PIT Tag Information System

Columbia Basin | ptagis.org

P4 Field Tagging Software

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P4 Version: 1.34

P4 is the data entry and management tool developed by PTAGIS for the collection and submission of PIT tag mark/recapture/recovery (MRR) data in the Columbia River basin.

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1. New Features in P4

New MRR Dataset
PTAGIS has implemented a new MRR (mark/recapture/recovery) dataset model for P4 that allows each individual record in a Session to have different values for most of the standard PTAGIS fields. Session fields that must be the same for all records include File, Project Code, Session Message, and Session Note. Every other field can have a different value in each record in a Session.

Several new fields, such as Life Stage, Latitude/Longitude, Coded Wire Tag (and other types of tags), have also been added to the dataset. Please see the MRR Field Definitions and Requirements for a complete list of the session and record data fields available in P4 and the requirements for those fields.

In addition to the new fields, two fields that were available in P3, but never loaded into the database, will now be loaded into PTAGIS and be made available through the reporting system: Session Note and Detail Note.

Explicit Event Types
One of the new data fields in P4 is called Event Type and it is required to be completed for all records. This field is used to specify the type of data collection event that generated the record. The possible Event Types are Mark, Recapture, Recovery, Passive Recapture or Tally.

Explicit Date Time Values
PTAGIS expected that all date/time values submitted in P3 data were entered in Pacific Standard Time, which is the PTAGIS standard for timestamps. P4 uses a more precise data structure such that the value always unambiguously identifies a single point in time regardless of the local time zone or if Daylight Saving Time is in effect. All times in P4 will be entered and displayed in local time as indicated by the field computer's system settings, but stored with the time zone offset. This will allow PTAGIS to display all timestamps in Pacific Standard Time in the reporting system.

Please see the Dates and Times in P4 topic for more information.

Data Entry Features
For those that don't need to have unique information for each record, there are tools available to fill in the fields that will have the same values across all records. Repeating Values allow you to set the values that will go in each record as it is created, or can be used to complete information post-data collection.

The Data Entry Form in P4 can be customized by creating a custom Data Entry Layout. Fields can be added or removed to the data entry form and/or rearranged as needed.

Customizable User Interface
Different themes can be applied to P4 to change the colors of backgrounds, text, and other user interface elements. Data Entry, Record Management, and Query all support dockable panels, which allows the elements to be minimized, closed, and rearranged to suit your requirements.

Project Defined Fields
While P3 included a single field (Additional Positional) that could be used for storing project specific data, P4 allows the creation of up to 10 session-level and 10 record-level Project Defined Fields. These fields will not be loaded into PTAGIS, and will only be available in the P4 installation in which they are created. If multiple computers need to use the same fields, they can be exported to a file which can be imported into other computers. Project defined fields include a field definition and method for restricting the type of data that can be

entered into them.

Enhanced Validation Tools

P4 includes powerful real-time validation which always runs in the background while data is being collected to check the validity of tag codes and ensure the minimum required fields are being completed. This standard real-time validation can be augmented by the user by setting up customizable Validation Constraints based on species-run-rear type.

Post-data collection validation has been enhanced significantly in P4. Whenever a Session is validated, field requirements and domain limits will be checked. Any validation failures will be reported in detail to allow the user to more easily locate and correct potential errors. Custom Validation routines can also be created by the user to enhance the standard PTAGIS validation checks.

Data Management Tools

Robust data management tools are available in P4 for post-data collection editing. Most of these are available in Record Management, where Sessions can be opened into a tabular view and records can be edited individually or in groups. Some of the editing tools available in Record Management are Find and Replace, Fill Records, Adjust Date/Time, and Dot Out Records.

There are also tools for editing records across multiple Sessions, though these should be used with caution. It is possible to dot out records across Sessions using a tag list, update records across Sessions using the values in a different Session, and update records across Sessions that are the result of a Query. Before performing large editing tasks such as these, you may want to backup the P4 database so that it can be restored in the case of any mistakes.

In addition to the powerful editing tools, P4 includes a flexible Query tool that allows complex queries of all data in the P4 database to be constructed and saved for future use. The query results can be exported to Excel or delimited file formats.

1.1. Event Types

The Event Type field must be completed for each record in a session and is required to be completed during data entry before the record can be saved. Records with different Event Types have different requirements for what makes a complete record. Please see the MRR Field Definitions and Requirements table for a complete list of P4 data fields and their requirements by each Event Type. Alternatively, you can view the requirements for each event type by following the hyperlinks in the table below.

Mark	The event during which a fish is initially marked with a PIT tag and released (or planned to be released). Only one mark event is allowed for each PIT tag code. If additional mark events are submitted for the same PIT tag code, they will be categorized as Mark Duplicates during the loading process.
Recapture	The event during which a previously PIT-tagged fish is recaptured, scanned by hand, handled and released (or planned to be released). Multiple recapture events are allowed for each PIT tag code as long as the Event Dates are different. If an additional recapture is reported with the same Event Date of a previously reported recapture for the same tag, it will be categorized as a Recapture Duplicate during the loading process..
Recovery	The event during which a previously released PIT tag is recovered from or detected in a dead fish, or is recovered or detected as a bare tag, or is removed from the possibility of being recaptured or detected in the future. Multiple recovery events are allowed for each PIT tag code as some PIT tags, while obviously no longer in a living fish, may be detected multiple times without a physical recovery (e.g. carcass surveys, avian nesting sites). A recovery event that is reported for the same PIT tag with the same Event Date as a previously reported recovery event will be classified as a Recovery Duplicate during the loading process.
Passive Recapture	The event during which a previously PIT-tagged fish is detected by unattended or remotely operated detection equipment at a location other than an interrogation site and is not handled. It differs from a Recapture event in that the fish is not handled, only detected. It differs from an interrogation record in that the detection occurs opportunistically in a location that is not a registered interrogation site. Multiple passive recapture events are allowed for each PIT tag code as long as the Event Dates are not the same.
Tally	The event during which an un-tagged fish is sampled or counted without being marked with a PIT tag. Tally events must have 10 dots as the PIT tag code and will be ignored when submitted to PTAGIS for loading.

1.2. Dates and Times in P4

An example of how the date time offset values are stored is below:

2016-09-20T17:00:00-07:00

The date is in YYYY-MM-DD format and is separated from the time by the letter T. The time is in 24 hour format and is followed by the time zone offset value. Here the offset is -07:00, which indicates that it is 7 hours behind Coordinated Universal Time (UTC), and was collected in either Pacific Daylight Time or Mountain Standard Time.

Time zone offset values in the Columbia Basin region are:

Time Zone Name	Abbreviation	Offset
Pacific Standard Time	PST	-08:00
Pacific Daylight Time	PDT	-07:00
Mountain Standard Time	MST	-07:00
Mountain Daylight Time	MDT	-06:00

All timestamps entered and displayed within P4 use this date time offset structure to promote more accurate reporting of when a certain event occurred regardless of where. A user in the field can simply enter the local date and time into P4 and not have to think about the local time zone or if Daylight Savings is in effect. Timestamps can be automatically input during data entry with the local system time if enabled in the Repeating Values feature. Regardless, these local timestamps will eventually be converted to Pacific Standard Time (PST) when P4 data is submitted to PTAGIS as is standard for reporting.

The convenience of using the date time offset to store local timestamps can present some complications because P4 displays them relative to the current system time zone settings which may be different from when the data was first collected. For example, a field user in an eastern county within Idaho enters an Event Date for a mark record with a local timestamp of **2016-11-01T13:00:00-06:00** which represents Mountain Daylight Time (MDT). P4 displays the local time of this event as **11/01/2016 13:00:00**. Viewing this Event Date a month later when the same system is now operating under Mountain Standard Time (MST) P4 will display it as **11/01/2016 12:00:00**. This relative time shift is also observed when exporting and importing sessions between different P4 instances running on computers operating under different time zones. The original timestamps are preserved using the date time offset structure but appear to be different local times when viewed simultaneously on two computers operating under different time zones.

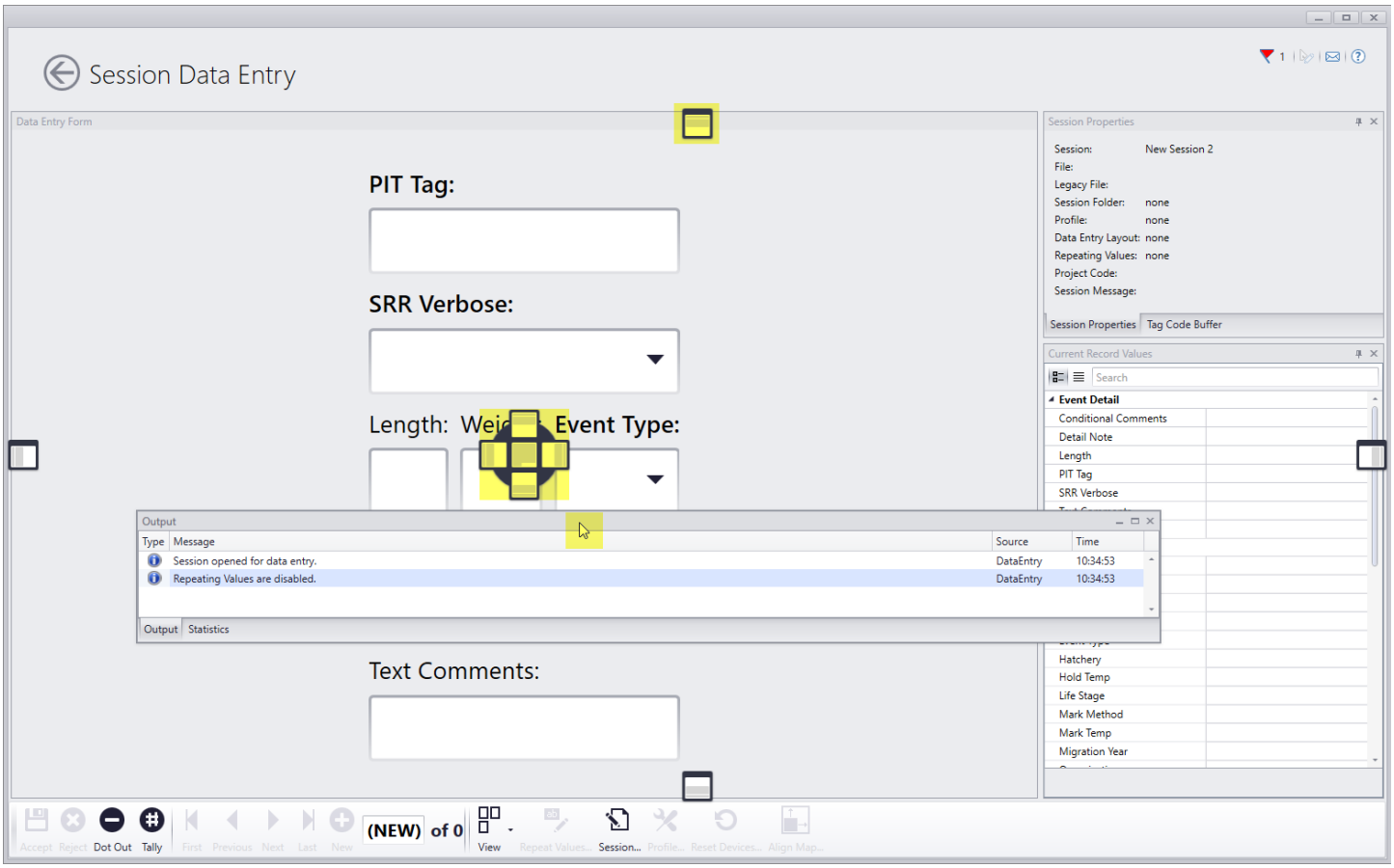
The Record Management feature allows users to optionally display event/release dates standardized to PST if the local time is not desired. The Query feature standardizes and displays all dates as PST to allow filtering of these values across sessions that have timestamps collected under different time zones. The column header indicates where a date/time value is displayed in local or PST as shown below:

