

KISTERS Australia News

October 2019

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From The GM's Desk

By Paul Sheahan, General Manager, KISTERS Pty Ltd

Hello and welcome to the KISTERS Australia newsletter for October 2019.

We have recently hosted KISTERS user group events in Canberra - Australia, Hamilton - New Zealand and Sacramento – USA. We are also planning for a Pretoria - South Africa meeting during the first week of February 2020. The user group meetings continue to be a great opportunity for shared learning with user presentations extolling KISTERS and other users towards achieving great business outcomes.

If you were unable to make the user meeting but would still like to follow up on the sessions, the content is available online and details for accessing the content are in this newsletter. This year there was a real Internet of Things (IoT) flavour with several sessions unpacking the concepts, technologies and implications of this direction.

The Australian user group event was also an opportunity for our community to farewell Bill Steen in his retirement. Bill's contribution to both hydrography and the KISTERS community will be sorely missed. Commencing in 1979 with the NSW Department of Water Resources, Bill was a long term AHA chairman and General Manager of KISTERS Australia since 2004. Bill has kindly agreed to maintaining an ongoing ambassador role, so you may well see him around the traps.

In further staff news we warmly welcome Nat O'Rourke into the 'Team Leader HYDSTRA' role and David Hattenbruck into the Wiski support team. Our long term HYDSTRA supporter Alain Remont has succumbed to the call of coastal fishing and has decided to retire, we wish Alain all the best and thanks for his work with KISTERS. This of course means we are looking for a new HYDSTRA support team member, contact Nat for details.

During the user group meetings we outlined our plans for continued support of our HYDSTRA and WISKI product families along with our strategy of embracing KISTERS portal technologies across the range. Our research and development effort in the management of water data using big data technologies is now quite mature. The big data products can be deployed on premise as core components of enterprise data lake approaches or hosted by KISTERS. Our big data tech provides the heavy lifting for our new 'datasphere' hosted service that is targeted to smaller organisations who need to access a SaaS Environmental Data Management Solution. The initial release of 'datasphere' is hosted in Europe and can be found at <https://www.datasphere.online/>.

Yours in customer service,

Paul Sheahan.

Paul Sheahan
General Manager
KISTERS Pty Ltd



KISTERS User Group Meeting 2019

The KISTERS User Group meeting was held recently in Canberra over July 30 and 31.

A recurrent theme of the meeting was The Internet of Things, and a number of presentations related to the theme. The complete list of presentations was as follows:

- Welcome and Year in Review - Paul Sheahan - KISTERS
- Welcome and Year in Review - Klaus Kisters - KISTERS
- Visualisation Tool - Sameer Sankhyadhar - Waikato Regional Council
- AWS Lambda - Cost Effective Cloud Data Acquisition - Paul Sheahan - KISTERS
- IOT - Under The Hood - Paul Sheahan - KISTERS
- 5G Communications - Peter Heweston - KISTERS
- IOT Developments at HyQuest - Steve Lawrence - HyQuest
- Computer Industry Trends - Peter Heweston - KISTERS
- IoT for River Monitoring - Damian Skinner - MDBA
- KISTERS Technology Roadmap - Paul Sheahan - KISTERS
- Managing Gridded Data - Chris Michl - KISTERS
- Water Accounting - Dave Nichols - DWN
- Update from the BoM - Todd Lovell - BOM
- KISTERS Portal - Chris Michl - KISTERS
- What's New in Hydstra - Peter Heweston - KISTERS

- Network Communications Reliability and Hydrotel - Louise Sullivan - DELWP
- The Impact of Water Temperature on Discharge Measurement - John Hayes
- Hydstra and Python - Trevor Magnusson - KISTERS
- Monitoring and Troubleshooting Hydstra - Peter Heweston - KISTERS
- What's New in Hydstra WEB - Denby Angus - KISTERS
- Data Connectivity and Visualisation - Dylan Evans - KISTERS
- What's New in WISKI - Vicky Isaac - KISTERS
- What's New in KiEco - Biotic Index Calculations - Vicky Isaac - KISTERS
- What's New in KiWQM - Sample Scheduling - Vicky Isaac - KISTERS
- WISKI Versions, update and support - Chris Michl - KISTERS
- Data Validation - Chris Michl - KISTERS
- Gemstat - Vicky Isaac - KISTERS
- System Monitoring - Chris Michl - KISTERS
- KiWIS API Monitor - Chris Michl, Callum Ramage - KISTERS

The presentations were (mostly) recorded, and copies of the PowerPoints and Camtasia videos are available to KISTERS users at http://kisters.com.au/user_groups_australia.html . You will need to contact support@kisters.com.au for the password required to access the presentations. Unfortunately, due to a technical glitch, Peter Heweston's Computer Industry Trends talk was not recorded.

The day after the User Group meeting Trevor Magnusson presented a one-day Python introduction course. KISTERS regards Python as the preferred scripting language of the future, and KISTERS Australia are embracing it fully. Version 13 of Hydstra will have extensive Python support, and WISKI uses Python for various scripting processes already.

The HyQuest user group was held in Hamilton New Zealand on August 21 and 22. Presentations to that meeting are available at <https://www.hyquestsolutions.com/news-events/hyquest-solutions-ugm-2019-presentations/> . Topics included:

- Welcome- Phil.pptx
- UGM 2019 Jared.pptx
- Matt Hope - DAS.pptx
- VODAFONE NB-IoT LPWA HyQuest August 2019.pdf
- IOT - Under The Hood - Julian Wilmot.pptx
- What's New in 2019.pptx
- R D Update iRIS 270 Datalogger.pptx
- Manufacturing Processes.pptx
- KiECO Overview - Steffi.pptx
- UGM-presentation WQ.pptx
- What's New at KISTERS - Peter Heweston - KISTERS.pptx
- Hipflask Visualisation Tool.pptx
- Groundwater Solution- Phil.pptx
- GWL Telemetry - HyQuest UGM.pptx
- Day 2 - iRIS 270 Practical Overview Session.pptx

A Day in the Life of a Snowy Hydro Hydrographer

By Nat O'Rourke

Despite being a bunch of IT-data guys, many of us started in the environmental sciences and where in past lives we enjoyed being out in the field collecting data. Early in September, an opportunity came up to temporarily step out of the office to do just that. Four of us, David, Denby, Markus and Nat, chucked on the work boots and dusted off the brim hat (ignoring the fact we all packed beanies) to go experience a day in the life of a Snowy Hydro Hydrographer with Mic Clayton, Team Leader of Hydrographic Services (Kossie/Murray) at Snowy Hydro Limited.



