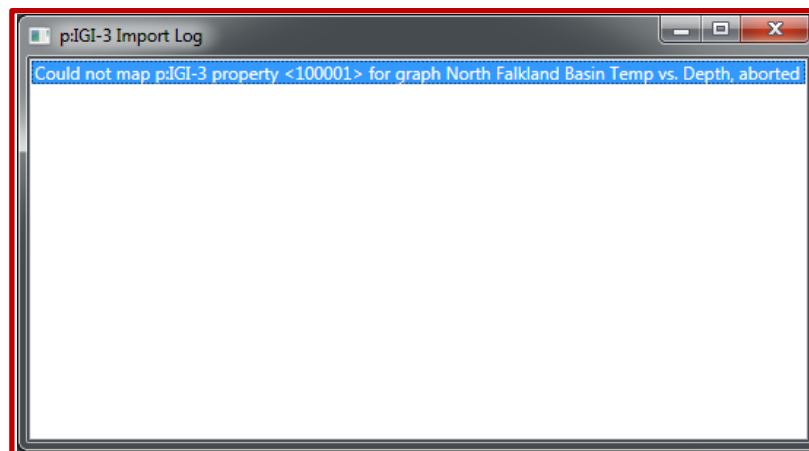
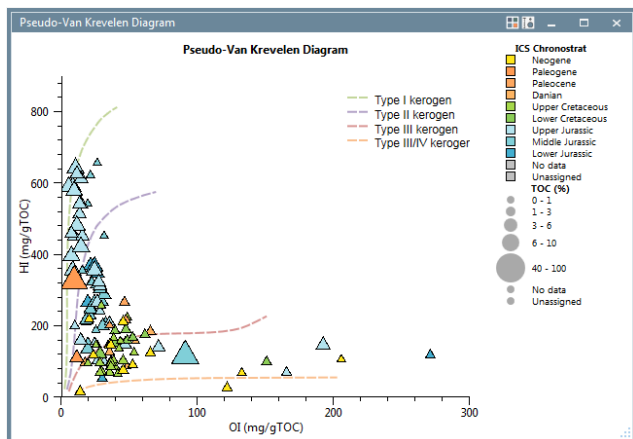
Property							Units of Measure				Ratio Format		
Include	Edit Link	Status	Name In File	Selected Property	Modified	Status	Uom In File	Selected Uom	Modified	Status	Selected Ratio	Modified	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Name	Name.Sample		<input type="text" value="un"/>	n/a	n/a		<input checked="" type="checkbox"/>			
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Source/Lab	Source.Sample		<input checked="" type="checkbox"/>	n/a	n/a		<input checked="" type="checkbox"/>			
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Company	Company.Sample		<input checked="" type="checkbox"/>	n/a	n/a		<input checked="" type="checkbox"/>			
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Date	Date.Sample		<input checked="" type="checkbox"/>	n/a	n/a		<input checked="" type="checkbox"/>			
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Asset	Asset.Well		<input checked="" type="checkbox"/>	n/a	n/a		<input checked="" type="checkbox"/>			
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Asset	Asset.Sample		<input checked="" type="checkbox"/>	n/a	n/a		<input checked="" type="checkbox"/>			
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Area	Area.Well		<input checked="" type="checkbox"/>	n/a	n/a		<input checked="" type="checkbox"/>			

Cancel Back Import Finish

Opening p:IGI-3 projects



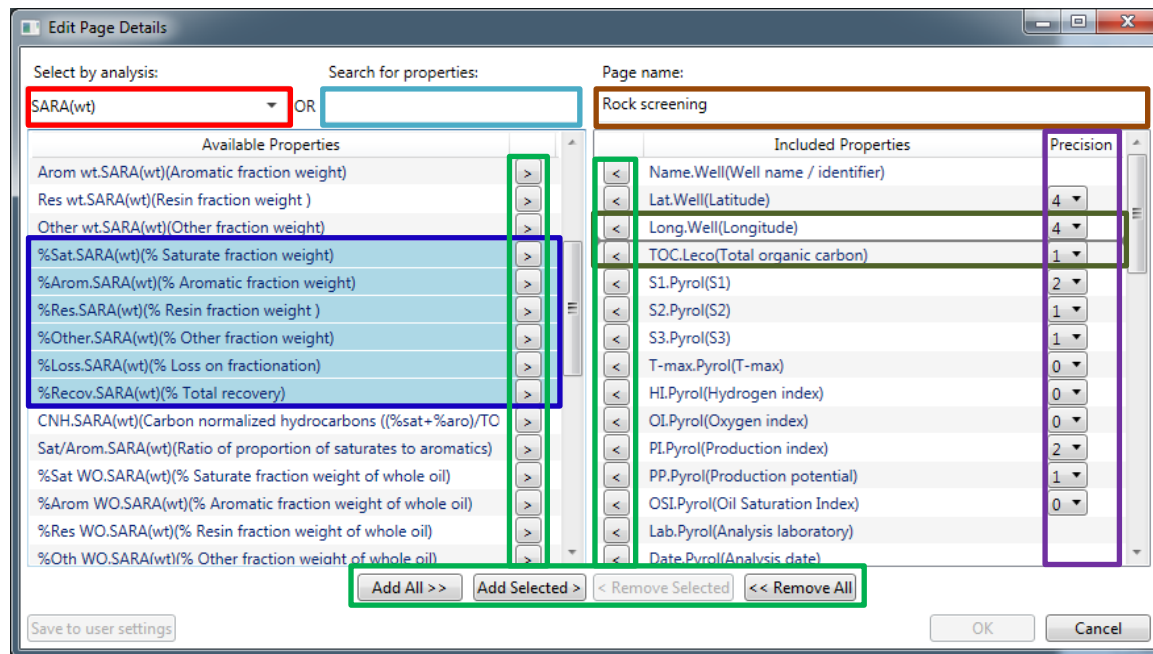
- An alternative to starting a p:IGI+ project from scratch is to open a currently created p:IGI-3 project: Project > Open p:IGI-3 project
- A new project (prompting the user to save the current project) is created and p:IGI-3 property data is imported as described in previous slide
- Imported along with the data are:
 - Supported graphs (histograms, scatterplots and triplots)
 - Palettes (but only mapped to colour and size at present)
 - Graph Overlays (if in the right units) appear in the graph layer 'Underlay' (see Editing overlays)
 - Wells are created (see Section Wells in p:IGI+)
- Sample sets are not yet imported
- A **report is generated** for artefacts not imported correctly



Setting up Data Views (pages)

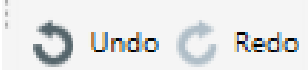


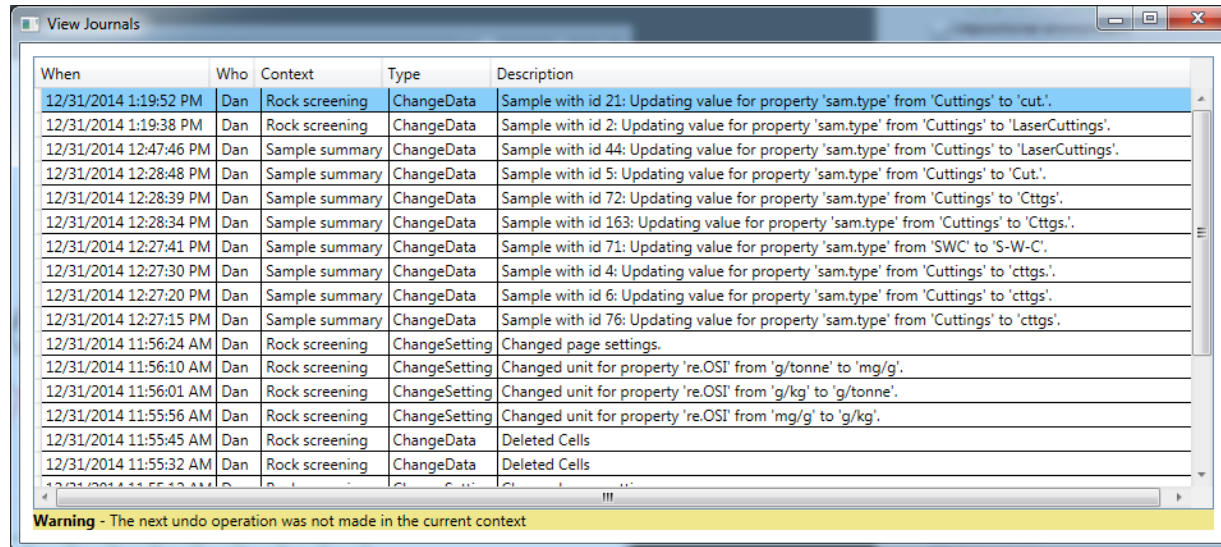
- All views on the data model (pages) are user configurable
 - don't edit analysis pages unless you really need to. Custom views of data properties can be created editing Interpretation views “User pages 1-5”
- Right click on a page in artefact manager > Edit page ...
 - select the properties you want to add either via **analysis** or **search**
 - multi-select (shift / ctrl), drag, drop & reorder with mouse, or use icons
 - set display precision, change the page name





Undo in p:IGI+

- Undo is supported where this makes sense in p:IGI+
 - Edit > Undo / Redo , Ctrl-z / Ctrl-y to undo / redo , or icons 
 - all data changes are undoable
 - most artefact changes are undoable (e.g. editing a palette, applying a palette to a graph)
 - some settings changes (e.g. page settings) are also undoable
 - if you undo an operation outside the current scope the ‘View Journals’ dialogue, which shows what you are about to undo. If happy to continue, re-execute the undo command