Event Date	Event Date (PST)
02/08/2015 13:00:00	02/08/2015 13:00:00
02/11/2015 12:00:00	02/11/2015 12:00:00
02/15/2015 12:00:00	02/15/2015 12:00:00
03/12/2015 13:00:00	03/12/2015 12:00:00
03/14/2015 13:00:00	03/14/2015 12:00:00
03/15/2015 13:00:00	03/15/2015 12:00:00
03/11/2015 13:00:00	03/11/2015 12:00:00

NOTE: it is recognized that not all research can or needs to capture and report timestamps accurate to the hour, minute or second. In this case, enter a time value of 12:00:00 (noon) and not 00:00:00 (midnight) to prevent time zone adjustments from impacting the correct date value.

1.3. Dockable Panels

Dockable panels can be moved or un-docked by clicking and dragging on the panel title bar. When a panel is dragged in this way, docking elements will appear (two are highlighted in yellow in the screenshot below). These are used to specify where to dock the panel. Panels can also be left undocked, in which case they will float over the other elements on the screen, unpinned or closed.



2. Contact PTAGIS

For questions or comments, please feel free to contact us using one of the options below:

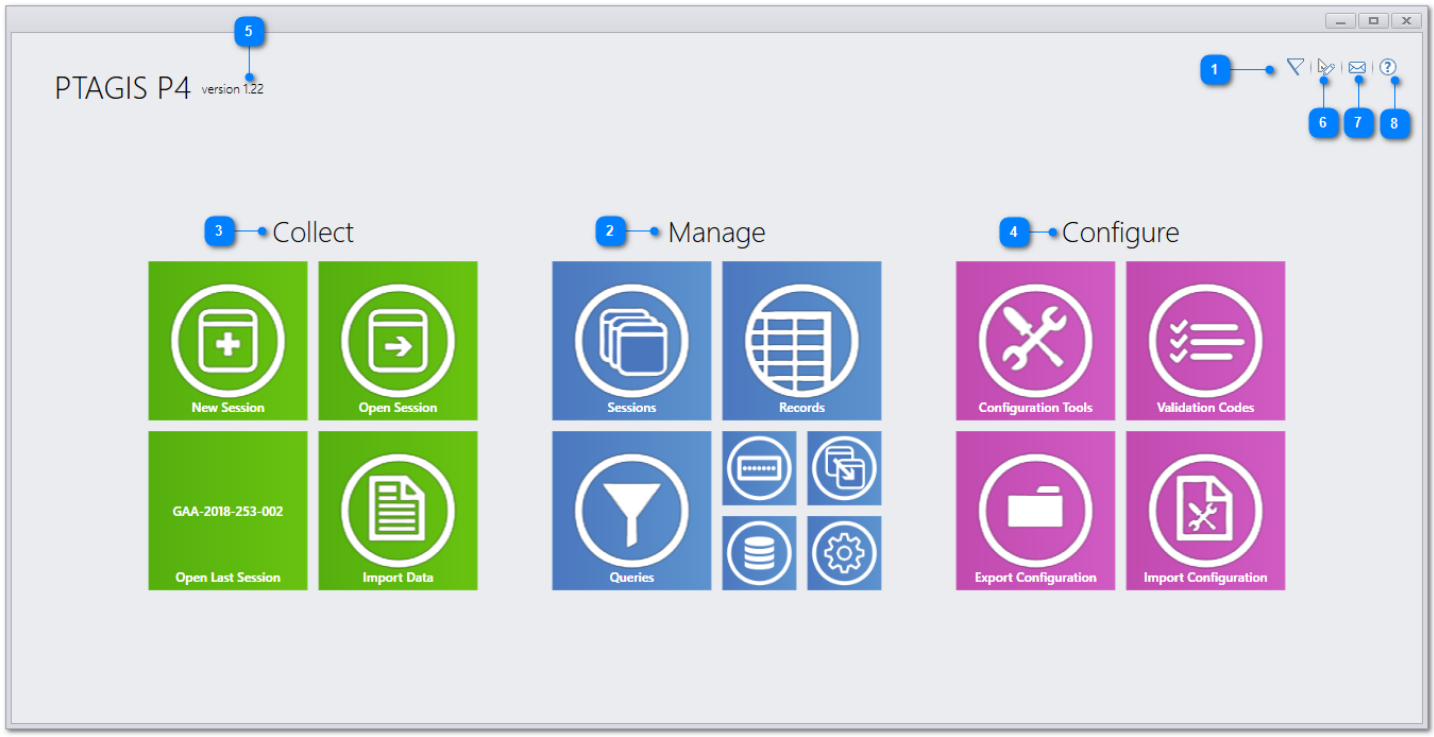
P4 Web Page

Email Support

503-595-3100

3. Dashboard

This is the P4 home screen and contains navigation tiles that are grouped into three main feature categories: Collect, Manage, and Configure. In the top-right corner is an application-wide tool bar with buttons to access the help system, to view PTAGIS contact information, to change display themes, and to view notifications.

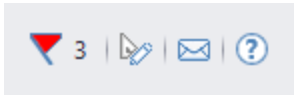


5 Version

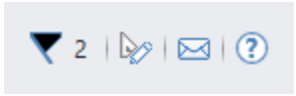
Displays the installed version of P4

1 Notifications

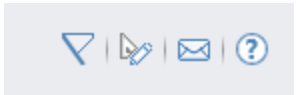
Used to display notifications from PTAGIS. The number next to the flag indicates the number of notification messages present.



A red flag indicates that there is at least one high priority notification that has not been dismissed.



A black flag indicates that there are regular notifications that have not been dismissed.



A white flag indicates that there are no notifications.

6 Theme Changer

Used to select the display theme. Different themes use different background and text colors. Those with the word Touch in the name are intended to be used with Windows tablet devices.

7 Contact PTAGIS

Used to display methods for contacting PTAGIS for support with using P4.

8 **Help**

Used to open the help system.

3 **Collect**

Contains features related to collecting and importing PIT tag data.

2 **Manage**

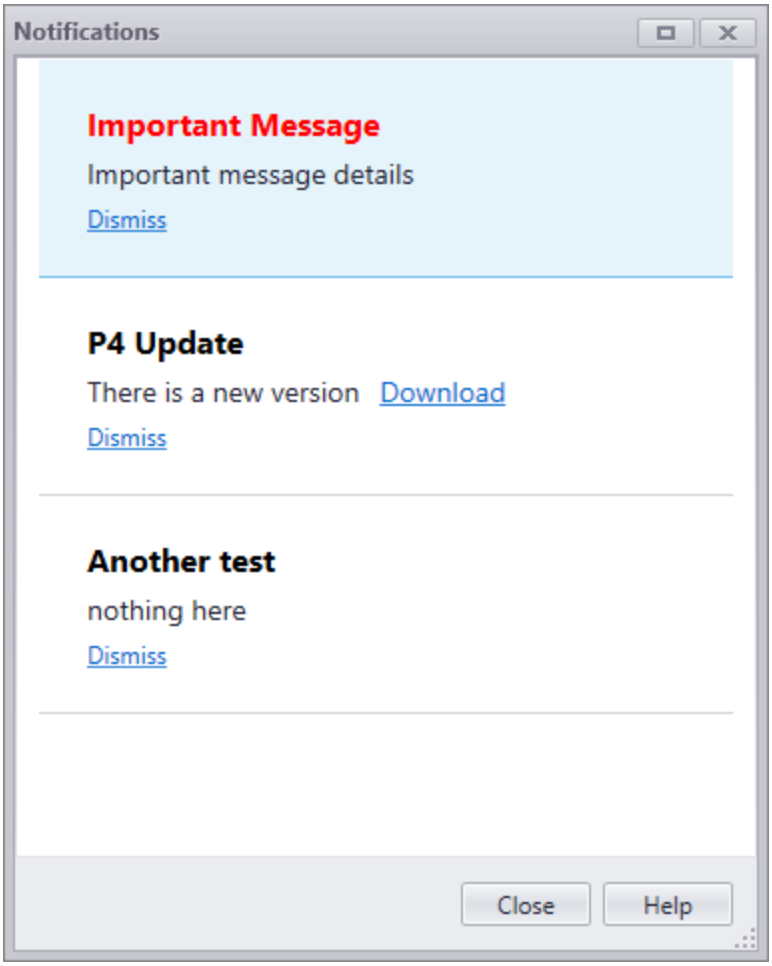
Contains features related to managing and submitting data to PTAGIS along with database and layout utilities.

4 **Configure**

Contains features related to setting up P4 and transferring those settings to other computers.