We made an early start, enjoying scenic drive from the Canberra office down the Monaro to Jindabyne. While this drive for me always brings back painful memories of getting hammered by the local footy team in freezing, snowy conditions, it is an enjoyable drive of sweeping mountain views, high country plains and weird public art. The brief stop in Cooma for a life-changing good coffee was a big bonus. It was then on to the meeting up with Mic at the Thredbo River Gauging Station, about five minutes north of Jindabyne.

The goal of the day was to successfully complete a gauging and to learn about the techniques and challenges faced by hydrographers out in the field while implementing the National Industry Guidelines for hydrometric monitoring. Mic provided some background advice on different gauging techniques, site selection and the software/hardware used, and plenty of stories from many years working as a hydrographer which was really great. Saving us getting wet, Mic had already set up the remote survey boat carrying an Acoustic Doppler Current Meter. After setting up and demonstrating how to use the RiverSurveyor software it was up to us to continue the data collection. Like seasoned pros we went about clicking through RiverSurveyor and pulling the boat along the traveller system.



After completing the gauging and having a look around the other facilities at the site we headed back to the Snowy Hydro offices in Cooma, with a quick stop along the way to have a look and a chat about the Jindabyne Dam. Back in

the office, Mic and some of his Snowy Hydro colleagues were kind enough to show us the impressive setup in the control room and talk a little of Snowy Hydro's operations. We then spent some time with Mic talking about other data collection methods he's been investigating before reviewing our gauging to make sure we weren't too far off the mark – close enough I think...

The whole day was a great insight into how our one of our customers collect and manage gauging data. It was also a valuable insight into their workflows and experiences, the tools and methods used and nuances of collecting good data.

From all of us here at KISTERS in Canberra, a big thanks to Mic Clayton and Snowy Hydro for giving us their time and taking us out. We all had a great time and certainly picked up some new perspectives.

Hydstra Product News

Hydstra V12 Released August 2017

Hydstra V12 was released over a year and a half ago, and is available on the web site. Please plan to upgrade to V12 soon if you haven't already, as V13 is already waiting to spread its wings.

Please contact support for a V12 HYACCESS file, and plan to do an offline test upgrade first if at all possible. The upgrade from V11 to V12 is quite routine now, but can be time consuming as all time-series files need to be upgraded.

Hydstra V13 Beta Release

We have released a Beta version of Hydstra V13, and you can download it from the KISTERS web site at the usual place. You will need to request new HYACCESS files using <http://kisters.com.au/hyaccess.html> and then download the software from <http://kisters.com.au/downloads.html>. Contact KISTERS Support for a login to the downloads page.

The following points outline some of the more important changes:

- A more recent version of Perl is delivered (see below)
- A new telemetry data source allows concurrent access to TS data, avoiding the problem of data being locked while it is being updated.
- Full support for Python scripting is available wherever Perl is supported. A full Python installation is included with Hydstra. There are many Hydstra-specific Python modules delivered in RUNPATH which are equivalents of existing Perl modules. Note that there is no intention to deprecate the use of Perl within Hydstra, Python is simply an alternative.
- We have moved PTMPATH and HYDLOGPATH out of the main \HYD\DAT tree and into their own \HYD\ADM tree. This will simplify and reduce the size of backups, and mean that \HYD\DAT contains data only.
- The Examples folder has been moved from under \HYD\SYS\PERL to under \HYD\SYS\MISC, as there are also examples for Perl, Python, R etc.
- Enhanced graphical output types include HTML5 and PDF plots.
- HYDIGI has been enhanced to support chart digitising from scanned images displayed on a screen
- Hundreds of individual program enhancements are documented in the Change Log.

The V12->V13 upgrade should be relatively straightforward. It will be faster than the V11->V12 upgrade as we haven't changed the format of TS files. However, the release image is larger, as we now include Python.

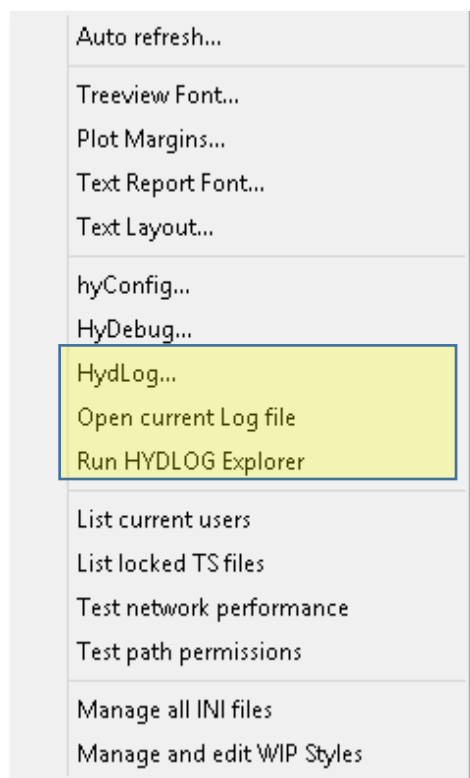
It is worth noting that when Hydstra V13 is released, support for Hydstra V11 ceases. If you are still running V11 (or earlier) please plan to upgrade soon. Hydstra 11 was released in July 2014, some five years ago and much has changed since then.

If you have any suggestions for table changes for Hydstra V13, now is your last chance to talk to us. Once V13 is released table structures will be largely frozen for the duration of the release.

Under no circumstances should you go into production with the V13 beta - it is strictly for testing and evaluation purposes only.

Software Removed in V13

In V13 we have removed the (hopefully unused) Ploticus software package, and the Kisters Logviewer analysis routines, which carried with them a large Java footprint. In exchange we offer direct access to HYDLOGEX and the ability to open your own log file directly in your preferred editor.



For ad-hoc plot generation we recommend you learn R or Python, both of which have excellent graphing capabilities. If you were using Ploticus you'll need to install it elsewhere and set a few environment variables and paths to continue using it.