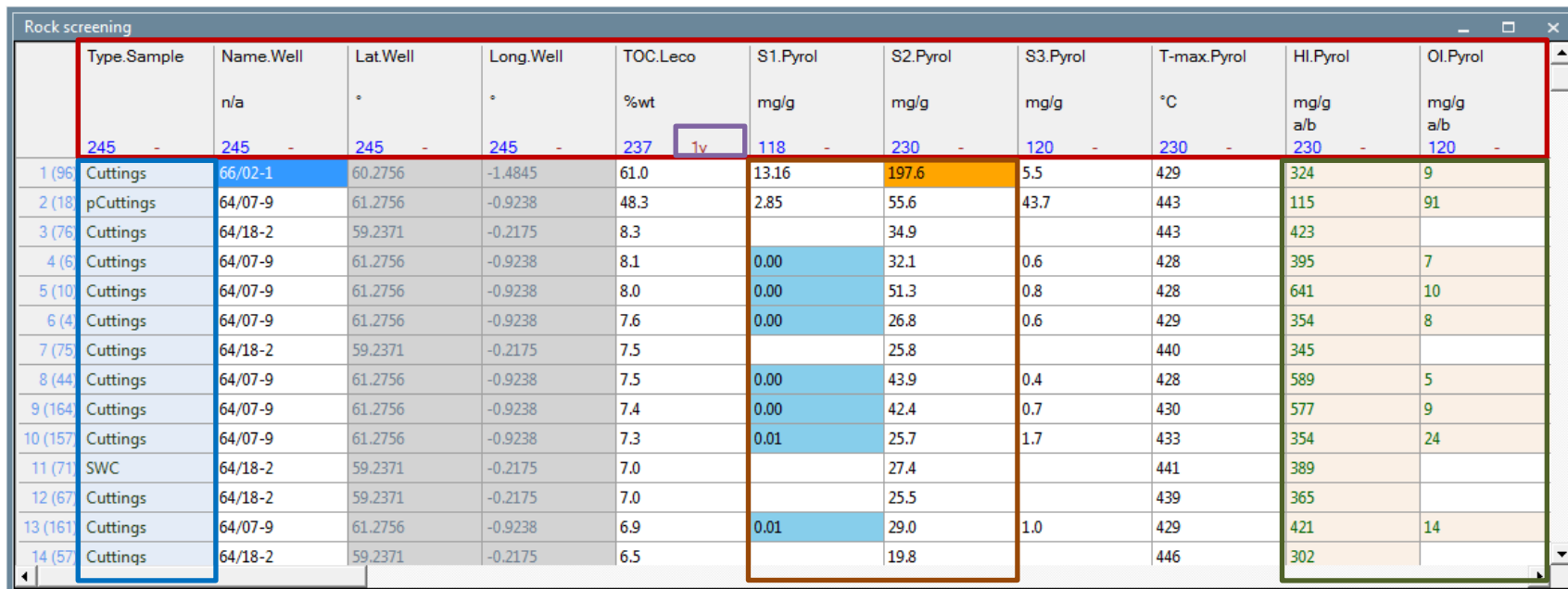


When	Who	Context	Type	Description
12/31/2014 1:19:52 PM	Dan	Rock screening	ChangeData	Sample with id 21: Updating value for property 'sam.type' from 'Cuttings' to 'cut'.
12/31/2014 1:19:38 PM	Dan	Rock screening	ChangeData	Sample with id 2: Updating value for property 'sam.type' from 'Cuttings' to 'LaserCuttings'.
12/31/2014 12:47:46 PM	Dan	Sample summary	ChangeData	Sample with id 44: Updating value for property 'sam.type' from 'Cuttings' to 'LaserCuttings'.
12/31/2014 12:28:48 PM	Dan	Sample summary	ChangeData	Sample with id 5: Updating value for property 'sam.type' from 'Cuttings' to 'Cut'.
12/31/2014 12:28:39 PM	Dan	Sample summary	ChangeData	Sample with id 72: Updating value for property 'sam.type' from 'Cuttings' to 'Cttgs'.
12/31/2014 12:28:34 PM	Dan	Sample summary	ChangeData	Sample with id 163: Updating value for property 'sam.type' from 'Cuttings' to 'Cttgs'.
12/31/2014 12:27:41 PM	Dan	Sample summary	ChangeData	Sample with id 71: Updating value for property 'sam.type' from 'SWC' to 'S-W-C'.
12/31/2014 12:27:30 PM	Dan	Sample summary	ChangeData	Sample with id 4: Updating value for property 'sam.type' from 'Cuttings' to 'cctgs'.
12/31/2014 12:27:20 PM	Dan	Sample summary	ChangeData	Sample with id 6: Updating value for property 'sam.type' from 'Cuttings' to 'cctgs'.
12/31/2014 12:27:15 PM	Dan	Sample summary	ChangeData	Sample with id 76: Updating value for property 'sam.type' from 'Cuttings' to 'cctgs'.
12/31/2014 11:56:24 AM	Dan	Rock screening	ChangeSetting	Changed page settings.
12/31/2014 11:56:10 AM	Dan	Rock screening	ChangeSetting	Changed unit for property 're.OSI' from 'g/tonne' to 'mg/g'.
12/31/2014 11:56:01 AM	Dan	Rock screening	ChangeSetting	Changed unit for property 're.OSI' from 'g/kg' to 'g/tonne'.
12/31/2014 11:55:56 AM	Dan	Rock screening	ChangeSetting	Changed unit for property 're.OSI' from 'mg/g' to 'g/kg'.
12/31/2014 11:55:45 AM	Dan	Rock screening	ChangeData	Deleted Cells
12/31/2014 11:55:32 AM	Dan	Rock screening	ChangeData	Deleted Cells

Warning - The next undo operation was not made in the current context

Spreadsheet appearance and features

- Once imported data can be accessed through either Analysis or Interpretation views onto the data model e.g. Rock Screening
- **Column headers contain: properties, indicators, units and ratios, sample count**



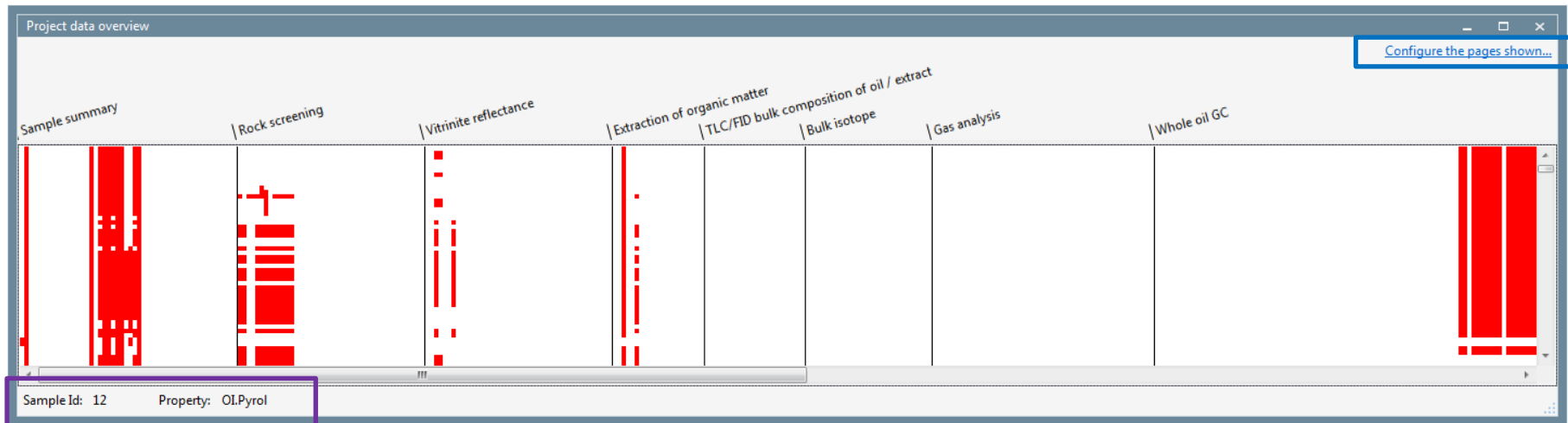
	Type.Sample	Name.Well	Lat.Well	Long.Well	TOC.Leco	S1.Pyrol	S2.Pyrol	S3.Pyrol	T-max.Pyrol	HI.Pyrol	OI.Pyrol
		n/a	°	°	%wt	mg/g	mg/g	mg/g	°C	mg/g a/b	mg/g a/b
	245	245	245	245	237	1y	118	230	120	230	230
1 (96)	Cuttings	66/02-1	60.2756	-1.4845	61.0	13.16	197.6	5.5	429	324	9
2 (18)	pCuttings	64/07-9	61.2756	-0.9238	48.3	2.85	55.6	43.7	443	115	91
3 (76)	Cuttings	64/18-2	59.2371	-0.2175	8.3		34.9		443	423	
4 (6)	Cuttings	64/07-9	61.2756	-0.9238	8.1	0.00	32.1	0.6	428	395	7
5 (10)	Cuttings	64/07-9	61.2756	-0.9238	8.0	0.00	51.3	0.8	428	641	10
6 (4)	Cuttings	64/07-9	61.2756	-0.9238	7.6	0.00	26.8	0.6	429	354	8
7 (75)	Cuttings	64/18-2	59.2371	-0.2175	7.5		25.8		440	345	
8 (44)	Cuttings	64/07-9	61.2756	-0.9238	7.5	0.00	43.9	0.4	428	589	5
9 (164)	Cuttings	64/07-9	61.2756	-0.9238	7.4	0.00	42.4	0.7	430	577	9
10 (157)	Cuttings	64/07-9	61.2756	-0.9238	7.3	0.01	25.7	1.7	433	354	24
11 (71)	SWC	64/18-2	59.2371	-0.2175	7.0		27.4		441	389	
12 (67)	Cuttings	64/18-2	59.2371	-0.2175	7.0		25.5		439	365	
13 (161)	Cuttings	64/07-9	61.2756	-0.9238	6.9	0.01	29.0	1.0	429	421	14
14 (57)	Cuttings	64/18-2	59.2371	-0.2175	6.5		19.8		446	302	

- Spreadsheet special features:
 - all equations defined and auto-calculate on edit (delete user entered values to calculate)
 - copy, paste (Ctrl-c / Ctrl v), undo, redo (Ctrl-z / Ctrl-y)
 - Page > sorting (project wide), Toggle out of range data, key columns
 - deleting data: either (cell select , delete – delete cell contents) or (row select, right click, delete selected samples across all pages)

Project data overview



- The project data overview (was pixelmap) shows you where your data is in the project
 - red indicates data present – clicking on the pixel will tell you **the property and sample**



- you can **configure the project data overview** to show any of the pages in the project
 - it is possible to have multiple project data overviews open at any time
 - drop a sample set on them to show a subset of samples
- note the project data overviews are built dynamically and so respond to data changes
 - this means it is probably best to close them while editing
- Future versions will offer enhanced functionality

Cleaning up your data



- Data > Harmonise data for property
 - select a property to harmonise (type or select from dropdown), only shows valid properties
 - shows unique values in data, their frequency of occurrence, and allows you to choose or type a new value (auto-links by finding the closest string using an edit distance by default)
 - also shows the existing defined codes, and their defined aliases – for reference only

Property to harmonise: Type.Sample (Sample type)

Status	Unique Value	# Occurrences	Harmonises To
✓	Core	6	Core
⚠	Cttgs	1	Cuttings
⚠	Cttgs.	1	Cuttings
⚠	Cut.	1	Core
✓	Cuttings	210	Cuttings
✎	DST	6	Drill Stem Test
✎	RFT	2	Repeat Formation Test
✎	S-W-C	1	Side Wall Core
✎	SWC	13	Side Wall Core
⚠	cttgs	2	Cuttings
⚠	cttgs.	1	Cuttings
✎	pCuttings	1	Picked Cuttings

Total number of unique strings: 12

Copy unique string list to clipboard

Codelist overview

Standard names for this property:

- Core
- Side Wall Core
- Cuttings**
- Picked Cuttings
- Extracted Cuttings
- Oil
- Condensate
- Gas
- Drill Stem Test
- Repeat Formation Test
- Stain
- Extract

Aliases for selected standard name:

- Cttgs
- Cut.
- Ctgs
- Cttgs.
- cttgs

Manage codelist for this property...