4. Notifications

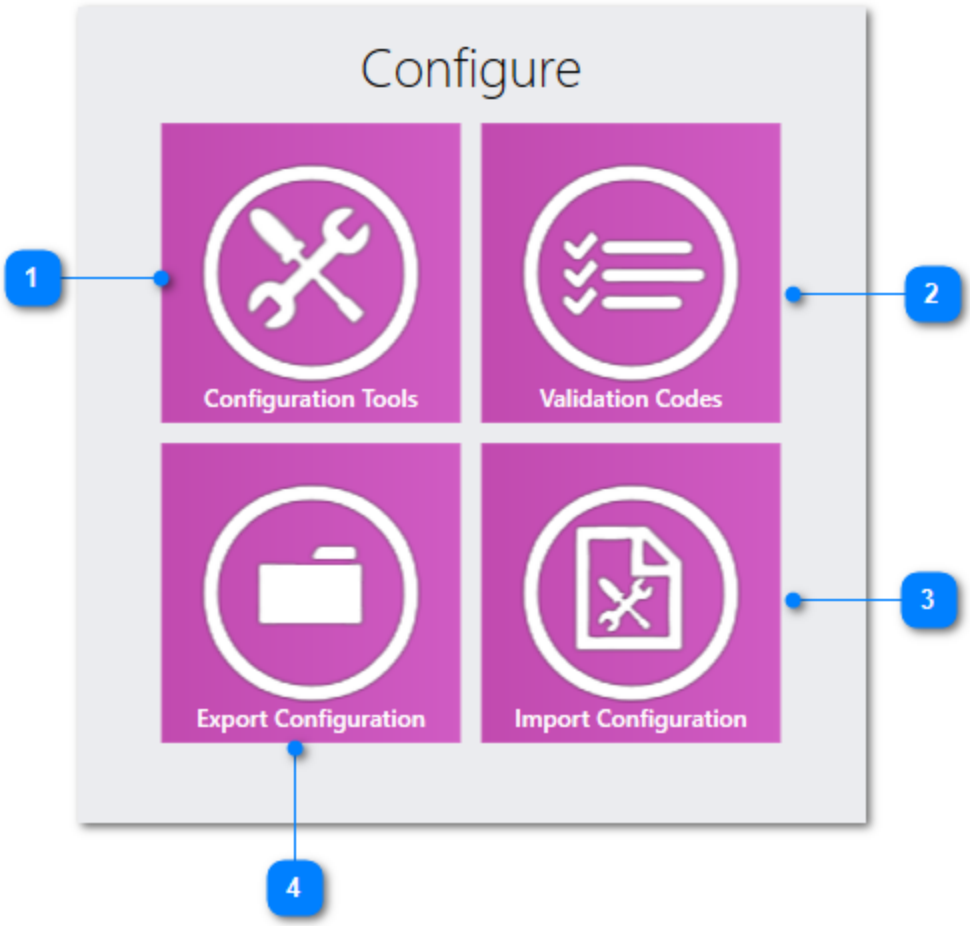
When P4 is running on a computer that is connected to the internet, it has the capability to receive notifications from PTAGIS. These notifications will be used to let P4 users know when a new version is available, and may be used to disseminate other information that would be useful to the community. Notifications in red indicate a high priority message that should be acted upon when it is received. Messages will remain in the notification window until dismissed. Once a message has been dismissed, it will disappear from this window and cannot be viewed again.



5. Configure

Although P4 can be used without configuration tools, for the most part, creating them allows P4 to be tailored to specific project needs and will increase data collection efficiency and accuracy. To make this easier, an Import feature is available to transfer settings from P3 and P4, as well as an Export feature to transfer setting to other P4 installations.

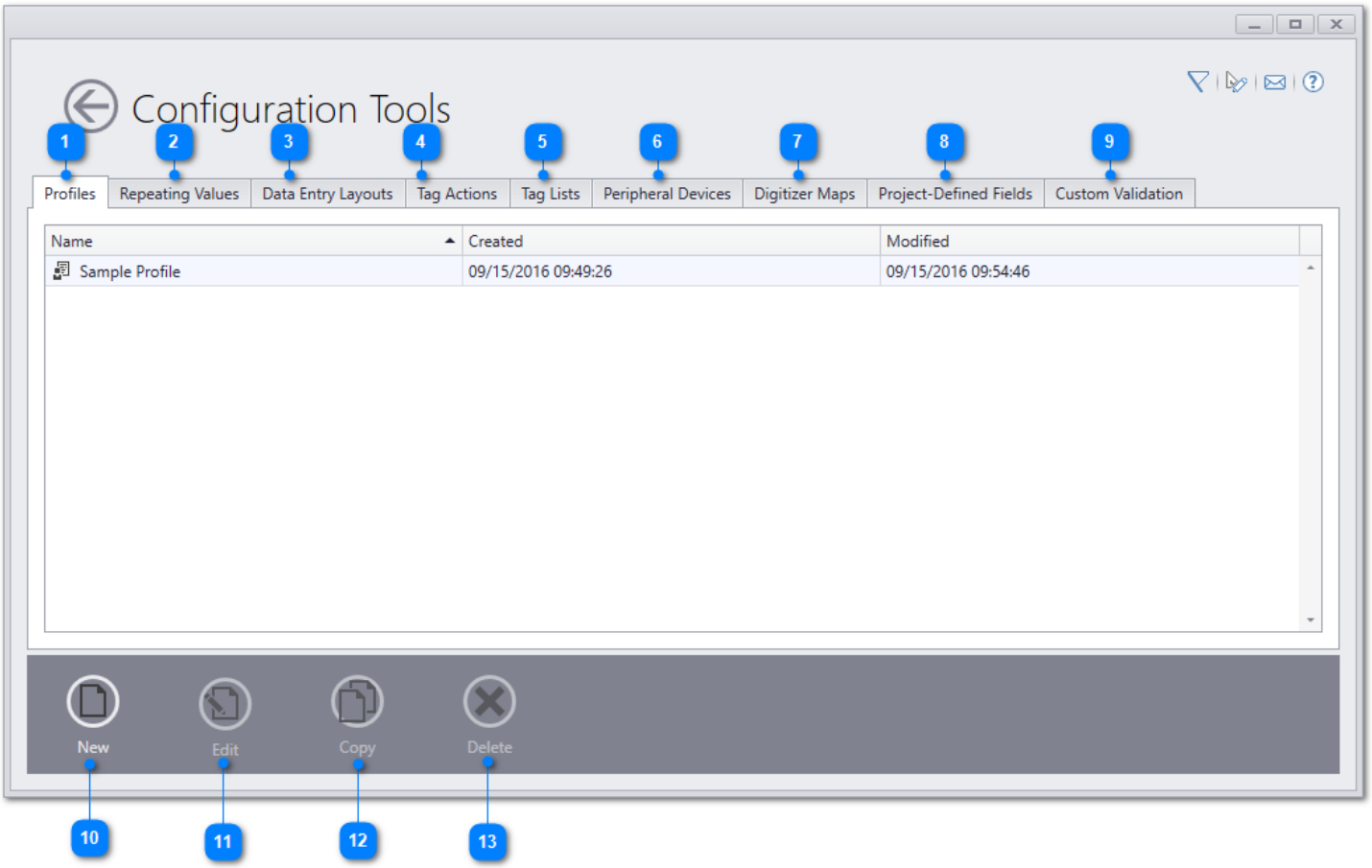
If you moving from P3 to P4, we recommend importing the profiles, templates and digitizer maps used in P3 to get a head start on configuring P4.



1	**Configuration Tools** Used to set up tools that define how P4 operates and connects to devices.
2	**Validation Codes** Used to view and download PTAGIS validation codes, and to add custom codes.
3	**Import Configuration** Used to import configuration settings from P3 database files and P4 configuration files.
4	**Export Configuration** Used to export P4 configuration files for transfer to a different computer.

5.1. Configuration Tools

Using the tools located in this section, P4 can be customized to suit many different data collection scenarios.



1 Profiles

A Profile specifies which configuration tools and defaults to use during a data collection session (e.g. peripheral devices, default values, tag actions, validation constraints, audible alerts, duplicate record handling, auto accept, tag mask validation).

2 Repeating Values

Similar to templates and repeating comments in P3, Repeating Values contain values that are automatically entered into new records during data collection. They can also be used for post-data collection editing.

3 Data Entry Layouts

Data Entry Layouts are used to customize the data entry screen by adding, removing, and/or rearranging fields on the data entry form.

4 Tag Actions

Tag Actions are used to configure P4 to perform an action when specific tags are scanned during data entry. The action can include displaying a message and/or entering values into the current record.

5 Tag Lists

Tag Lists contain tag codes and are used with Tag Actions and Update Records. They can be created by importing text files, downloading from a reader device, from sessions and from queries.

6 Peripheral Devices

Used to configure and test P4 connections to peripheral devices (readers, balances, digitizer tablets).

7 **Digitizer Maps**

Used to create and maintain digitizer tablet command maps for data entry.

8 **Project-Defined Fields**

Project-Defined Fields are used to collect project-specific data that is outside the scope of PTAGIS. **Values entered into project-defined fields are not loaded into PTAGIS, but are stored in and can be exported from P4 along with the standard PTAGIS fields.**

9 **Custom Validation**

Used to create custom validation rules to perform extra error checking on data before submission to PTAGIS.

10 **New**

Used to create a new configuration tool of the same type as the active tab.

11 **Edit**

Used to edit the selected configuration tool on the active tab. Tools can also be opened for editing by double-clicking.