Upgrading to Perl 5.30

Introduction

Hydstra V13 comes with Strawberry Perl 5.30 installed, which is the latest release available as at August 2019. The advantage of upgrading is that code which requires secure communications like SFTP can now be delivered in Perl, and many enhancements are included. The disadvantage is that in the intervening 12 years Perl has tightened up a bit, and programs that used to run may now throw an error.

You can start rectifying problems in earlier version of Hydstra as all changes you need to make are compatible with Perl 5.10.

Significant Compiler Changes in Perl 5.30

Strawberry Perl 5.30 includes a number of breaking changes from earlier versions. On the whole these changes are aimed at clarifying ambiguous code, but the result is that some Perl code in your INIPATH may now fail unless it is corrected.

- Code such as `if(defined(@array))` is now regarded as an error, and needs to be replaced by `if(@array)`. Likewise `if(defined(%hash))` needs to be replaced by `if(%hash)`.
- Curly braces inside regular expressions need to be escaped, so
`$line =~ m/->{wcache}path}\$.*{userclass}*/i`
becomes
`$line =~ m/->\{wcache}path\}\$.*\{userclass\}*/i`

You will get an error like *Unescaped left brace in regex is passed through in regex*.

- Iterating over a collection of words requires brackets around the collection, so
`foreach my $path qw(RUNPATH MISCPATH INIPATH TEMPPATH)`
needs to become
`foreach my $path (qw(RUNPATH MISCPATH INIPATH TEMPPATH))`
- The *lc* and *uc* functions (lowercase and uppercase) throw a runtime warning if you pass in an undefined value - they didn't do that in 5.10.
- The keys in a hash may come back in a different order in Perl 5.30 each time you run. You should not make assumptions about the ordering of hash keys. Use `sort keys %hash` to get back the keys in a constant sort order.
- JSON may come back in a different order from JSON::XS. JSON has no ordering implied, and indeed may come back in a different order each time you run it. If you care about ordering you need to invoke the *canonical* method, as follows:
`$requeststr = JSON::XS->new->utf8->space_after->canonical($TH_MODE)->encode`
In the above example we have defined a constant \$TH_MODE to be 1 in test harness runs to ensure identical output comes back for each run.
- JSON::XS now decodes JSON Boolean fields into Perl as 1 or 0 by default, rather than 'true' or 'false' as before. You can force compatibility with the old way as follows:
`$jsonref = JSON::XS->new->ascii->pretty->allow_nonref->boolean_values('false','true')->decode($jsonstr);`
We have done this in HYDLLP so that table values continue to return 'true' or 'false' as there is a lot of code depending (in a rather clumsy way) on those values. A better way would have been to use the *istrue* function from *hydata.pl*, which would deal with either representation.
- Perl 5.30 rounds numbers slightly differently, using so-called bankers rounding. For a detailed discussion of the topic, read <https://www.exploringbinary.com/inconsistent-rounding-of-printed-floating-point-numbers/>, but for a quick summary, `printf('%f',3.25)` returns 3.2 under Perl 5.30, whereas it returned 3.3 under Perl 5.10. Interestingly Python 3.7 returns 3.2 also.
- If you need to deal with accented characters in Excel sheets, and you are using the *hyexcel.pm* module, the best way to get consistent results is to specify `encoding=>'UTF-8'` while creating a new HyExcel object. A couple of obsolete attributes in *hyexcel.pm* have been removed, including *encoding* and *unidec*, which are both now ignored.
- When Perl is searching for a module to load, the current directory (.) is no longer part of the search path. If you happen to have your own .pm module in INIPATH that is used in one or more of your own programs, you need to insert a line before the *use* statement telling Perl where to look, for example
`use lib HyconfigValue('INIPATH');`
`use mymodule; #assumed to be in INIPATH`
- If you have batch jobs of your own in INIPATH or elsewhere that set the path prior to running Hydstra jobs, you will need to amend the PATH statement to include `\hyd\sys\perl\site\bin` in addition to `\hyd\sys\perl\bin`. In particular, if you have jobs in INIPATH like *set_hydstra_env.bat* or *set_hydstra_env_simple.bat* these will require attention in order to work under V13. Any other jobs that are run from the Task Scheduler may also need attention.

Checking Your Own Perl Code

Program HYCHKPERL.HSC checks all your INIPATH Perl holdings to ensure that everything is in order. It checks your Perl in a variety of ways, even under V12, though it can really only do the complete job when run under Perl 5.30 in a V13 system.

- Checks that Hydstra modules are used with the correct case - you will get an error like: **** ERROR - h:\hyd\dat\ini\report.pl contains [use HydDLLp] which should be spelled with correct case [HydDllp] to match module definition*
- Ensure the Perl compiles under Perl 5.30.
- Checks that local .pm modules are loaded correctly - you will get an error like: *Can't locate mymodule.pm in @INC (you may need to install the mymodule module)*

- Ensure the Perl has *use strict*; and check compiles again with it in if not. You should always *use strict* in all Perl scripts.
- Checks batch jobs that have a Perl path to `\hyd\sys\perl\lib` and ensure they also include `\hyd\sys\perl\site\lib` in the path.