OK Cancel



Merging in p:IGI+

- Unlike in p:IGI-3, merging samples happens inside p:IGI+ after import of all of your data
- Data > Merge samples ...
 - Select up to 5 merge criteria using the universal property selector
 - calculate the pre-merge summary to check the health of the intended merge
 - select whether you want to create a sample set of those samples that could not merge (merges with conflict)
 - merge is a bulk operation – more refined merge functionality is being developed in Metis
 - undo is supported
 - all open artefacts are closed during the merge operation for refresh

Merge is a complex operation which can take some time to complete

Merge Criteria

Select the criteria which you wish to use for merging:
*Calculate a pre-merge summary before attempting to run a sample merge.

Criterion: 1
Well (Well properties)

Criterion: 2
Sample (Sample properties)

Criterion: 3
Sample (Sample properties)

Type.Sample (Sample type)

Create a static sample set for all merge conflicts

Pre-merge summary

Total number of samples: 245

Samples that don't merge: 242

Merges without conflict: 0

Merges with conflict: 3


Calculate pre-merge summary

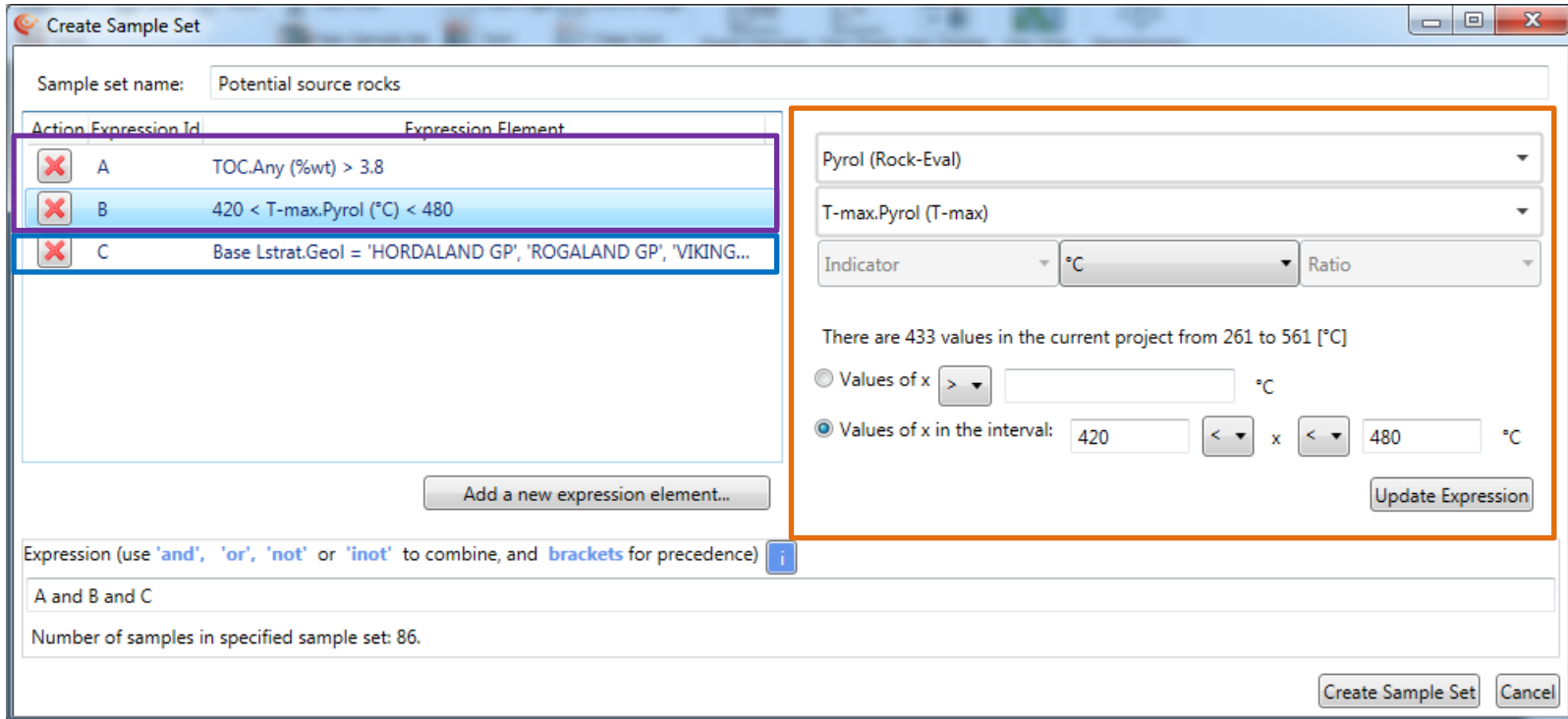
*All Open artefacts will close during a Merge Operation

Merge Cancel



Sample sets in p:IGI+

- p:IGI+ supports the creation and use of static sample sets
- Data > Create new sample set or Toolbar icons  New Sample Set
- **Red cell outline** informs user of fields required in order to proceed
- A Sample Set can be defined by either individual **numeric** and **string** expressions or a combination of the two
- Summary of **expression values to be added to the sample set shown**



Create Sample Set

Sample set name: Potential source rocks

Action	Expression Id	Expression Element
<input type="checkbox"/>	A	TOC.Any (%wt) > 3.8
<input type="checkbox"/>	B	420 < T-max.Pyrol (°C) < 480
<input type="checkbox"/>	C	Base Lstrat.Geol = 'HORDALAND GP', 'ROGALAND GP', 'VIKING...'

Add a new expression element...

Pyrol (Rock-Eval)

T-max.Pyrol (T-max)


Indicator: °C Ratio

There are 433 values in the current project from 261 to 561 [°C]

Values of x > [] °C

Values of x in the interval: 420 < x < 480 °C

Update Expression

Expression (use 'and', 'or', 'not' or 'inot' to combine, and brackets for precedence) 

A and B and C

Number of samples in specified sample set: 86.

Create Sample Set Cancel

Sample sets in p:IGI+

Sample set name: Potential source rocks

Action	Expression Id	Expression Element
	A	TOC.Any (%wt) > 3.8
	B	420 < T-max.Pyrol (°C) < 480
	C	Base Lstrat.Geol = 'HORDALAND GP', 'ROGALAND GP', 'VIKING...'

Add a new expression element...

Expression (use 'and', 'or', 'not' or 'inot' to combine, and brackets for precedence)

A and B and C

Number of samples in specified sample set: 86.

Note that sample sets do not yet update automatically on data changes. This functionality is coming in the next release

- Each expression element is given an ID of A .. Z
- Complex sample set expressions can be created by combining expression element ID in the text **expression editor**
- Expressions are created using the following rules:



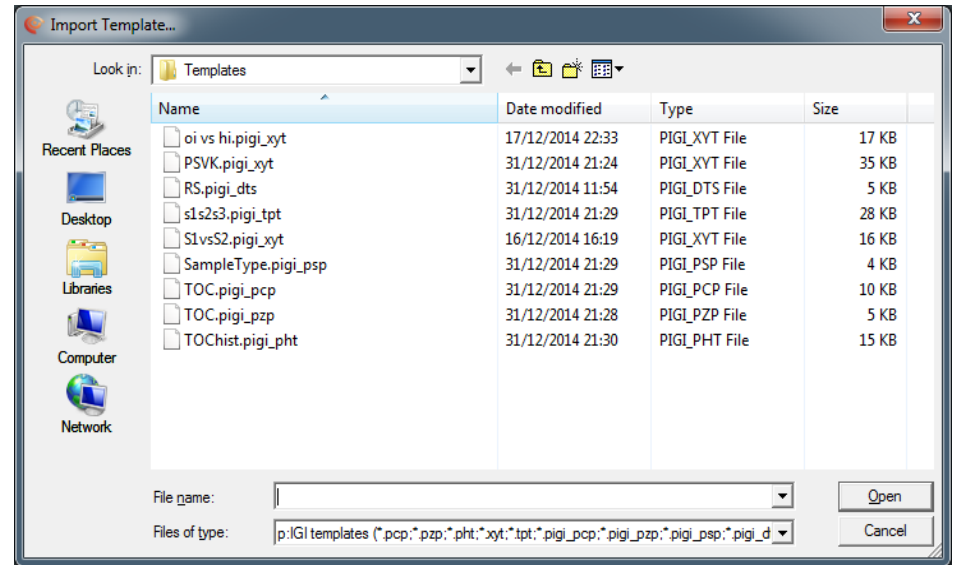
- The **count of samples** is dynamically updated

Templates in p:IGI+



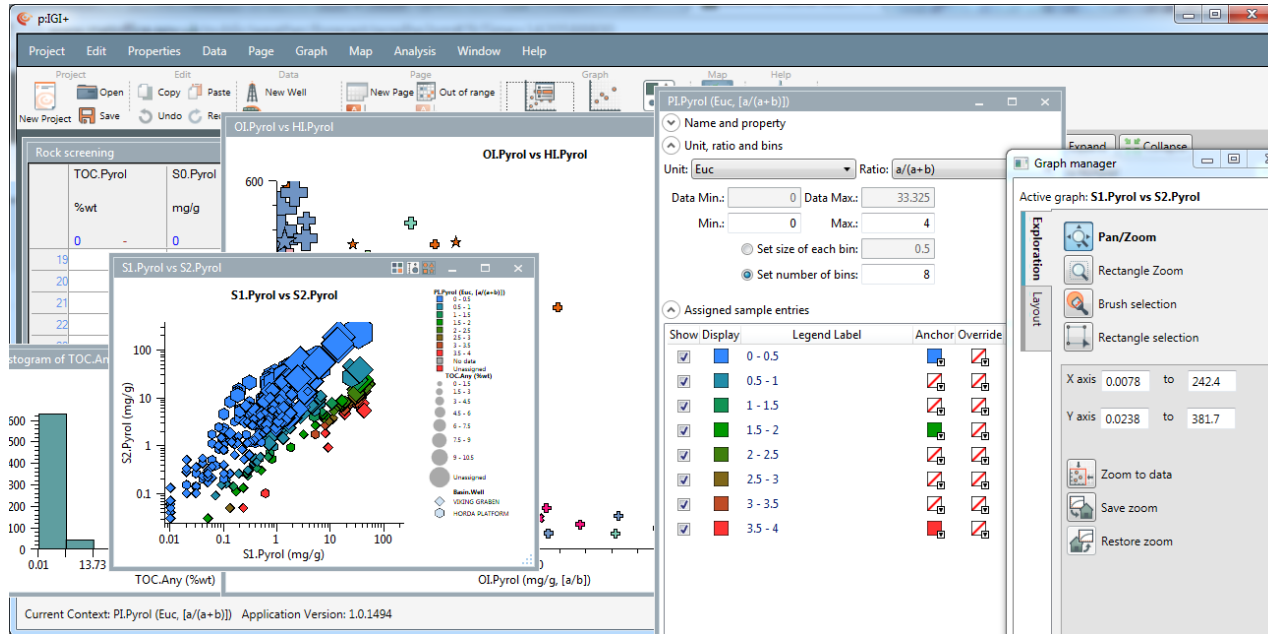
- Every artefact in p:IGI+ can be saved as a template to be shared with colleagues
 - right click on the artefact in the artefact manager & select “Export As Template...”
 - will export with any children, e.g. graph will include any palettes and overlays
 - to import select Project > Import template...