12 **Copy**

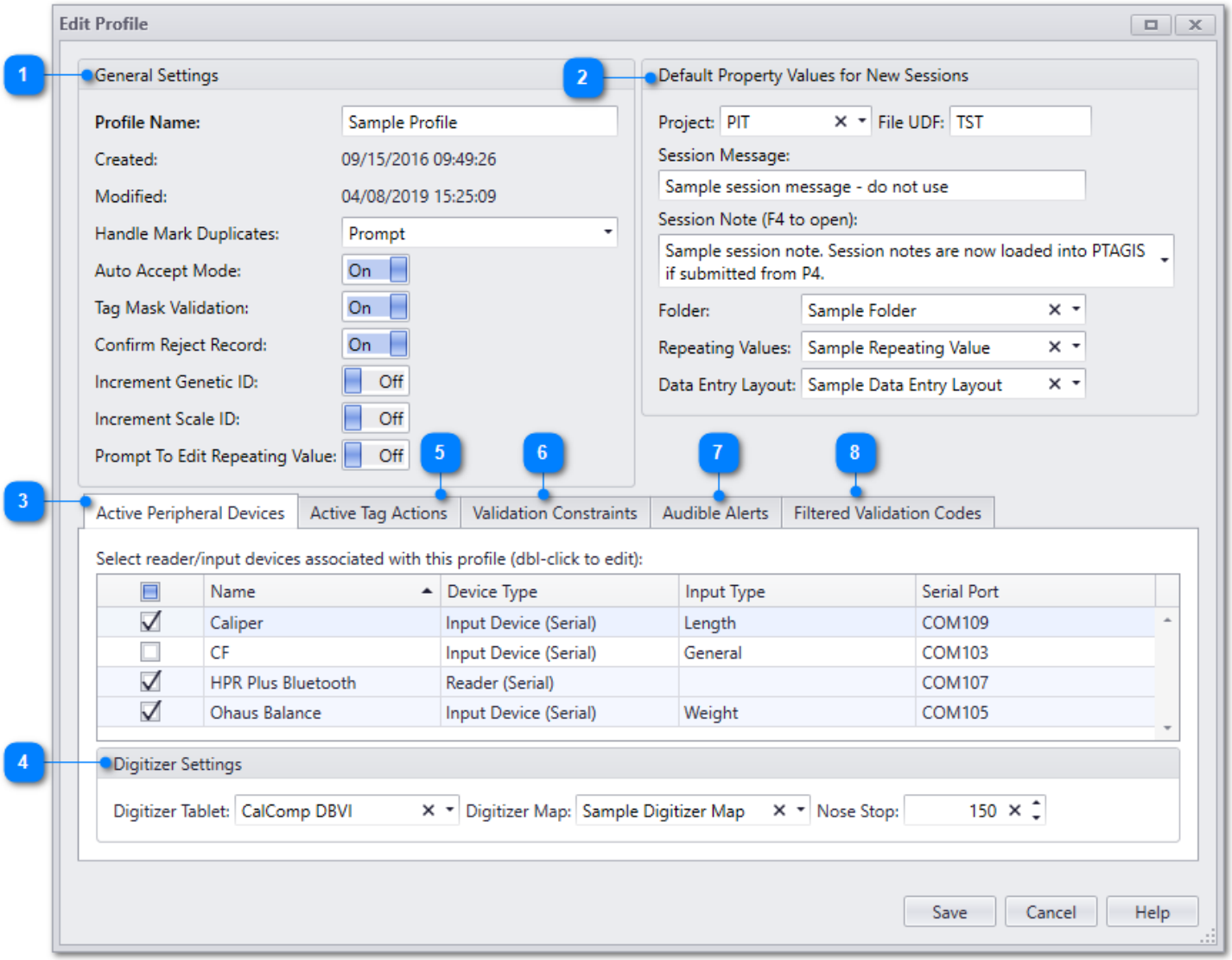
Used to copy the selected configuration tool on the active tab and open it for editing.

13 **Delete**

Used to delete the selected configuration tool on the active tab. A selected tool can also be deleted by pressing the Delete key on the keyboard. If the selected tool is a component of another tool, it cannot be deleted until the dependent tool is edited or deleted.

5.1.1. Profiles

It is recommended that a Profile be set up to tailor P4 to the specific needs of the project. If peripheral devices will be used with P4, creating a Profile is required.



1 General Settings

Specify profile name, duplicate record handling, auto accept mode, reject record confirmation, and Genetic ID/Scale ID increment settings.

2 Default Property Values for New Sessions

Specify default values and session properties to use when a new session is created with this profile.

5 Active Tag Actions

Enable the tag actions to use during a data collection session.

6 Validation Constraints

Specify real-time validation constraints to use during a data collection session.

7 Audible Alerts

Enable audible alerts to sound during specific data collection events.

8 Filtered Validation Codes

Specify a subset of validation codes to use during data entry.

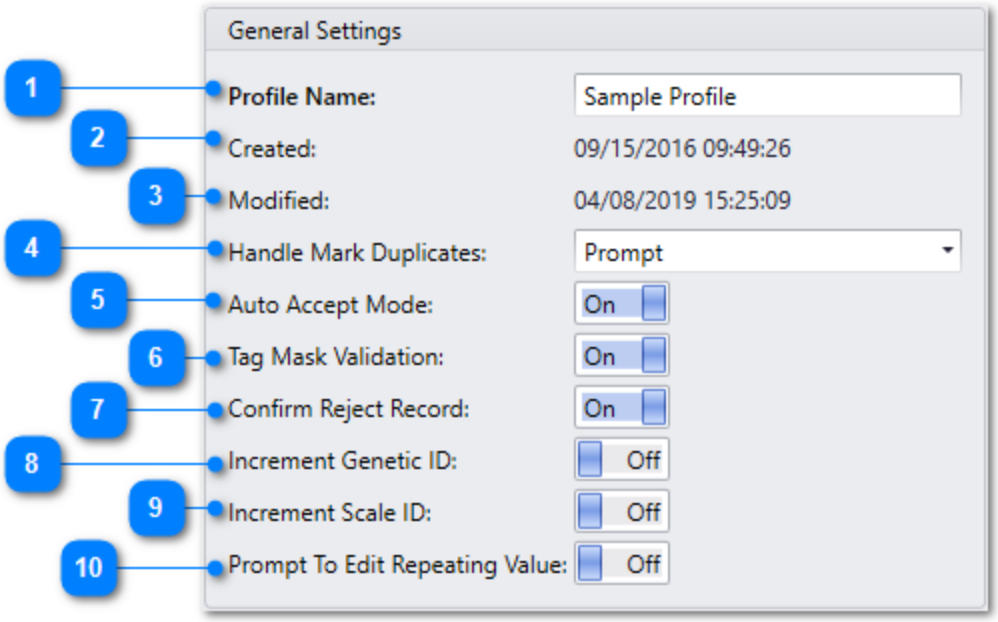
3 Active Peripheral Devices

Select the peripheral devices to use during a data collection session.

4 **Digitizer Settings**

Select the digitizer tablet, map, and nose stop to use during data entry, if applicable.

5.1.1.1. General Settings



1 **Profile Name**

Specify a name for this profile.

2 **Created**

Date the profile was created.

3 **Modified**

Date the profile was last modified.

4 **Handle Mark Duplicates**

Specify what P4 should do when a duplicate record is entered during data collection.

- *Accept:* automatically accept the duplicate record
- *Dot Out:* automatically dot out the duplicate record, leaving the original record as is
- *Reject:* automatically reject the duplicate record
- *Replace:* automatically replace the original record with the data collected in the duplicate record (the data entry form will scroll back to the location of the original record)
- *Prompt:* prompt the user to select one of the four above options

5 **Auto Accept Mode**

This setting is only useful if you are using a PIT tag reader to scan tag codes directly into P4.

When enabled (On), the current record will be automatically accepted when a new PIT tag is scanned, as long as the minimum required fields (PIT Tag, SRR Code, and Event Type) are completed. If they are not completed, the newly scanned code will be placed in the P4 Tag Code Buffer.

When disabled (Off), the current record must be manually accepted before a new tag is scanned. If a new tag is scanned before the current record is accepted, the newly scanned code will be placed in the P4 Tag Code Buffer.

6 **Tag Mask Validation**

When enabled (On), PIT tag codes will be checked against the PTAGIS list of known tag masks. If the tag mask (e.g.3D9.1C2C) is not on that list, a warning message will be displayed. A record with an unknown tag mask can still be entered into P4 and submitted to PTAGIS, however the file will be loaded with Provisional status and the record will not be available in the reporting system . See this PTAGIS news item for more information about tag mask validation.

7 **Confirm Reject Record**

When enabled (On), user will be prompted to confirm whenever the a new record is Rejected during data entry.

8 **Increment Genetic ID**

When enabled (On), the Genetic ID field will be incremented by one for each new record created during data entry. User must enter the first Genetic ID value, and the incremented value can be overwritten at any time in the case of a break in the sequence.

9 **Increment Scale ID**

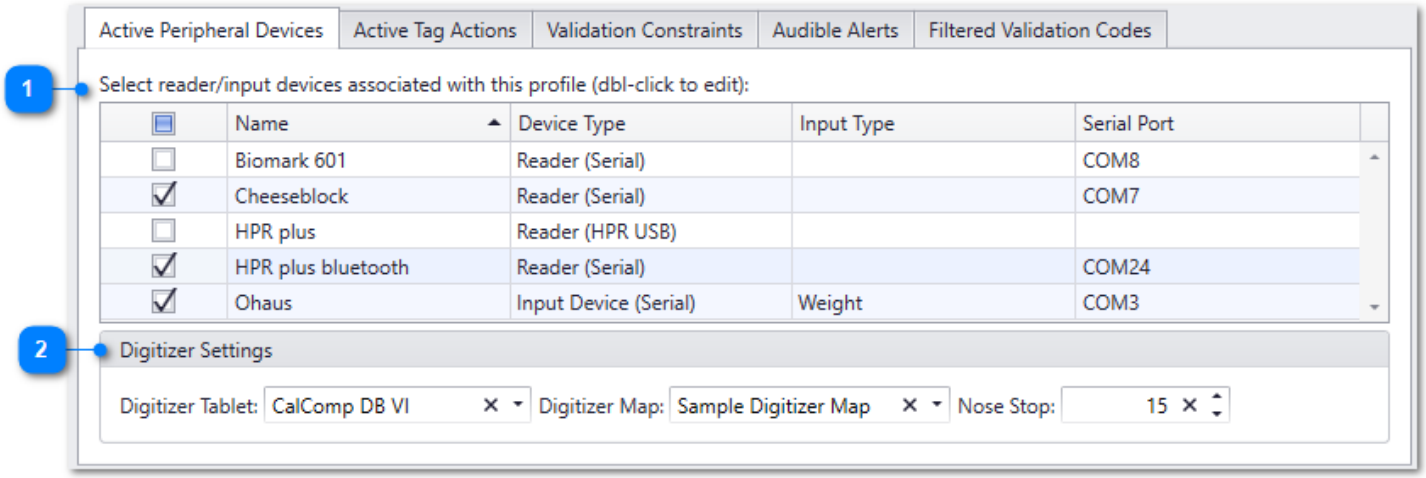
When enabled (On), the Scale ID field will be incremented by one for each new record created during data entry. User must enter the first Scale ID value, and the incremented value can be overwritten at any time in the case of a break in the sequence.