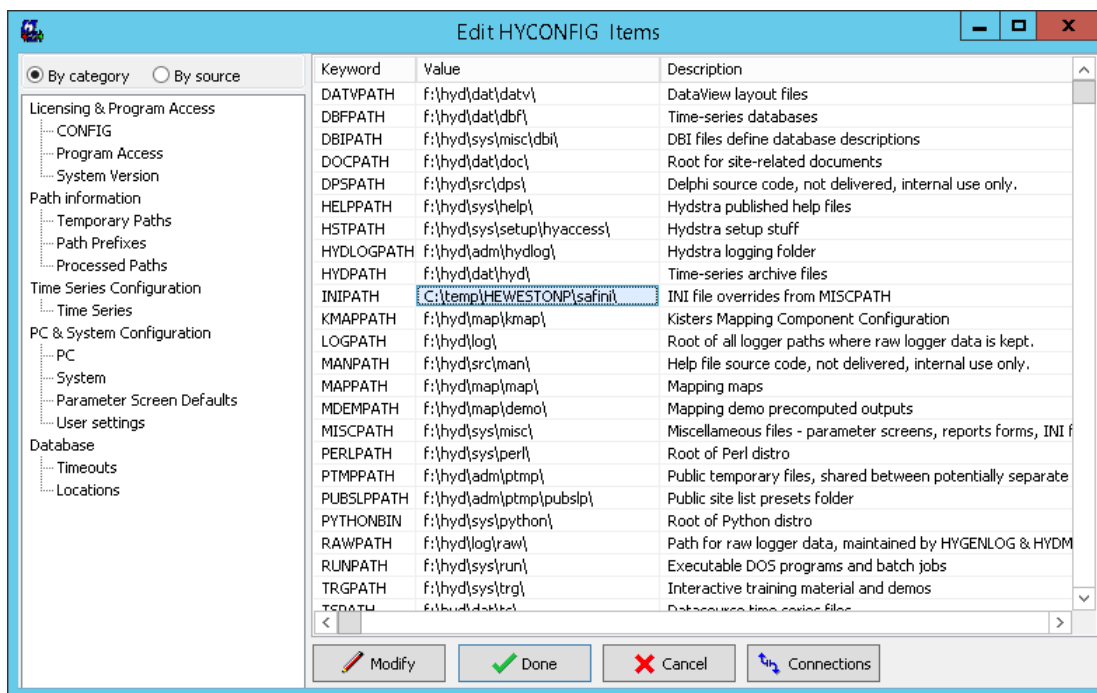
HYCHKPERL.HSC is distributed with recent patches of Hydstra V12, and a version is available on Dropbox at <https://www.dropbox.com/s/0y664m8ggsh4bqj/hyckperl.hsc?dl=0> that can be installed in MISCPATH on any version from V10 upwards. Since none of the changes you need to make will impact your V10, V11 or V12 systems, we recommend that you start improving your INIPATH Perl before you upgrade to V13. However please note that until you run HYCHKPERL under a V13 system you cannot be sure your Perl is in good shape. Running under V12 or lower at least assures you that the code compiles and seems to be OK, but only a Perl 5.30 compile can verify that.

It is worth noting that everything in INIPATH is your responsibility to maintain and update, and INIPATH code modifications are not included in your licence fees. KISTERS are happy to assist as a paid consulting project. Before getting KISTERS involved we suggest you groom your INIPATH and move anything that's not used into an obsolete folder under INIPATH. This would include backup versions and scripts that were used during migration but are no longer used. Then, zip up and send all the files in INIPATH (without subfolders) to us so we can provide a quote on addressing any problems. Clearly the size of the task is related to the size of your INIPATH.

In the end, there's nothing like running your code in a V13 beta test environment to ensure it is correct and functional. Even better you can set up a HYTEST system and confirm that V13 is producing the same answers as V12, or at least you should understand the differences (like the rounding issue we discussed above).

Looking in Other Folders

You can fool HYCHKPERL.HSC into looking at folders other than your main INIPATH by overriding INIPATH, either on the command line with HYCONF, or in the HYCONFIG Processed Paths dialog. Be sure to put a trailing slash on the path you want to search:



Detailed Log of Changes in Perl

You can find a detailed log of changes to Perl at https://en.wikipedia.org/wiki/Perl_5_version_history. Note that the version distributed with Hydstra V12 was Perl 5.10.0, whereas now it is Perl 5.30.0.

Delphi 2010 IDE Unavailable for V11

Hydstra V11 was compiled with Delphi 2010, whereas V12 is compiled with Delphi XE6. Due to a change of computer name we lost the ability to run the Delphi 2010 development environment, and we are unable to get it back. This means we have lost the ability make visual changes in V11 programs. We can still push non-visual code back to V11, but we cannot change any interactive element. This is all the more reason for users to move to V12 urgently.

HYTSXML Exports Hydstra Data to WISKI

HYTSXML provides a way of pushing time-series data, rating tables (but not equations), gaugings, and SITE information from a Hydstra system to a WISKI system.

New HYFILER Commands

As part of delivering a major restructure of sites and variables for a client we have introduced three new HYFILER commands which may be of more general use:

- HYFILER COPYTRACE copies data from a single datasource/site/variable to a different datasource/site/variable.
- HYFILER TIMESHIFT shifts a trace in time forwards or backwards.
- HYFILER FORCENEW forces new data over older data, but preserves gaps in the new data, unlike OVLNEW.
- HYFILER COPY takes a new optional flag /DELSRC which deletes the source file after a successful copy

HYIMPEXP Behaviour Restored

We have restored the option for HYIMPEXP V12 to transfer native time-series files rather than CSV files. This will offer significant performance benefits for organisations transferring data between V12 systems, but recall that V11 systems cannot read V12 time-series files. The option is in HYIMPEXP.INI to specify *BinaryTSFiles=Yes*.

Web Service Quotas

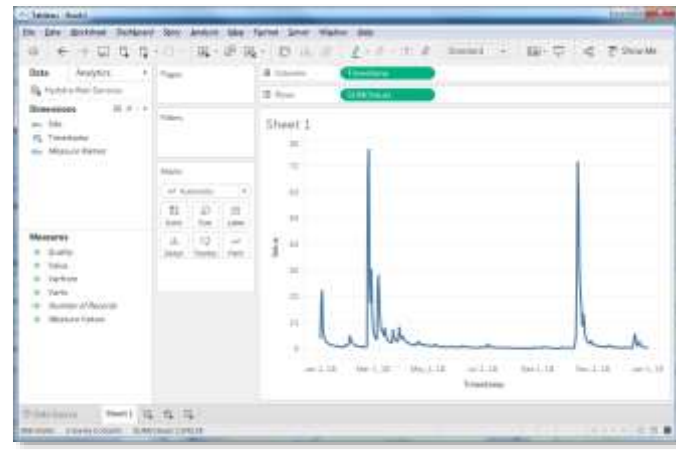
Agencies that publish their Hydstra data via web services can now prioritise consumers and apply quotas in order to prevent unknown users using all of the web server's resources. See *Configuring and Using Web Services* in the Help documentation for more information on how to implement quotas. Typically, you apply quotas to anonymous users and reserve unfettered access to registered users, who must provide a user id and password on their web service calls. Web service quotas are available in V12.