- can load in any p:IGI+ template, and p:IGI-3 templates supported (histograms, scatterplots, triplots, palettes)
- will build a new instance of the artefact using the project data
- can be used to add your own new pages (save page as template, then load in the template – creates a new page)



- Templates save their project properties with them; when you import a template p:IGI+ will first create the project properties, unless they already exist in the project

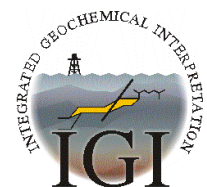
Wells in p:IGI+



This section reviews using wells in p:IGI+


This section should be used in conjunction with the video tutorials found at (<http://www.igild.com/pIGIplus/>)

Also for quick start access to this section, use in conjunction with our p:IGI+ Demo Project



Using wells in p:IGI+ Introduction



- Wells are integrated in p:IGI+
 - found in the Artefact Manager > Base Wells folder by default
 - created on import using a simple ‘first value seen’ merge logic (other repetitions of well related values are ignored)
 - Can also be create within p:IGI+ (Data > Create new well... /  **New Well**)
 - wells have a range of properties accessible from **menu tabs**
 - fully integrated and all calculations immediate
 - Any well property can be assigned to a data view under the analysis group ‘Well’

- **Tabs:**

- basic info (Common)
- Location
- **Depth**
- Well deviation
- Temperature
- Chronostrat
- Drilling
 - more planned

Wells: Location



- Fully georeferenced location
 - both **lat, lon** and/or **local coordinates X, Y** can be stored
 - must specify the projection using EPSG codes
 - for lat, lon the most common default is the WGS84 geoid

15/2-1

Well name: 15/2-1

Common

Location

Depth

Well Deviation

Temperature

Chronostratigraphy

Drilling

Latitude: 58.755361

Longitude: 1.594606

Geoid Epsg Code: Lat, Lon (WGS84)

Local X Coordinate (Easting): 765.6 km

Local Y Coordinate (Northing): 934.567 km

Local Spatial Reference System Epsg Code: British National Grid (OSGB36)

Location Name: North Sea

Asset Name: Block 15/2

Area Name: Norwegian North Sea

Country Name: Norway

Basin Name: VIKING GRABEN

Block Name: 15/2

Field Name: Viking Field

Location Comment: Recently re-surveyed

Well Head Location Quality Comment: Accurate GPS based location

- Georeferenced data is also accompanied by increasingly detailed textual information for location
 - can be useful for creating sample sets and palettes
- Mapping is still being developed
 - currently rather simple but will be enhanced in the medium term
 - currently the choice of projections is limited, but in practice all widely used projections will be supported



Wells: Depth

- Main depth tab allows you to specify used well datums
 - the **reference absolute elevation datum** is Mean Sea Level (normally) but can be LAT or a user datum (additional fields appear)
 - what is shown will depend on whether the well was assigned to be onshore or not (designated under the common tab)
 - offshore wells have **water depth**
 - onshore have ground elevation and optional river / lake depth
 - should also set the **drillers reference** elevation, typically the Kelly Bushing (KB) elevation
 - elevation (above the reference absolute elevation) or height (above ground level) is used for the drillers reference elevation

The screenshot shows a software window titled '15/2-1' with a sidebar on the left containing tabs: Common, Location, Depth, Well Deviation, Temperature, Chronostratigraphy, and Drilling. The 'Depth' tab is selected. The main area contains the following fields:

- Well name: 15/2-1
- Reference Absolute Elevation: Mean Sea Level (highlighted with a red box)
- This is an offshore well
- Water depth: 109 m (highlighted with a blue box)
- Drillers Reference: Elevation, 25 m, Kelly Bushing (highlighted with a green box)
- Well Total Measured Depth: 4212 m, Kelly Bushing
- Well Total True Vertical Depth: 3965 m, Kelly Bushing

Wells: Deviation survey



Well name: 15/2-1

Use Deviation Survey Tie Points for Depth Conversions

Deviation Survey TVD / MD Tie Points

Measured Depth measured with respect to: KB
TVD measured with respect to: KB

Measured Depth	TVD
m	m
0.0	0.0
1200.0	1200.0
1845.0	1825.0
2456.0	2400.0
3212.0	3154.0
4212.0	3965.0

[Add/Edit Values...](#) [Paste from Clipboard...](#) [Import from File...](#)

	Name.Well	Top MD.Sar	Base MD.S	MD datum.Sar	Top TVD.Si	Base TVD.S	TVD datum.S
	n/a	m	m	n/a	m	m	n/a
	2133	-	303	-	2106	-	64
1	15/2-1	2730.00	2740.00	Kelly Bushing	2673.28	2683.25	Kelly Bushing
2	15/2-1	2830.00	2840.00	Kelly Bushing	2773.01	2782.98	Kelly Bushing
3	15/2-1	2920.00	2930.00	Kelly Bushing	2862.77	2872.75	Kelly Bushing
4	15/2-1		3020.00	Kelly Bushing		2962.51	Kelly Bushing
5	15/2-1		3110.00	Kelly Bushing		3052.27	Kelly Bushing
6	15/2-1		3200.00	Kelly Bushing		3142.03	Kelly Bushing
7	15/2-1		3290.00	Kelly Bushing		3217.26	Kelly Bushing
8	15/2-1		3350.00	Kelly Bushing		3265.92	Kelly Bushing
9	15/2-1		3440.00	Kelly Bushing		3338.91	Kelly Bushing
10	15/2-1		3530.00	Kelly Bushing		3411.90	Kelly Bushing
11	15/2-1		3620.00	Kelly Bushing		3484.89	Kelly Bushing

*Values which are derived from other values appear shaded in green text

- Either a full well deviation survey and / or a set of tie-points can be stored in order to derive sample TVD from MD (and vice-versa if needed)
 - can select whether to use deviation survey or tie points in calculations
 - deviation survey required inputs are measured depth, deviation angle & deviation azimuth
 - can set datums and units for each
 - tie points as measure depth, true vertical depth pairs
 - can set datums and units for each
 - depths for all samples are only calculated when a defined datum and at least one well depth measurement is present for the property Base/Top MD.Sample

Wells: Temperature



15/2-1

Well name: 15/2-1

Common

Location

Depth

Well Deviation

Temperature

Chronostratigraphy

Drilling

Temperature Data (Horner corrected when necessary)

Sediment surface temperature (average) 7.90 +/- (1 StdDev) 3.00 °C

Depth m	Corrected Temperature °C	Estimated Errors °C	Source Name
1000.00	42.76	4.02	Logging
2345.00	65.30	6.00	DST-1
3675.00	91.70	4.00	RFT-2

Add/Edit Temperature Data...

Estimated thermal gradient in well:
24.25 +/- 1.32 °C/km

Name.Well	Top MD.Sample	Base MD.Sample	Temp.Phys	MD c
n/a	m	m	°C	n/a
2133	304	2106	60	64
1 15/2-1	2730.00	2740.00	79.0	Kelly
2 15/2-1	2830.00	2840.00	81.6	Kelly
3 15/2-1	2920.00	2930.00	84.0	Kelly
4 15/2-1		3020.00	86.4	Kelly
5 15/2-1		3110.00	88.7	Kelly
6 15/2-1		3200.00	91.1	Kelly
7 15/2-1	3280.00	3290.00	93.1	Kelly
8 15/2-1		3350.00	94.4	Kelly
9 15/2-1		3440.00	96.3	Kelly
10 15/2-1		3530.00	98.3	Kelly
11 15/2-1		3620.00	100.2	Kelly
12 15/2-1		3710.00	102.1	Kelly
13 15/2-1		3815.00	104.1	Kelly

- Well temperature measurements from both logging (raw & in need of Horner correction) and sampling (e.g. DST, RFT) can be stored in order to calculate an estimated thermal gradient
 - handles all depth conversions assuming data provided
 - computes a Horner correction for logging data where at least 3 given measurements and the circulation times are available
 - uses a Bayesian calculation to provide error bars on calculated thermal gradient
 - user must provide standard deviation of measurements (suggest a default of around 4 °C, depending on your confidence in the measurement)
 - dynamically populates the temperature column for samples
 - The Temp.Phys property can be used in plots against other thermal properties such as Pop1 Mean.VR (vitrinite reflectance)

Wells: Chrono- and Litho-stratigraphy



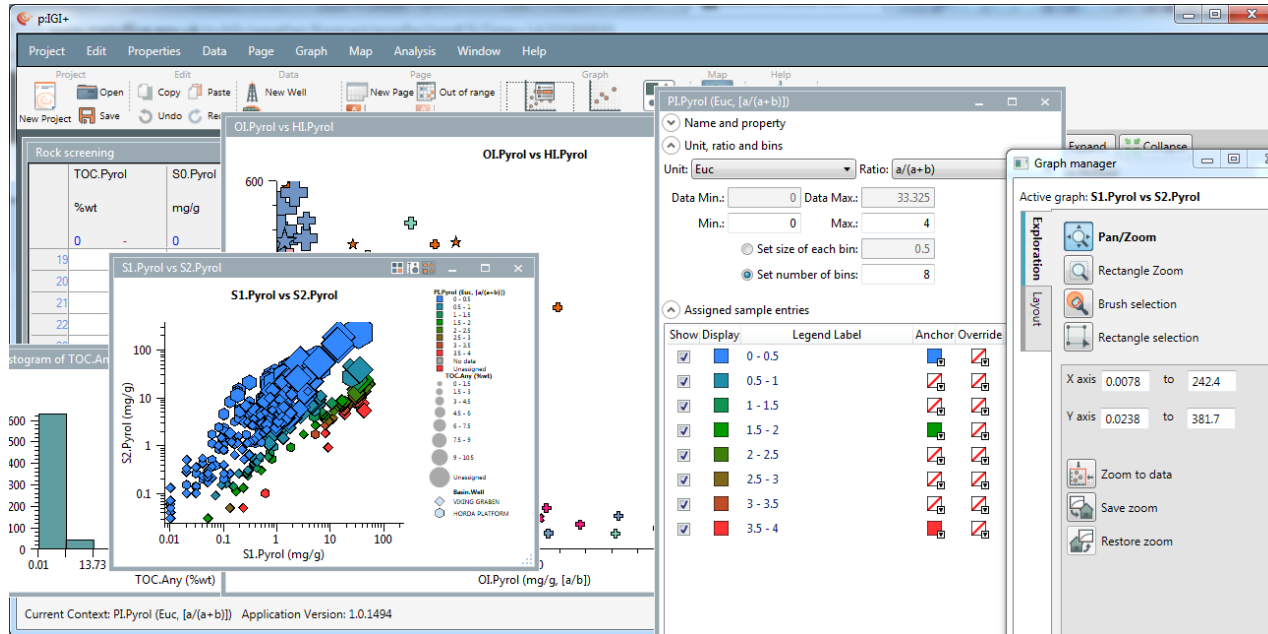
The screenshot shows a software interface for well 15/2-1. On the left, a sidebar lists categories: Common, Location, Depth, Well Deviation, Temperature, Chronostratigraphy, and Drilling. The main area displays a table of chronostratigraphic stages with columns for Qualifier, Period, Original Top Depth (m), Original Top Depth Datum, Original Top Depth Type, and Unconformity. The stages listed are Langhian, Lutetian, Danian, Maastrichtian, Cenomanian, Valanginian, Tithonian, Kimmeridgian, and Rhaetian. A 'Sample summary' table on the right shows data for 11 samples, including Name.Well, Top MD.S, Base MD.S, Top Cstrat.Geol, and Base Cstrat.Geol.