10 **Prompt to Edit Repeating Value**

When enabled (On), the Edit Repeating Values dialog will be opened when a new session is created or an existing session is opened in Data Entry in order to prompt the user to change any fields in the Repeating Value set that need to be changed on a daily basis.

5.1.1.2. Active Peripheral Devices

New in version 1.15: Multiple peripheral devices of each type, except Digitizer Tablet, can be used during data collection. Also See the Peripheral Devices topic for more information.



1 Select Reader/Input Devices

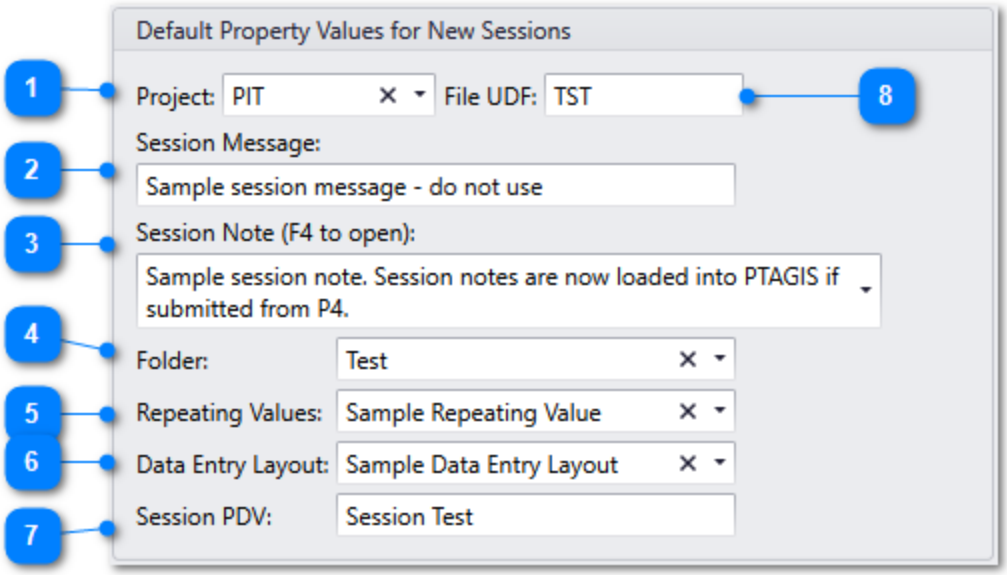
Select one or more reader devices to enable scanning PIT tags directly into P4 during data entry. Select one or more input devices (such as a digital balance) to enable sending values directly to P4 during data entry.

2 Digitizer Settings

To enable data entry and length measurements using a digitizer tablet, select the previously configured device and map here. To measure fish larger than the available area on the digitizer tablet, set up a physical nose stop off the digitizer tablet and enter the distance in millimeters to the 0 line on the digitizer ruler.

5.1.1.3. Default Property Values for New Sessions

This section of the Profile is used to specify the default values to enter when a new Session is created in data entry or by importing data. Session properties, such Repeating Values, Data Entry Layout and the folder in which to save the Session can also be specified.



1 **Project Code**

Select the default MRR Project code (this used to be known as the Coordinator ID) to use for new Sessions. A Session can only contain data from one MRR project.

8 **File UDF**

Enter 1 to 3 characters to use by default as the User Defined Field (UDF) portion of the P4 File name. Every session that is created with this profile will use this same UDF in the file name, which could lead to multiple sessions with the same file name if they are created on the same day.

If this field is left blank, the UDF portion of the file name will be incremented for each new session created on the same day.

2 **Session Message**

Enter the default Session Message to use for new sessions. The Session Message is a brief description of the purpose and/or scope of the tagging project and is a required field in P4.

3 **Session Note**

Enter the default Session Note to use for new sessions. Session Note is a large comment field that can be used to record ad hoc information about the tag session as a whole.

New in P4: this field is now loaded into the PTAGIS database and will be available through the reporting system.

4 **Folder**

Select the default P4 folder in which the session will be saved. This can be changed before the session is created and while the session is open for data collection.

5 **Repeating Values**

Select the default set of Repeating Values to use when a new session is created. This can be changed before the session is created and while the session is open for data collection.

6 **Data Entry Layout**

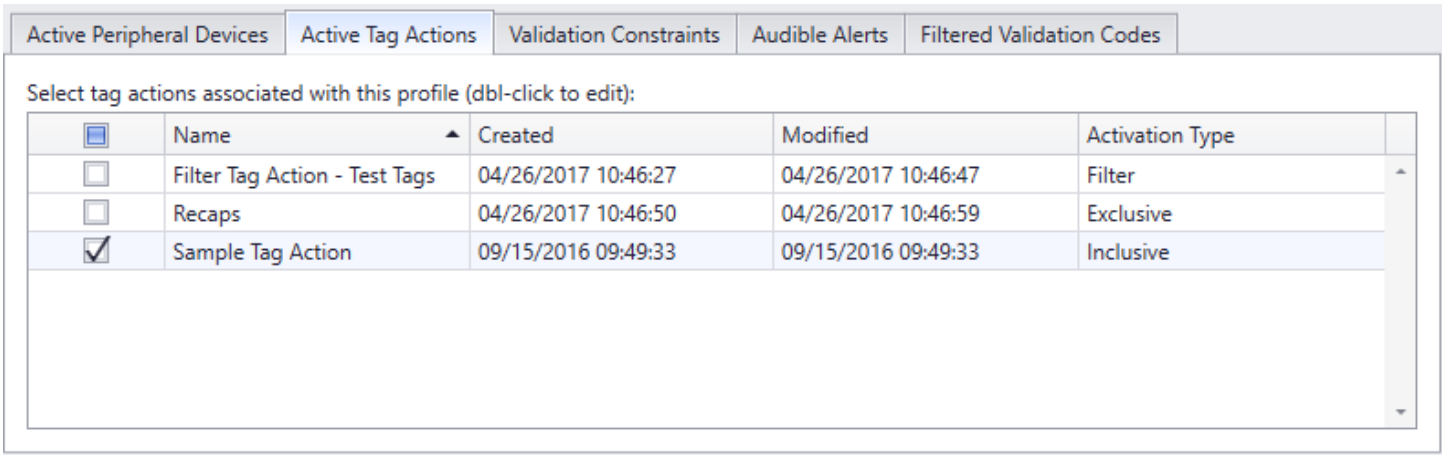
Select the default Data Entry Layout to use when a new session is created. This can be changed before the session is created and while the session is open for data collection.

7 **Project Defined Session Field Defaults**

Enter default values for any session level Project Defined Fields that have been created. For the sample profile shown here, one session-level project defined field has been created: Session PDV

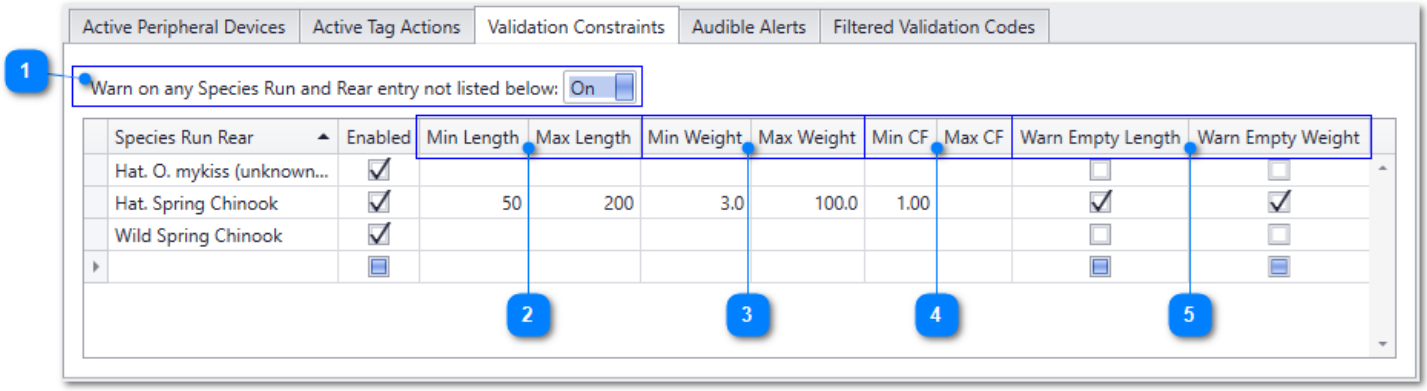
5.1.1.4. Active Tag Actions

Enable or disable the Tag Actions to use during data collection for the sessions that are associated with this profile. To enable, check the box in the Enabled column. Tag actions can be edited from this screen by double-clicking on the tag action Name.



5.1.1.5. Validation Constraints

Validation constraints are values that are checked in real-time during data entry. Specify minimum and maximum values for length, weight, and/or condition factor, per species/run/rear type. You may specify a value for one or all of the possible constraint fields. If a value is entered for that species during data entry which is outside the specified range, a warning will be displayed to the user; data entry can proceed after the dialog is acknowledged.



1 Species Run Rear Type Warning

When enabled (On), a warning will be displayed if a species/run/rear type value is selected during data entry that is not in this table.

2 Min/Max Length

Enter values for minimum and/or maximum fork length in millimeters. If a value above the maximum or below the minimum is entered for a record with the specified Species/Run/Rear Type during data entry, the user will be warned when the record is Accepted. The user can choose to Accept the record as is, or go back and enter a different value.

3 Min/Max Weight

Enter values for minimum and/or maximum weight in grams. If a value above the maximum or below the minimum is entered for a record with the specified Species/Run/Rear Type during data entry, the user will be warned when the record is Accepted. The user can choose to Accept the record as is, or go back and enter a different value.

4 Min/Max Condition Factor

Enter values for minimum and/or maximum condition factor. Condition factor is calculated automatically using the length and weight values entered in the current record, and should only be used when both values will be collected for each fish. If the calculated condition factor is above the maximum or below the minimum for a record with the specified Species/Run/Rear Type during data entry, the user will be warned when the record is Accepted. The user can choose to Accept the record as is, or go back and enter a different length and/or weight value.