Support for R Scripting in Hydstra V13

In V13 we support scripting in R, the statistical reporting and analysis package. We needed to build a special version of HYDLLP to conform with R's calling conventions, and using slightly different techniques both 32 bit R and 64 bit R can retrieve data from Hydstra using HYDLLR. The V13 Help file has a topic *R Integration with Hydstra* which discusses in detail how to go about it.

Support for Tableau Analysis in Hydstra V13

in V13 we developed some minimal support for Tableau, a popular Business Integration tool. Tableau can be used to quickly develop dashboards, graphics and reports. See <https://www.tableau.com> for more information on Tableau.



Character encodings in Perl and Excel

In the past we (and you) have had difficulty reading certain characters from Excel spreadsheets in Perl. These include accented characters (é), and special characters like the degrees symbol (°) and the micro symbol (μ). We have added an encoding parameter to the HyExcel *new* method to deal better with UTF-8 encoded characters:

```
my $excel = HyExcel->new({book_name => $infile,ole => 1,encoding=>'UTF-8'});
```

When used in conjunction with

```
use open ':encoding(UTF-8)';
```

the special characters are preserved through all I/O including reporting and logging, reading from INI files, etc.

Logging HYMANAGE Record Deletions in HYDLOG

HYMANAGE saves a HYDLOG record whenever rows are manually deleted from a table. This assists in finger pointing and blame shifting after the event - but good backups are still your only protection! Please backup regularly to a permanent physically removed copy that cannot be overwritten or encrypted by a virus.

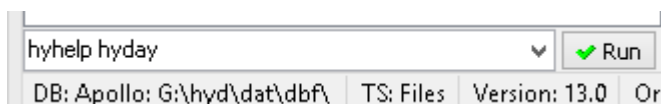
```
2019-06-06T12:30:05.106+10:00|2|PFHSSD:0|heweston|PFH|HYMANAGE|58496|*|||0|HSY|*|||0|msg|N|DELETE
HISTORY=8, PERIOD=175, STATION=1, STNINI=27, SERIES=639, PEAKTIME=11, BENCH=3, RATEPER=18, TTABPTS=3,
TTABHD=2, GAUGINGS=214, SECTIONS=496, SECTHD=6, SECTSURV=1, STNVISIT=8, VRWMON=1, SITE=1
```

HYHELP Quick Help Batch Job

HYHELP.BAT takes a program name or documentation title fragment and opens the Help files for the specified fragment. Use '*' for patterns, hence

```
HYHELP HYDAY
HYHELP HYPLT*
HYHELP *IMPORT* (be careful, there are over 200!)
```

HYHELP can be run from a HYPLORE CMD box, or from the run bar in HYPLORE to quickly access help:



It's available in recent V12 patches.

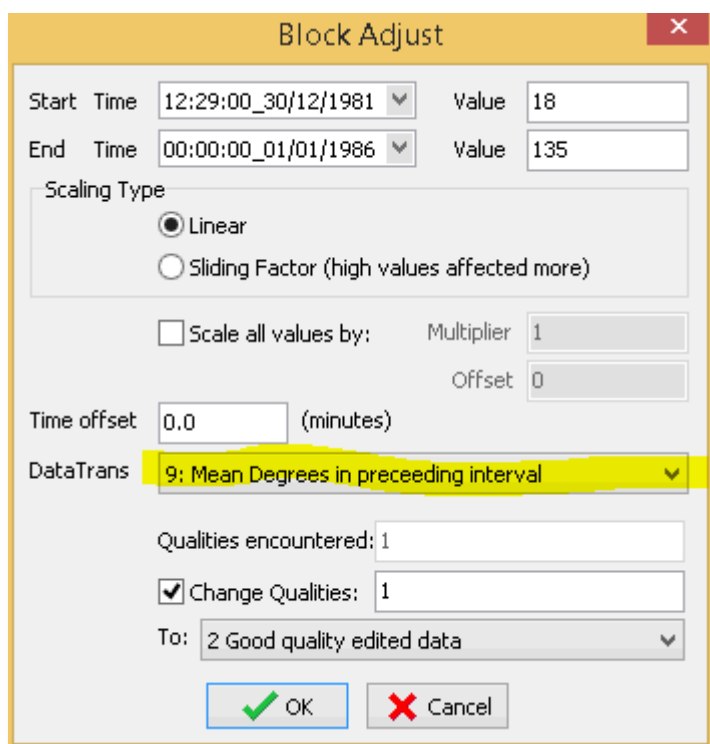
Fixing Wind Datatrans

If you run HYGIENE regularly you may discover that you have some wind direction data stored with the wrong datatrans. Why does this matter, you may ask? Well if wind direction data is stored with datatrans 1, the mean of 359 and 1 is 180. When stored with the correct datatrans 9 the mean of 359 and 1 is 0.

You can fix this easily in the Workbench - copy the archive to a work file, open in the workbench, select all the wind direction data, and then choose Adjust on the right:



Change the datatrans:



Save and re-archive.

WISKI Product News

Release Management and Client Base

The current software version is WISKI 7.4.9, which has many further functional developments for the ecology package KiEco and performance improvements for WISKI server. WISKI 7.4.9 uses the Open JDK Java release which removes the dependency on Oracle Java, with all its consequent [licencing issues](#).

WISKI 7.4.11 Update

We will be looking to roll out updates to what will shortly be the latest version – WISKI 7.4.11 – beginning early 2020, from which point it will be the recommended WISKI release. Since many customers are still currently using WISKI 7.4.7 or earlier, they should look to organise an upgrade directly to 7.4.11 in the new year.

WISKI Support Email and Help Desk

Contacts for the WISKI team at KISTERS in Australia:

Vicky, Chris, Markus, David and Callum (web developments) offer specialised support for the KISTERS products WISKI, KiWQM, KiEco, KiDSM, KiALM, Water Portal, WDO and KiWIS in Australia and New Zealand.

The phone number for support is +61 2 6154-5200, and the email address is wiski-support@kisters.com.au.

If you are engaging in a particular dialog with Chris, Vicky, Markus, Callum or David, please cc the support box so a central register of issues can be maintained.