Qualifier	Period	Original Top Depth m	Original Top Depth Datum	Original Top Depth Type	Uncon- formity
	Langhian Stage	1245.00	MSL	TVD	
	Lutetian Stage	2133.00	MSL	TVD	
	Danian Stage	2432.00	MSL	TVD	✓
	Maastrichtian Stage	2678.00	MSL	TVD	
	Cenomanian Stage	2965.00	MSL	TVD	
	Valanginian Stage	3221.00	MSL	TVD	
	Tithonian Stage	3342.00	MSL	TVD	
	Kimmeridgian Stage	3421.00	MSL	TVD	
	Rhaetian Stage	3976.00	MSL	TVD	

Name.Well	Top MD.S	Base MD.S	Top Cstrat.Geol	Base Cstrat.Geol
n/a	m	m	n/a	n/a
2133 -	304 -	2106 -	4 -	202 -
1 15/2-1	2730.00	2740.00	Danian Stage	Danian Stage
2 15/2-1	2830.00	2840.00	Maastrichtian Stage	Maastrichtian Stage
3 15/2-1	2920.00	2930.00	Maastrichtian Stage	Maastrichtian Stage
4 15/2-1		3020.00		Maastrichtian Stage
5 15/2-1		3110.00		Cenomanian Stage
6 15/2-1		3200.00		Cenomanian Stage
7 15/2-1	3280.00	3290.00	Cenomanian Stage	Cenomanian Stage
8 15/2-1		3350.00		Valanginian Stage
9 15/2-1		3440.00		Valanginian Stage
10 15/2-1		3530.00		Tithonian Stage
11 15/2-1		3620.00		Kimmeridgian Stage

- Well Chronostratigraphy is entered as a series of tops
 - can be added in any depth unit, datum, or type (TVD / MD) with depth conversion where data is available
 - can indicate whether surface is an unconformity (just for reference at present)
 - will dynamically allocate to samples; editing tops will reassign sample chronostrat
 - litho-strat is also supported in a very similar manner

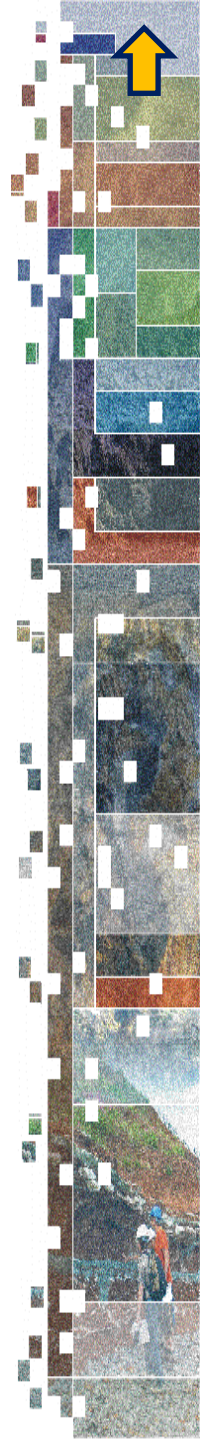
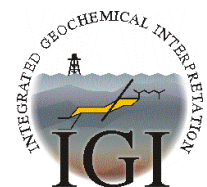
Viewing your data in p:IGI+



This section how to effectively view and visually manipulate your data in p:IGI+

This section should be used in conjunction with the video tutorials found at (<http://www.igild.com/plIGIplus/>)

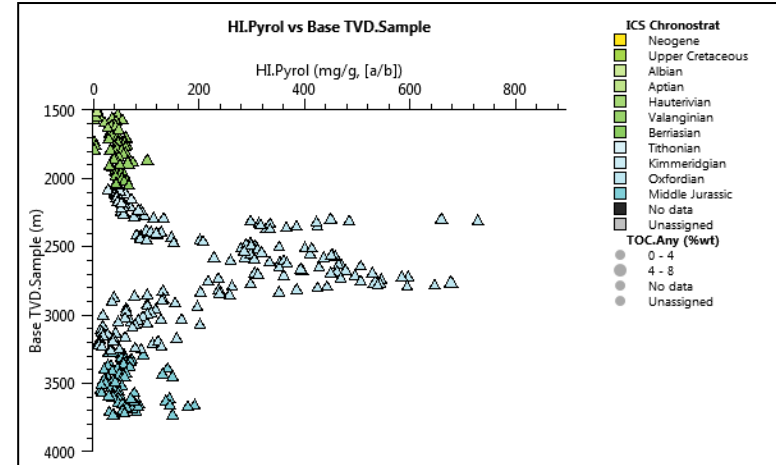
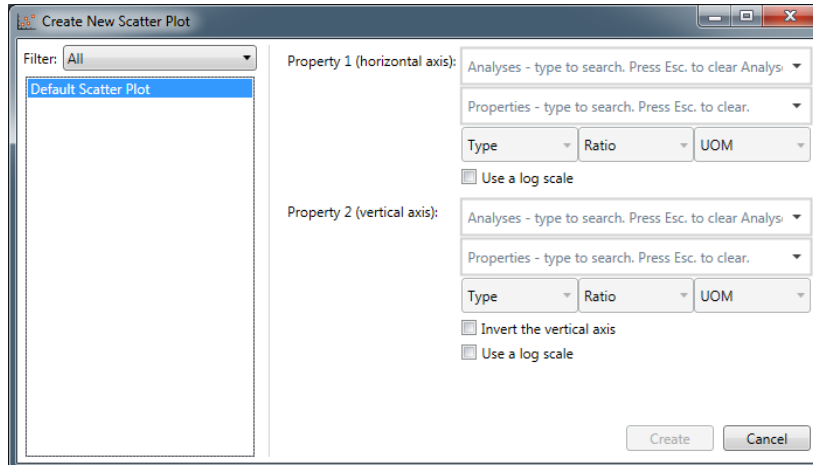
Also for quick start access to this section, use in conjunction with our p:IGI+ Demo Project File



Viewing your data in p:IGI+ Introduction



- Extends the flexibility of p:IGI-3
 - more interactive, more intuitive
 - dynamic response to changes in data
 - longer term will also integrate with maps and models (e.g. PCA)
- Scatter plot fully supported
 - fully interactive with palettes and sample sets
- Histogram and Tri-plot supported to basic level
- Graph manager provides more control over overlays and interaction with the graph



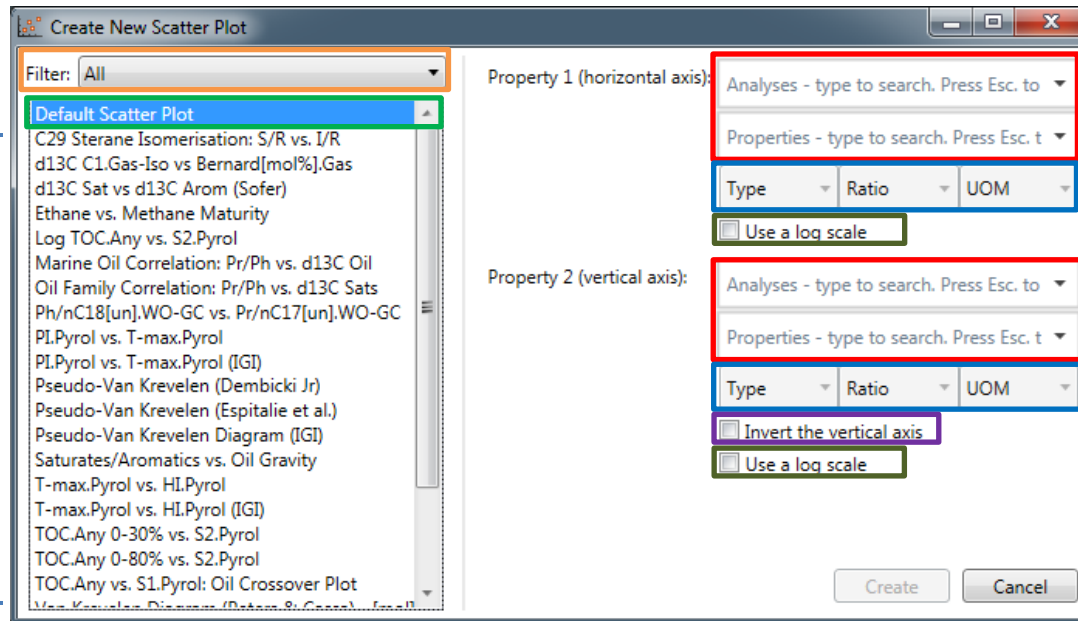
Creating graphs



- Graph > Create new graph or use icon



*If an autograph is chosen then a preview is provided



- Uses the **property selector**, plus you can set the **property indicator**, units and ratio where appropriate
 - select whether the axis is linear or log
 - select whether the **vertical axis is inverted** (e.g. for depth plots)
- By default the **default scatter plot** is selected prompting the user to select the axes
 - **filter button** allows you to access & find specific autographs - (interpretative subgroups)
- Philosophy is to allow user to create graphs as quickly as possible, then edit them after

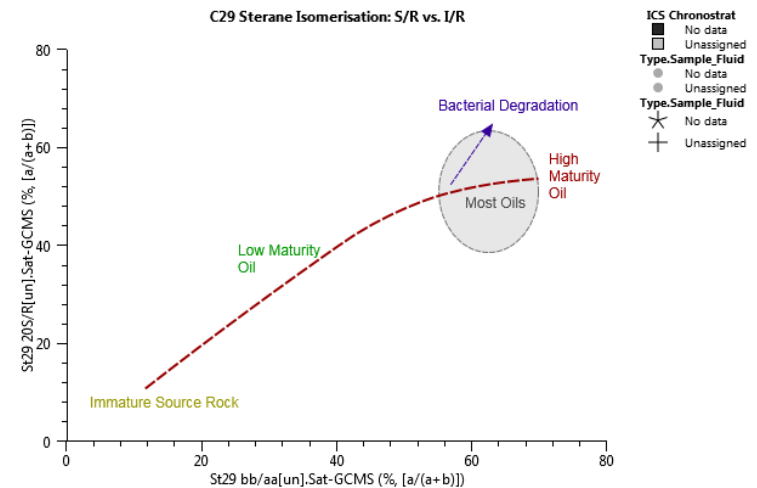
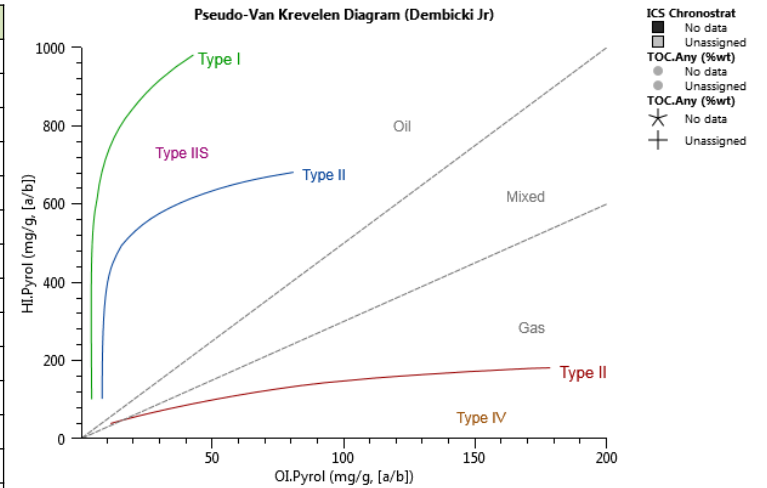