There are two different formulas used to calculate condition factor, based on the Species Run Rear that is selected.
For all non-lamprey species, this formula is used:
Weight x 10^5 **/ Length**^{3}

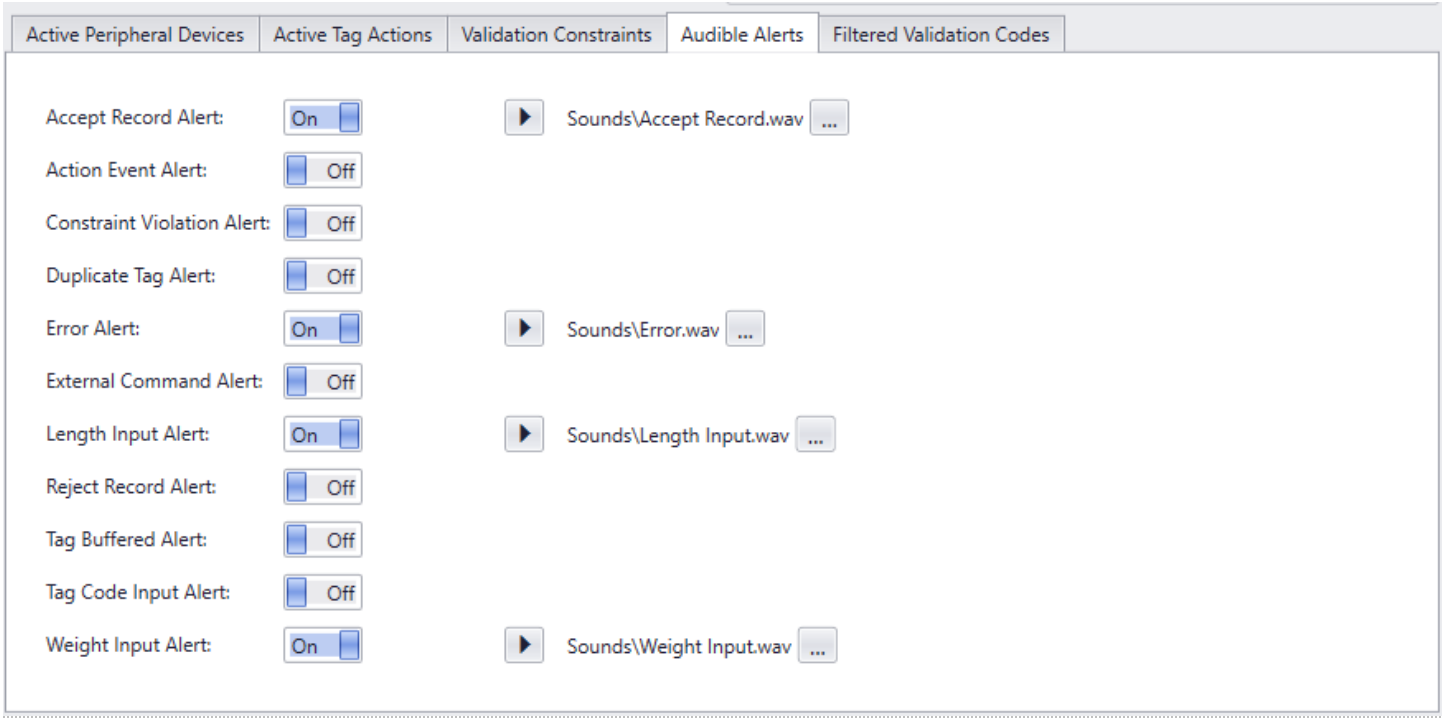
For any of the three lamprey species (*Pacific Lamprey*, *Western Brook Lamprey*, *Wild Lamprey (species unknown)*), this formula is used:
Weight x 10^5 **/ Length**$^{2.6}$

5 Warn on Empty Length/Weight

Check the appropriate box to warn the user if a record is Accepted with an empty length or weight. The user can choose to Accept the record as is, or go back and enter a value into the field that is empty.

5.1.1.6. Audible Alerts

Enable or disable audible alerts to play a sound when specific actions are detected during data collection. P4 installs with a default sound for each of these alerts, but any WAV file located on the local hard drive of the computer can be selected instead of the default sound.



Accept Record

Plays when the current record is accepted.

Action Event

Plays when a Tag Action has been initiated.

Constraint Violation

Plays when a Validation Constraint is violated.

Duplicate Tag

Plays when a duplicate record is encountered.

Error

Plays when any error occurs.

External Command

Plays when an external command is received from a digitizer tablet or other data entry device.

Length Input

Plays when length is entered via digitizer tablet or other device.

Reject Record

Plays when a record is rejected.

Tag Buffered

Plays when a tag is scanned before the current record is accepted, placing the newly scanned tag code in the data entry buffer.

Tag Code Input

Plays when a tag is scanned and entered into the current record.

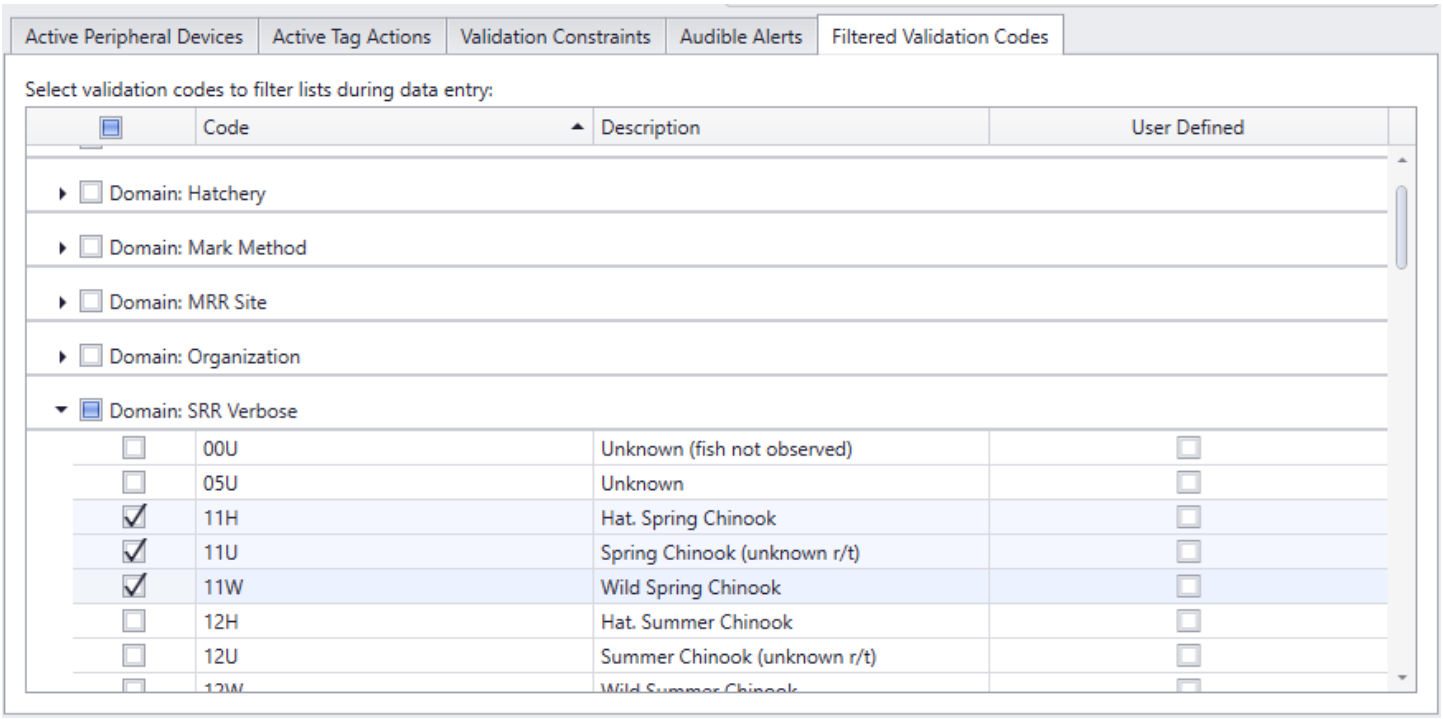
Weight Input

Plays when weight is entered into the current record via balance or other device.

5.1.1.7. Filtered Validation Codes

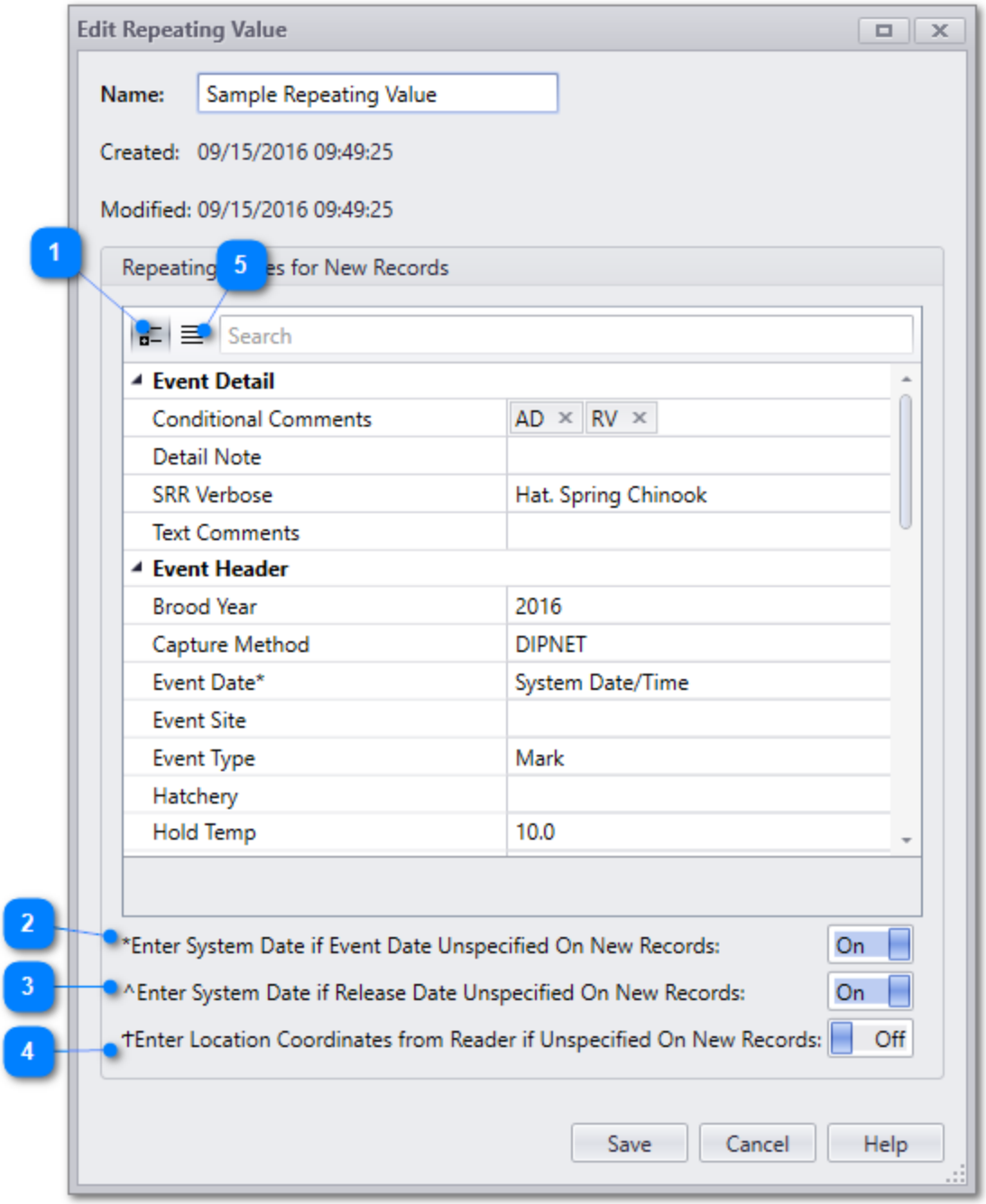
Validation code lists can now be filtered to show only a subset of values during data entry. To filter a set of validation codes, such as SRR Code, check the codes that should be visible to the user during data entry. The list of codes shown to the user during data entry will include all codes selected in this section of the profile, plus any additional codes already contained within the session or within the set of Repeating Values attached to that session.