The latest WISKI releases can be found on our download portal at <http://kisters.com.au/downloadswiski.html>, or can be accessed by navigating through to the support page from <http://kisters.com.au>.

To acquire a username and password to access the download portal please contact the KISTERS support team over the phone at (02) 6154 5200 or email at Wiski-Support@kisters.com.au

WISKI Standard Portal Applications

In the user group this year we focused on the increasing viewing and editing functionalities which are available as WISKI Standard Portal applications. Since WISKI 7.4.7 SR14, the WISKI Standard Portal is available as part of the WISKI package which is deployed over the WISKI Server Manager (WSM).

The applications (applications metrics and process analytics) which have been available since 7.4.7 SR14 were described in the prior newsletters and are for system administrators.

In coming WISKI releases additional viewing applications will become available:

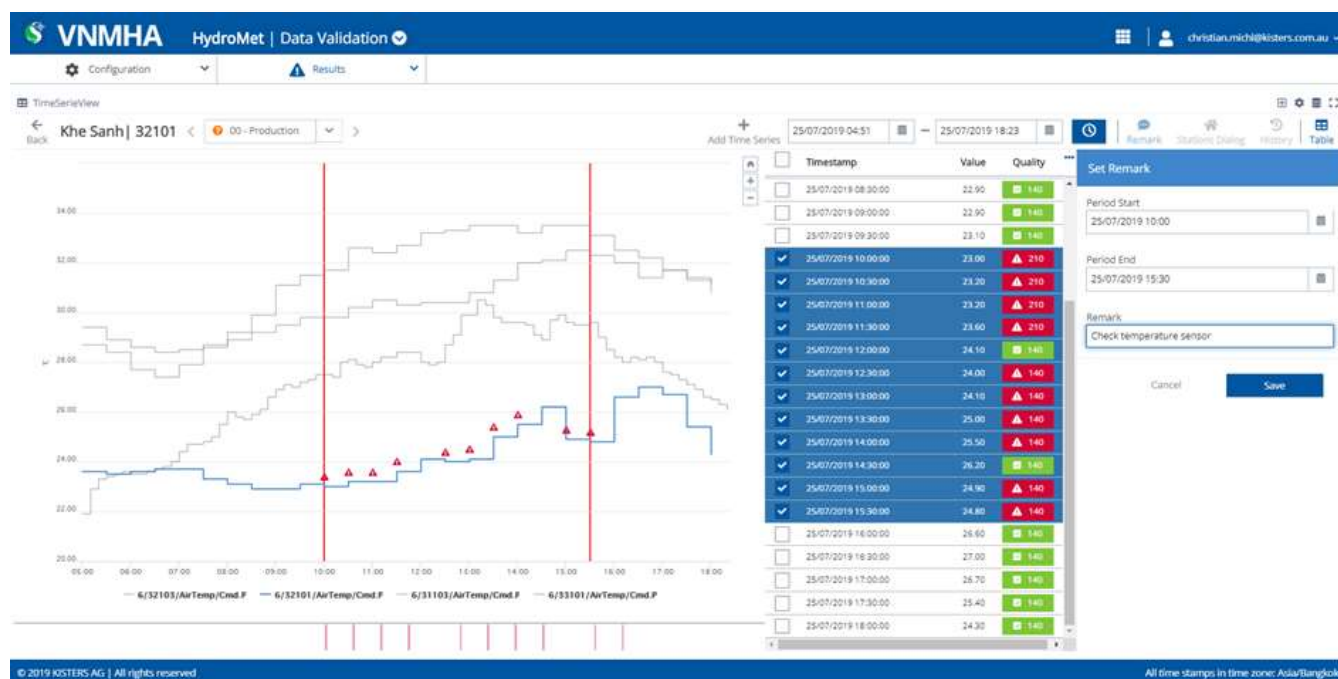
- Water Data Viewer
- Water Quality Data Viewer
- Raster Data Viewer
- Biology Data Viewer

As all applications require a user login and allow the usage of individual dashboards, your licensing will include the number of licenses based on your concurrent users for the purchased software (WISKI, KiWQM, WISKI-Raster/Calamar, KiECO).

Please contact us if you have further questions regarding your license agreement and the future usage of WISKI Standard Portal applications included in your agreement. You can also purchase additional user-based licenses if required for your organisation.

Additionally, the WISKI Standard Portal applications will be enhanced by our internal and customer paid R&D projects and the deployment over WSM. Shortly available will be the KiWIS deployment over WSM and the KiDSM Portal application. Already available is the portal application for Data Validation which was presented in the user group (please contact us for demo and/or pricing).

The example below shows the intuitive GUI of the Data Validation application using the new look and feel of the Next Generation Water Management systems.



In the example the interactive vector graph time series viewer is shown with marked values detected by the validation rules. Quality codes and remarks are displayed and editable individually and as bulk. The results are written back to WISKI and stored in the same way as the synchronous data validation performed by validator agents.

The application is a good example of the KISTERS new GUI design utilising the complex functionality of the backend WISKI.

What's New in KiWQM

There have been a number of additional fields and features added recently within KiWQM to allow even more comprehensive metadata to be stored regarding water quality samples and results.

Calculation of Sampling Duration (Since 7.4.9 SR6)

As water quality field samplings at a location may in fact last over several hours or even days, KiWQM has the ability to store the start and end time stamps for a sampling event. In addition, KiWQM can now automatically calculate the sampling duration based on these two fields. The duration is stored in hours and displayed with two decimal places and cannot be edited within the GUI. It is calculated either when entering the time range manually or when importing the data.