Autographs

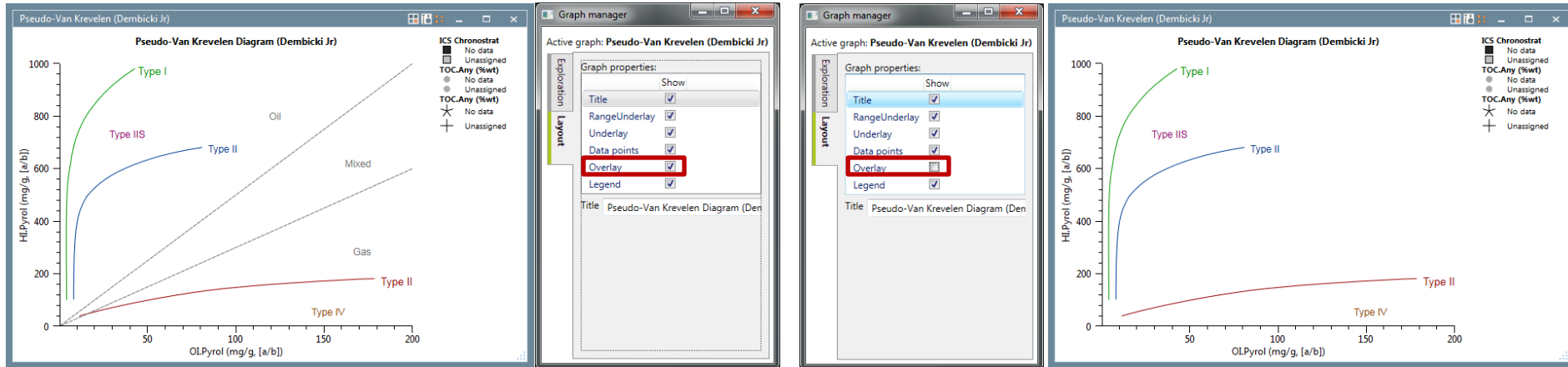
	Graph Title	Tags (interpretative sub-groups)
1	TOC 0-30_Any vs S2_Pyrol	Kerogen Potential
2	TOC 0-80_Any vs S2_Pyrol	Kerogen Potential
3	Log TOC_Any vs S2_Pyrol	Kerogen Potential
4	TOC.Any vs S1.Pyrol: Oil Crossover Plot	Kerogen Potential, Unconventional
5	T-max_Pyrol vs HI_Pyrol	Kerogen Quality, Maturity
6	T-max_Pyrol vs HI_Pyrol (IGI)	Kerogen Quality, Maturity
7	Pseudo-Van Krevelen Diagram (IGI)	Kerogen Quality
8	Pseudo-Van Krevelen Diagram (Espitalie et al)	Kerogen Quality
9	Pseudo-Van Krevelen Diagram (Dembicki Jr.)	Kerogen Quality
10	Van Krevelen Diagram (Peters & Cassa) - mol	Kerogen Quality, Maturity
11	VR Pop1 vs Base MD_Sample_ft	Maturity
12	VR Pop1 vs Base MD_Sample_m	Maturity
13	Ph/nC18[un].WO-GC vs Pr/nC17[un].WO-GC	Maturity, Environment
14	C29 Sterane Isomerisation_SR vs IR Diagram	Maturity
15	Saturates_Aromatics vs Oil Gravity	Maturity, Alteration, Environment
16	Bernard Diagram: Natural Gas & Shallow Bacterial-Thermogenic Mixing	Maturity, Gas, Migration, Alteration
17	Ethane vs Methane_Gas Iso	Maturity, Gas
18	Wet Gas Type II Maturity	Maturity, Gas, Migration
19	Wet Gas Type III Maturity	Maturity, Gas, Migration, Alteration
20	d13C Saturates vs. d13C Aromatics (Sofer)	Correlation, Environment
21	Marine Oil Correlation Pr_Ph vs d13C Oil	Correlation, Environment, Age
22	Oil Family Correlation Pr_Ph vs d13C Sats	Correlation, Environment
23	PI_Pyrol vs T-max_Pyrol_IGI	Unconventional, Generation
24	PI_Pyrol vs. T-max_Pyrol	Unconventional, Generation

*Not exhaustive, further autographs planned

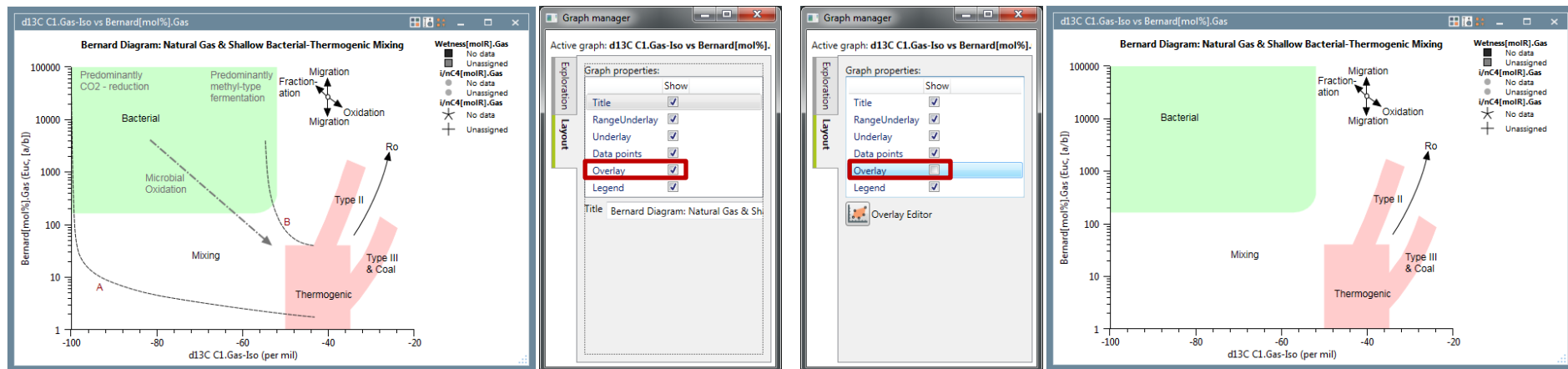
- Currently provides 24 scatter plot autographs covering a wide variety of geochemical disciplines have been incorporated into p:IGI+
- They include a combination of previously popular p:IGI-3 plots but also highlight our ambition to include a new arrange of interpretative plots



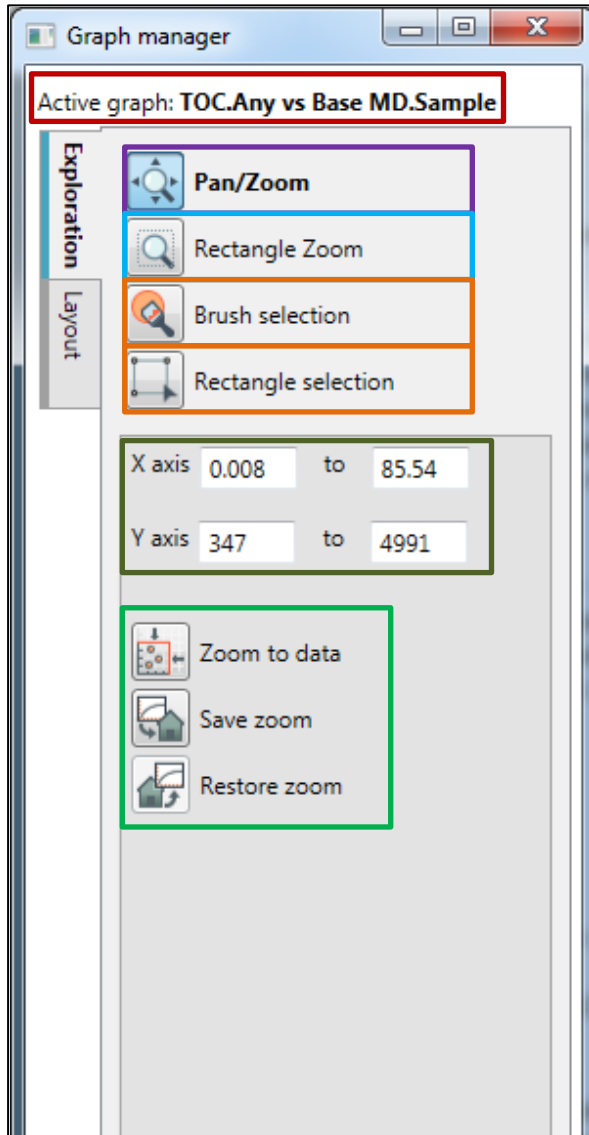
Autographs

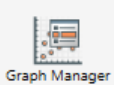


- Through the use of newly included graph layers (Range underlay / Underlay & Overlay) key interpretative components of graphs can be **applied or turned off**