For example, if a Session is opened using the settings below, but it already contains some records with a species code of 00U, the drop down list for the SRR Code field will include 00U, 11H, 11U, and 11W.



5.1.2. Repeating Values

Each record in a Session may now have its own value for most of the standard PTAGIS data fields. Repeating Values can be used to specify the default values to enter into the fields that will have the same value across all records in a Session.They can be used during data collection, when importing data from a CSV file or reader, or post-data collection.



1 Sort by Category

Click this icon to group and sort the list of fields by the following categories:

- *Event Detail:* Fields that were included in the Detail part of a P3 record.
- *Event Header:* Fields that were included in the Header part of a P3 record.
- *Location:* Latitude, longitude, and lat/long source for the location of the event. For Mark and Recapture events location is associated with the Release Site; for Passive Recapture and Recovery events, location is associated with the Event Site.
- *Release Information*: Fields specifying the release date, site, temperature and river kilometer extension.
- *Other Marks:* Fields for specifying other mark identifiers.
- *Project Defined:* Project defined fields that have been created in this installation of P4.

5 **Sort Alphabetically**

Click this icon to sort the list of fields alphabetically instead of grouping them into categories.

2 **Use System Timestamp for Event Date**

When enabled, the computer's date and time will be entered into the Event Date field during data entry.

New in P4: dates and times in P4 *are time zone aware, so the computer can remain set to the local time zone and use Daylight Saving Time. When data from P4 is loaded into PTAGIS, all times will be converted to Pacific Standard Time.*

3 **Use System Timestamp for Release Date**

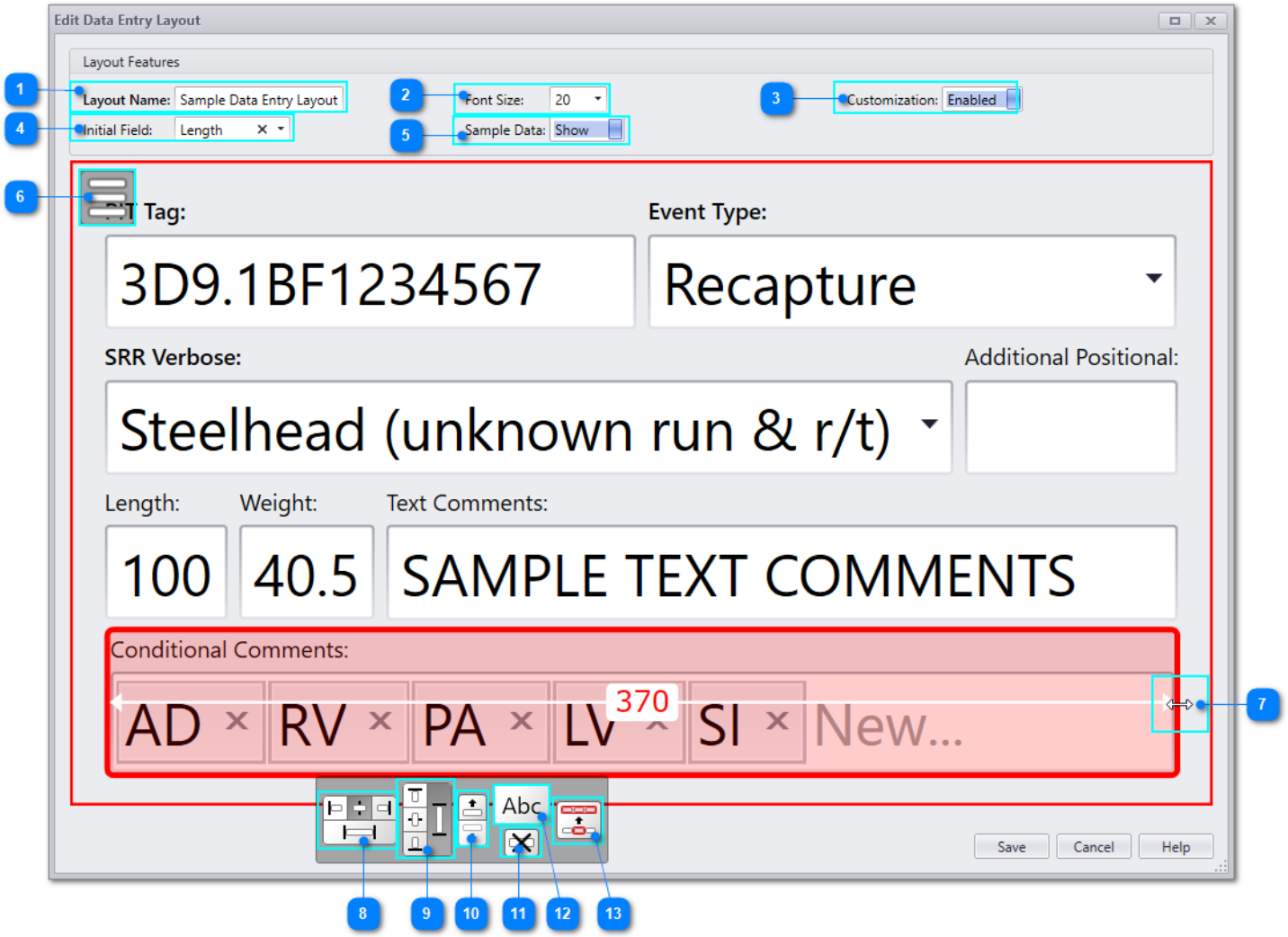
When enabled, the computer's date and time will be entered into the Release Date field during data entry.

4 **Use Reader GPS for Lat/Long**

When enabled, latitude and longitude coordinates will be used for the location fields if you are using a GPS enabled reader and no coordinate values have already been entered into the current record by Repeating Value or keyboard. This setting has no effect on external GPS units.

5.1.3. Data Entry Layouts

Newly available in P4, the data entry form can be customized for each specific project and data collection scenario. Fields can be added, removed and rearranged as needed. Similar to P3, the data entry form will scale to fit based upon the layout, screen resolution and available space.



1 Layout Name

Specify the name of the data entry layout.

2 Font Size

Specify the font size to use for values entered into the data entry layout.

3 Customization

When enabled, the form is editable - fields can be added/removed/edited.

4 Initial Field

Specify the field which should receive focus after a PIT tag is scanned.

5 Sample Data

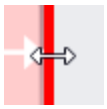
When set to Show, this switch will populate the data entry layout form with sample data to show what it will look like with values entered into the fields.

6 Add Fields to Form

Hover over this menu icon to see a list of fields that are available to add to the form. To add a field, drag it from the list and drop it into the desired location on the form.

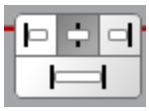
7 **Resize Field**

To specify a fixed field width or height, click on the border of a field and drag it to the desired measurement. If a width or height is set using this method, the field will not grow to fit to the contents entered into it.



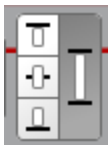
8 **Width**

These controls specify the horizontal alignment of the field on the form. The top three buttons will set the alignment to Left, Center, and Right, respectively. The bottom button will set the field to justify with other fields on the form, and will also allow the field to grow to fit the contents entered into it.



9 **Height**

These controls specify the vertical alignment of the field on the form. The three buttons on the left will set the alignment to Top, Center, and Bottom, respectively. The bottom button will set the field to justify with other fields on the form, and will also allow the field to grow to fit the contents entered into it.



10 **Move Field**

This button will move the selected field up or down on the data entry layout form.

11 **Delete Field**

This button will remove the selected field from the data entry layout form.

12 **Change Field Label**

This button allows the field label to be changed. It does not change the label anywhere else in P4, it only affects the label on the data entry layout form.

13 **Group Fields**

This button temporarily groups two or more fields so they can be moved as a unit using the Move Field button.