ABERCROMBIE @ CAMP AREA/06/01/2015 11:00:00 AM X

General Additional sampling attributes Sample fractions Sample results Assigned documents Additional attributes Additional Sample Details

Sampling number: LA15006 JR1 Measuring program: Water Quality Assessment and Monitoring Program SWAMP

Sampling date/time: 06/01/2015 11:00:00 AM Station: ABERCROMBIE @ CAMP AREA / 41210123

Reason: Routine / Unknown / Not Recorded Status:

Medium: Surfacewater - Stream Quality:

Sampling type: Manual - Sampling Pole Last change: 30/09/2019 09:52:32 AM

Sampling staff: Jane Rowlands Time range: 06/01/2015 11:00:00 AM

Remark: 06/01/2015 02:00:00 PM

Sampling duration: 3.00

Location

Location: Coordinates: 1

Remark: Visible depth: m

Cross section:

Sample

Sample date: 01/01/1900 12:00:00 AM Sample number: 5006 JR1 / --- / 0.50 m 2

Sample depth: 0.50 m Sample number:

to m

Time range: 00/00/0000 00:00:00 AM 00/00/0000 00:00:00 AM

Sample results

Remark:

In addition, if the sampling duration is specified during data import along with one of either the start or end time stamps only, then the end and start time stamps will be calculated automatically. The importer will also check that the sampling start date/time is earlier than the end date/time. The sampling duration field is also available for use within the global filter, shown in the sample table and available in the csv export and raw data exports.

Sample Remark Field (Since 7.4.11 SR3)

There is now a dedicated *Sample remark* field. As you click on each sample in the tree you can now enter a remark specific to each sample (or replicate sample) taken at different depths. The field can be seen in the screen shot below and is available for export.

ABERCROMBIE @ CAMP AREA/06/01/2015 11:00:00 AM X

General Additional sampling attributes Sample fractions Sample results Assigned documents Additional attributes Additional Sample Details

Sampling number: LA15006 JR1 Measuring program: Water Quality Assessment and Monitoring Program SWAMP

Sampling datetime: 06/01/2015 11:00:00 AM Station: ABERCROMBIE @ CAMP AREA / 41210123

Reason: Routine / Unknown / Not Recorded Status:

Medium: Surfacewater - Stream Quality:

Sampling type: Manual - Sampling Pole Last change: 30/09/2019 09:52:32 AM

Sampling staff: Jane Rowlands Time range: 00/00/0000 00:00:00 AM

Remark: 00/00/0000 00:00:00 AM

Sampling duration:

Location

Location: Coordinates: 1

Remark: Visible depth: m

Cross section:

Sample

Sample date: 01/01/1900 12:00:00 AM S006 JR1 / --- / 0.50 m 2

Sample depth: 0.50 m Sample number:

to m

Time range: 00/00/0000 00:00:00 AM 00/00/0000 00:00:00 AM

Sample results

Remark:

Sampling Additional Attributes (Available in 7.4.11 SR4)

In the next 7.4.11 release (available later this year), KiWQM will have the ability to store additional attributes both at the sample and sampling event level. These attributes are defined in the same way you defined sample attributes - by measuring program type. Go to:

System View > System metadata > Management > Types > Measuring Program type

Double click to open the measuring program type that you are creating the attributes for, and go to the *Additional sampling attributes* tab to define the attributes. As with all additional attributes, they can be of any data type (string, numeric, key list, Boolean, long text, date/time etc.)

Name	Short name	Type
General conditions	GENERAL_CONDITIONS	Long text
No sample reason	NO_SAMPLE_REASON	Long text
Visited by no sample taken	NO_SAMPLE	Boolean
Weather	WEATHER	Long text

Go to the *Sampling layout* tab to define how the attributes will be displayed in multiple tabs in the GUI. These layouts will then be shown on the Sampling form under a new tab called Additional sampling attributes, under which each of the layouts you have defined will be displayed. For example:

Import and Export Formats

We'd like to remind all customers that the client side time series import and export framework is being deprecated. The time series I/O framework has been moved to the TSM server and most import and export formats have been replaced with server side implementations.

When manually exporting or importing time series data using the WISKI client you may have seen a warning similar to this:

```

Day.Cmd.Pan_exp - Notepad
File Edit Format View Help
Hint : 02.10.2019 11:18:31 Start export for format ZRXP - files
Information : 02.10.2019 11:18:31 Output procedure: FILE
Information : 02.10.2019 11:18:31 Output medium: C:\Kisters\Data\Versioning Test\Day.Cmd.P.zrx
Information : 02.10.2019 11:18:31 Data to be exported : Day.Cmd.P
Information : 02.10.2019 11:18:31 Requested export time range: 01.07.2010 00:00 .. 01.07.2018 00:00
Information : 02.10.2019 11:18:32 Opening file 'C:\Kisters\Data\Versioning Test\Day.Cmd.P.zrx'.
Information : 02.10.2019 11:18:32 Write into file...
Information : 02.10.2019 11:18:32 Using time zone: '(UTC+10:00) Canberra, Melbourne, Sydney'
Warning : 02.10.2019 11:18:32 'ZRXP time series data' is deprecated and will be removed in the future release. Use 'ZRXPIOsys_e' instead.
Information : 02.10.2019 11:18:32 Closing file 'C:\Kisters\Data\Versioning Test\Day.Cmd.P.zrx'.
Information : 02.10.2019 11:18:32 Finish export for format ZRXP_e

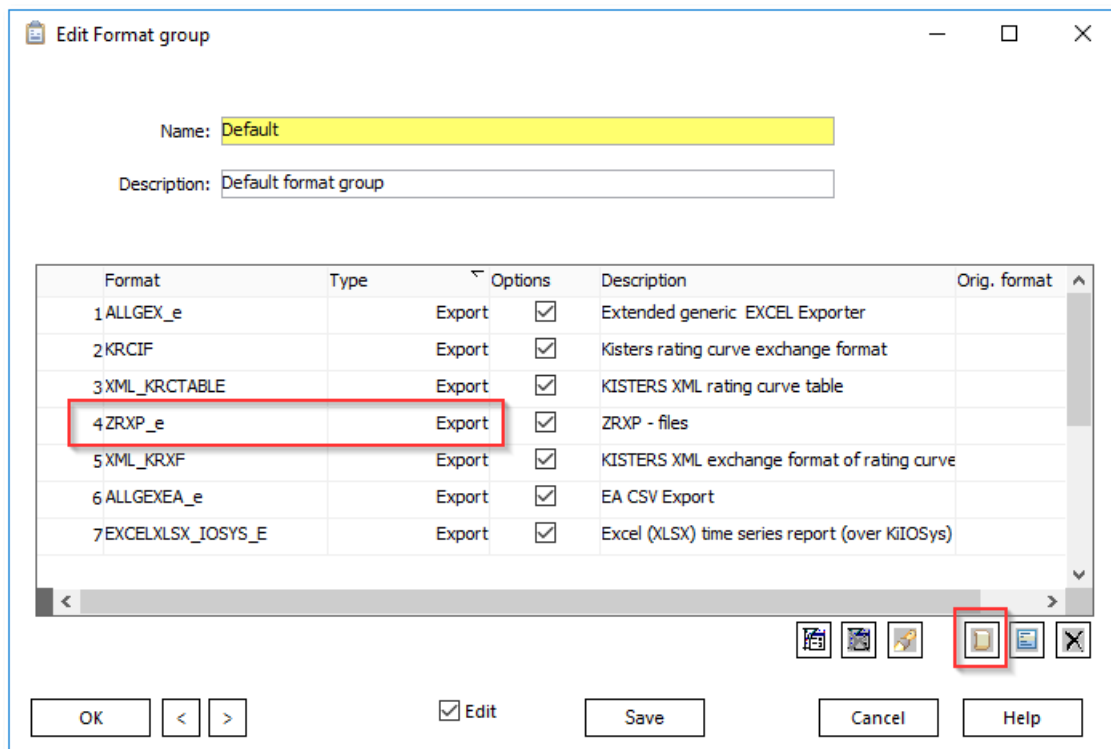
```