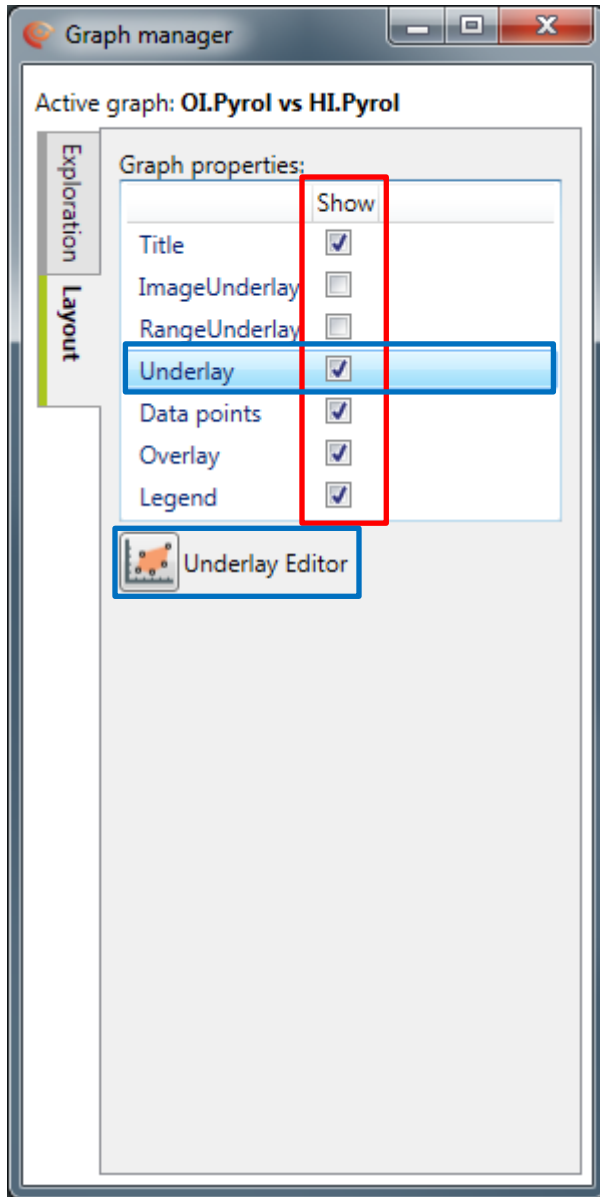


Working with scatterplots



- Graph > Graph manager... or icon 
- Graph manager controls interaction with currently selected plot (only ever one execution of it)
 - **active graph** is shown
 - default mode is **pan/zoom to explore the graph**
 - can change to **rectangle zoom**
 - can set **axes limits manually**
 - also **store and recover zoom, and zoom to data extent**
 - **Brushing / Rectangle selection** & Clear selection (appears when above selected) work across all plots, best without colour palette which includes red or similar colours
- *We will be adding more controls and tabs to enable better interaction with the plot*

Working with scatterplots

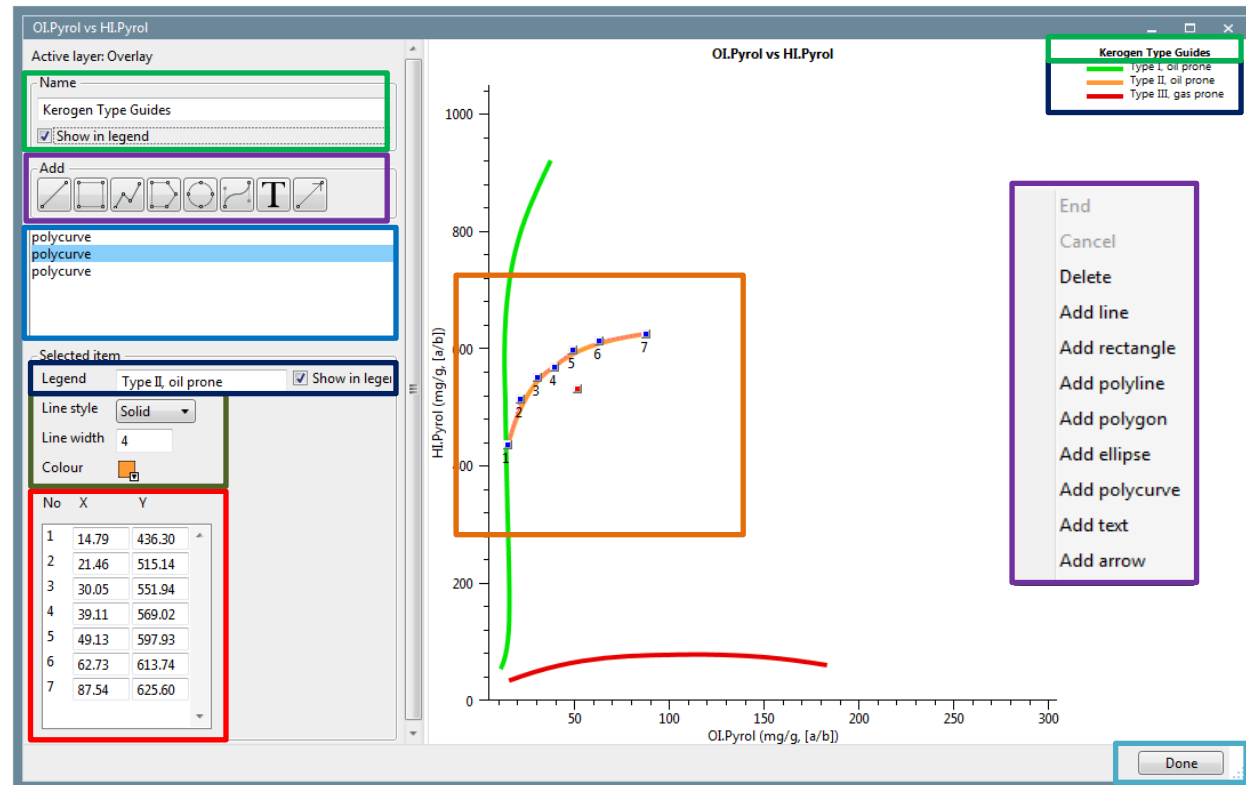


- The layout tab allows you to control the different layers and **their visibility** (Autograph Slides)
 - Layers include:
 - graph title (edit graph title)
 - image underlay to allow you to temporarily import images to guide overlay creation
 - range underlay is specifically to allow ranges on the x-axis to be shown
 - underlay sits below the data, and are suited to filled shapes
 - overlay sits above the data, and are suited to text labels
 - provides access to **layer edit functionality** when selected (Editing Overlays Slide)
 - also accessible from right click on the graph canvas
 - can also show / hide legends here



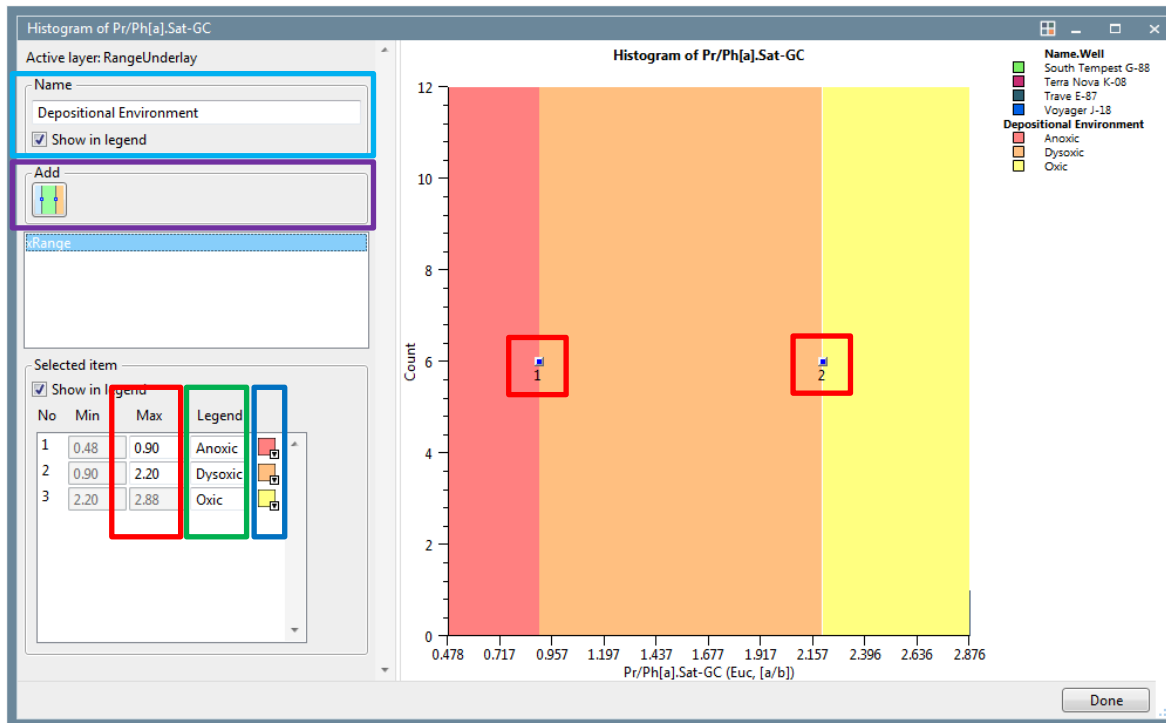
Editing overlays

- Overlay editor allows easy editing (while editing an overlay layer this is temporarily brought in front of the graph data – right click on the graph to access the editor)
 - select objects on graph or in **list**, drag and drop to control the draw order
 - edit **graphically** (green polycurve), or **manually** to get precise coordinates; **object style** can also be controlled
 - **right click on graph to add objects** (or use **the icons**) or delete (item needs to be selected: can also use delete key)
 - add labels to objects which will be shown in the legend
 - provide a **title for the legend** elements (blank if you just want a space)
 - select **“Done”** when finished



*undo works throughout (Ctrl-z / y)

Range underlays



- Range underlays are designed to provide regions which extend 'infinitely' vertically
- They are most suited to histograms but can be used on scatterplots
- Use the icon or right-click to add an x-range underlay
- Provide an optional name for the legend
- Provide names for the various classes in the range underlay

- Edit the values either manually or using drag and drop on the grip points
 - add a new split, or delete and existing one using right click on the graph
 - change the colours using the colour picker

Image underlays



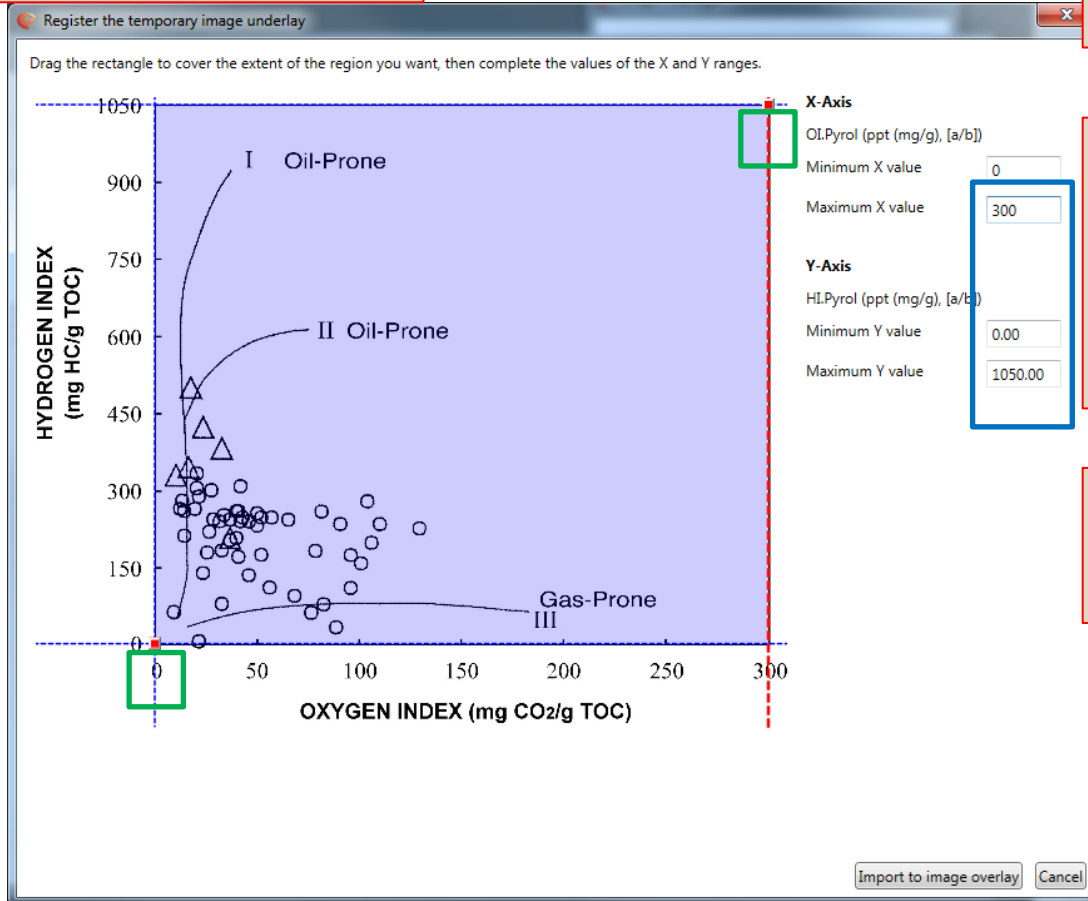
Active layer: ImageUnderlay

Add



1. Select the image underlay editor and click on the icon to add an image (or right click on the graph area)

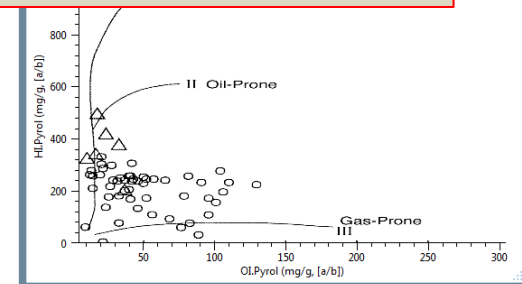
2. Select the image file to use with the file picker



3. Define the section of the image to import using the **grip points** and the mouse

4. Define the **coordinates of the edges of the square** being imported in graph units. Note that the edge being considered is highlighted as you edit the coordinate for that edge – this registers the image on your graph correctly

5. Import the image overlay. Note this is temporary and will be lost if you close the graph or the project.



Working with brushing and visual query



3. Visual query tool can be configured like page edit (drag and drop)

4. Currently explored sample highlighted with red box

2. Brushed set highlighted red across all open graphs

1. Can select a brush, or rectangle selection tool

5. Allows the selection to be cleared and the visual query tool to be started

Property	Indicator	Value	Uom	Ratio
TOC.Any(Total organic carbon)	NotApplicable	0.7	percent (wt)	
Base MD.Sample(Base measured depth)	NotApplicable	680.00	metre	
Name.Well(Well name / identifier)	NotApplicable	15/6-7	No unit	
Type.Sample(Sample type)	NotApplicable	Ctngs	No unit	
Lith.Geol(Lithology)	NotApplicable		No unit	

Sample 13 out of 53

Edit displayed properties...

Graph manager

Active graph: TOC.Any vs MD.Sample

Exploration

- Pan/Zoom
- Rectangle
- Brush selection
- Rectangle selection

Layout

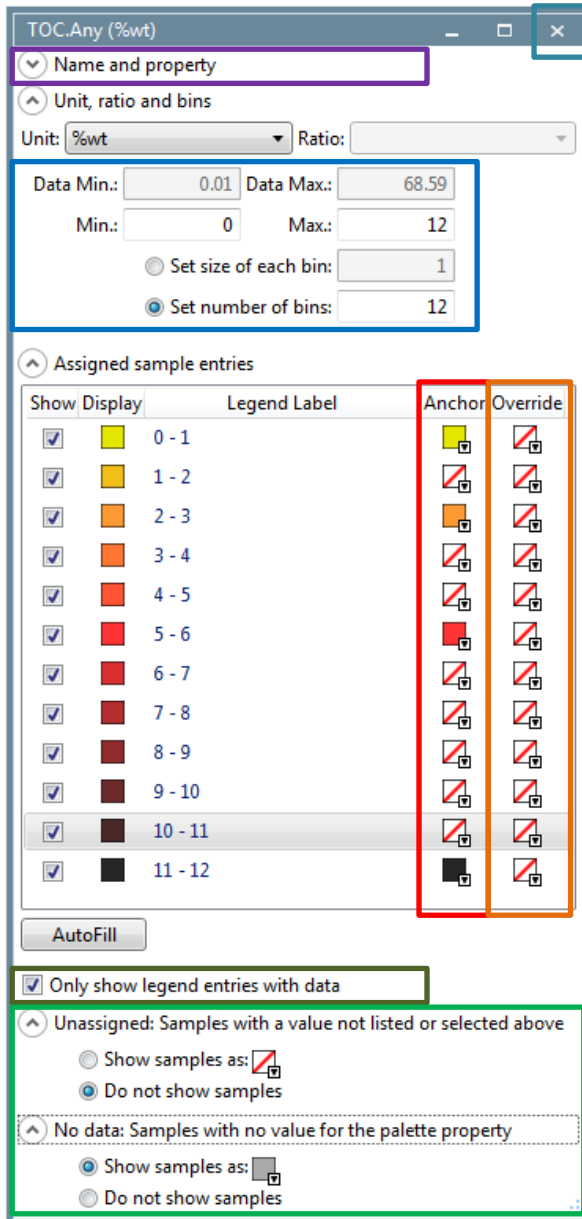
Hold Control key while brushing to deselect samples.


- Clear selection
- Visual Query tool

Current Context: TOC.Any vs Base MD.Sample Application Version: 1.0.1494



Creating palettes



- Graph > Create new palette or icon 
- Select new palette type (colour / size / shape) and select the property
 - edit the name
 - set the range and number of bins / size of bin (can change units)
 - decide where to put the anchor colours
 - can also use override colours to highlight a specific interval
 - Select whether to show only legend entries with data
 - say what to do with unassigned samples (values, but not in list) and samples with no data
 - when happy close the artefact with 'x' button – it will be added to the relevant base palette folder

Working with palettes



Can access palettes on graph clicking on icons in graph title bar

Changes are dynamically applied to the graph – can be used like a temporary sample set

Can rename entries in legend label

Applied palettes are shown on the graph tree

Drag and drop to define order for string values

Size and shape palettes are separate palette types

... and in their respective base palette folders

Base Lithostratigraphy

Show	Display	Legend Label	Sample Value	Anchor Override
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	SHETLAND GP		
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	CROMER KINOLL GP		
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	VIKING GP		
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	VESTLAND GP	VESTLAND GP	
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	ZECHSTEIN GP	ZECHSTEIN GP	
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	HORDALAND GP	HORDALAND GP	
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	ROGALAND GP	ROGALAND GP	
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	NORDLAND GP	NORDLAND GP	
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	SKAGERRAK FM	SKAGERRAK FM	
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	SMITH BANK FM	SMITH BANK FM	
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	ROTLIEGEND GP	ROTLIEGEND GP	
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	BASEMENT		

Sample Type

Show	Legend Label	Sample Value	Shape
<input checked="" type="checkbox"/>	Cuttings	Cuttings	+
<input type="checkbox"/>	Picked Cutting	Picked Cutting	▽
<input checked="" type="checkbox"/>	Gas		+
<input checked="" type="checkbox"/>	Core		+
<input checked="" type="checkbox"/>	Oil		+
<input checked="" type="checkbox"/>	Other	Other	+

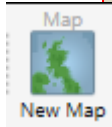
TOC

Show	Display	Legend Label
<input checked="" type="checkbox"/>	●	0 - 1
<input checked="" type="checkbox"/>	●	1 - 2
<input checked="" type="checkbox"/>	●	2 - 3



Maps

- Maps are a developing feature in p:IGI+



1. Create a new map using the icon to add an image (or the Map menu)

New Map

Create a new Map.

Name:

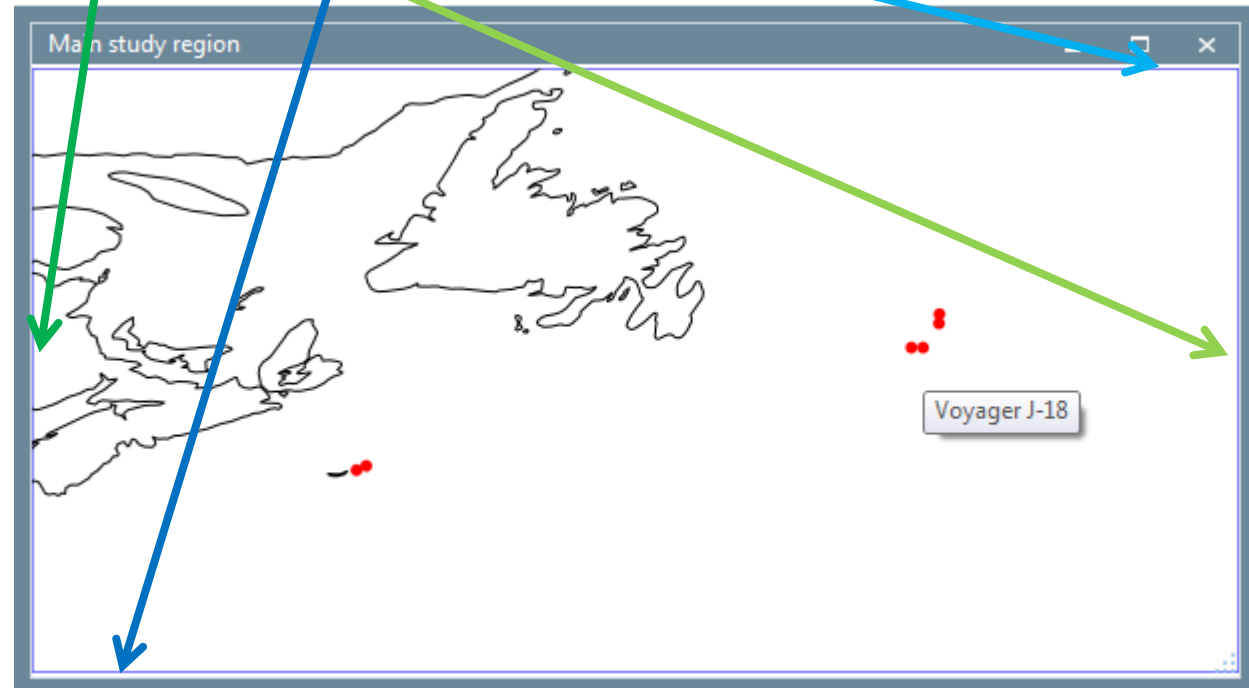
Projection:

Bottom Left:

Top Right:

2. Name the map, define the projection (limited options for now, suggest leaving at default or WGS84 – raw lat/lon). Define the coordinates (lat / lon).

3. Create the map. Currently this displays the well locations, with names display on mouse over, and these can be double clicked to open the relevant well.



We still have some work to do on maps.