This means you are still using old client side import and export formats and need to swap them for the server side implementations before the next update. This can be easily done by navigating to:

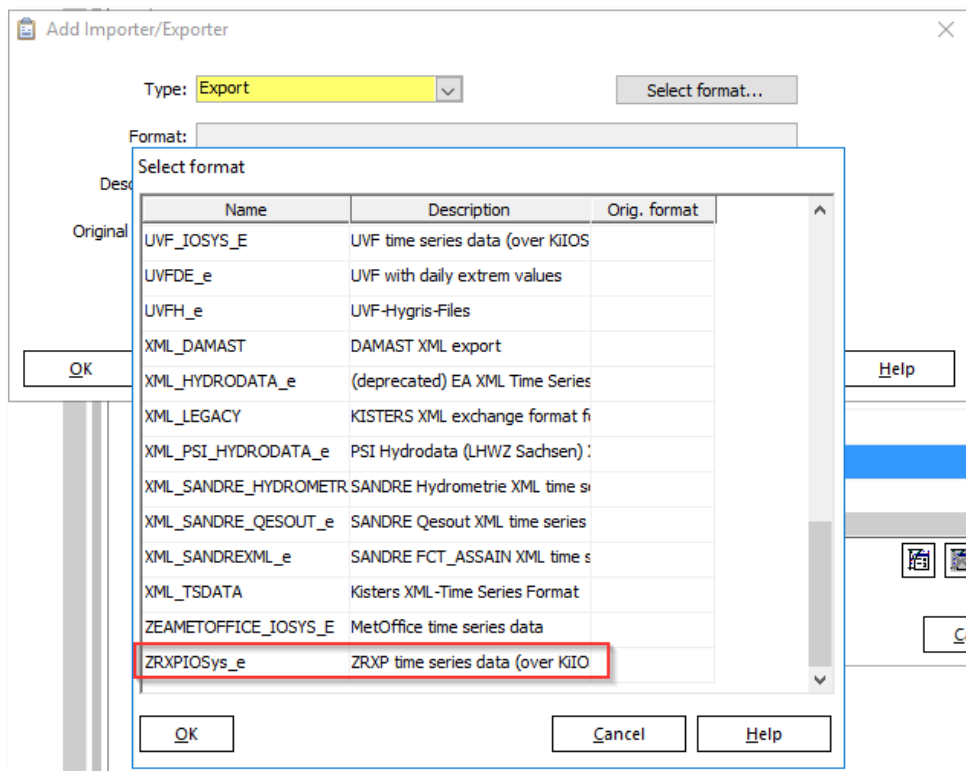
System View > System metadata > Format Group

In each format group that is being used replace the client side implementations with the new server side implementations. The new server side import and export formats can be identified by the trailing “_IOSYS” in the name of the format.

In the below example we are going to walk through replacing the ZRXP_e export format with the server side implementation.



First select the *Add record* button to add a new record. In the following dialog select the type of format (Export) and then hit *Select format*



In the list of available formats find the IOSYS version of the format that is being replaced and add it to the format group.

News from KISTERS Overseas

You can keep up with news from other KISTERS offices via the following links:

<https://water.kisters.de/en/press-room/>

<https://water.kisters.de/en/news/>

<https://www.kisters.net/NA/news/>

Staff News

Alain Remont Retired

Long-term support member Alain Remont has recently retired. Alain kept the wheels going round behind the scenes, managing KISTERS infrastructure in Australia and providing first line Hydstra support. We wish him well in his retirement.



Nat O'Rourke Commenced

We are pleased to welcome Nat O'Rourke as Hydstra team leader. Nat has a background in database support and management in both the government and private sector. He has a Master of GIS and Remote Sensing from Charles Sturt University and a Bachelor of Environmental Science from the University of Canberra.



David Hattenbruck Commenced

David Hattenbruck joins the WISKI team in a support role. David completed a Bachelor of Science (Geochemistry/Microbiology) from the University of Western Sydney, followed by a Master of Environmental Science from the University of Sydney in 2018.



WaterAid Fundraiser Evening

On Friday 27th September, several KISTERS PTY staff attended a fundraising trivia night held by the Bureau of Meteorology and Icon Water to raise funds for WaterAid, as part of an initiative to improve water quality, supply and vital facilities for the community of Ka-Ben in eSwatini, Africa.

On a big evening for the local Viking-themed, green-clad rugby league team, the *real* competition was in the function room at the Rugby Union Club in Turner, Canberra. Despite fielding a depleted squad, the KISTERS outfit *Aquaducks* outdid themselves and placed in third, finishing ahead of favoured opposition and announcing themselves as ~~football~~ trivia heavyweights.

Prizes and raffle goodies were kindly donated by various local, international, and corporate contributors, and the event ultimately raised \$7,500 for WaterAid, reaching the target set out prior to the event. More information on WaterAid's objectives, current projects and ways to donate can be found at <https://www.wateraid.org/au/>.

Information

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