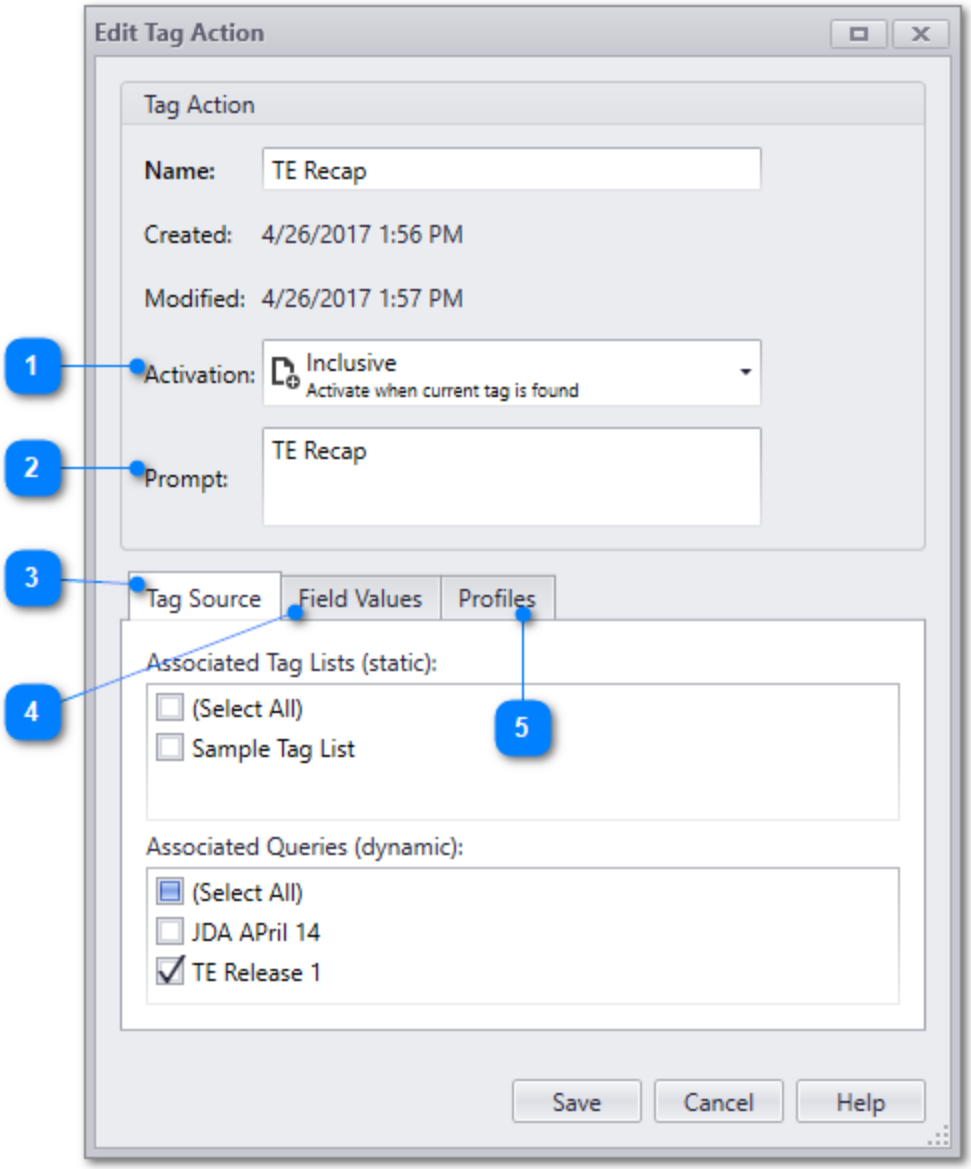
5.1.4. Tag Actions

Tag Actions can be used during data entry to:

- filter out (ignore) test tags
- notify the tagger when a specific tag code is encountered
- notify the tagger when an unexpected tag code is encountered

Multiple tag actions can be enabled for a Session during data entry. In addition, Tag Actions can automatically enter or update values in the current record when fired.

Tag Lists or saved Queries can be used to specify the tag codes to be used in the Tag Action. Multiple Tag Lists and/or Queries can be used in one Tag Action. If a Query is used in a Tag Action, it is run when the Session is first opened and the resulting set of tags at that time is used.



1 **Activation**

Select the type of activation for this Tag Action:

- *Inclusive*: Activates if the scanned tag **IS** included in the associated Tag Lists. Use this activation type to be notified and/or automatically enter values when specific tags are encountered during a data collection session.
- *Exclusive*: Activates if the scanned tag **IS NOT** included in the associated Tag Lists. Use this activation type to be notified and/or automatically enter values if a tag is scanned that is not expected, indicating a mis-read or a recapture of a fish previously tagged by other researchers, for example.
- *Filter*: Activates if the scanned tag **IS** included in the associated Tag Lists. This is different from the *Inclusive* action in that it ignores the tag and does not create a record for it. Use this activation type to ignore test tags that are used to test reader operation.

2 **Prompt**

Enter the message to be displayed when the Tag Action is activated. If left blank, the tag action will be activated silently and no message box will be displayed. A log entry will be recorded in the Output panel when a Tag Action is fired.

3 **Tag Lists**

Select one or more Tag Lists to use for this Tag Action.

4 **Field Values**

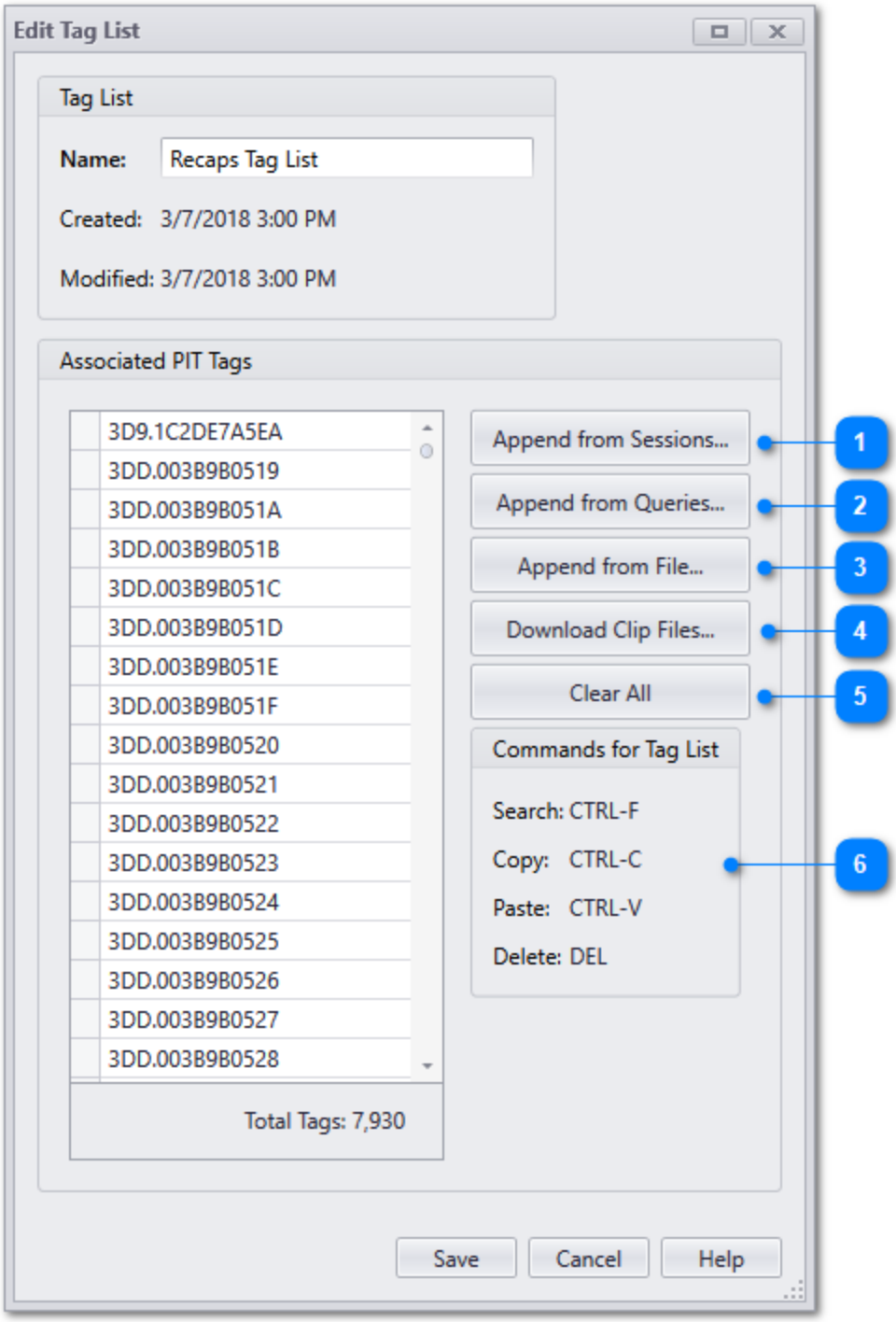
Specify values to be automatically entered into the current record when the Tag Action is activated. For example, you may set up a Tag Action change the Event Type value to Recapture when fish that were released upstream for trap efficiency trials are encountered.

5 **Profiles**

Use this tab to enable the Tag Action in one or more Profiles. Tag Actions can also be enabled/disabled in the Active Tag Actions section of the Profile.

5.1.5. Tag Lists

Tag Lists are static sets of PIT tag codes that can be associated with Tag Actions and used in other data management features. They can be created from Sessions, Queries, text files, and imported from peripheral reader devices.



1 Append from Sessions

Select one or more sessions to add tag codes from.

2 Append from Queries

Select one or more saved queries to add tag codes from. Tag Lists can also be created from within Query Management.

3 Append from File

Select a file on the local computer to add tag codes from.

4 Download Clip Files

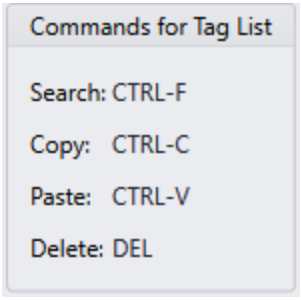
Search for clip files by vial number of tag distribution request ID and select one or many vials to import and append to the tag list. Must be connected to the internet.
for this feature to work.

5 Clear All

Delete all tags from the list.

6 Other Commands

Keyboard commands can also be used to edit individual tag codes in this tag list.



- CTRL-F: Search the Tag List for a partial or whole tag code
- CTRL-C: Copy selected tag code(s)
- CTRL-V: Paste one or more tag codes into the list
- DEL: Delete selected tag code(s) from the list

5.1.6. Peripheral Devices

Peripheral devices can be configured to send data directly to P4 during data entry to eliminate the need to enter values by hand. In addition PIT tag readers can download stored tag codes and timestamps from internal memory into a new session.

Multiple peripheral devices of each type, except Digitizer Tablet, can be configured and used during data collection. Multiple HPR Plus readers connected via native USB can be used starting with v1.26. Please see the PIT Tag Readers topic for more information on how to configure multiple readers for use in P4.

Peripherals are configured by device and connection type:

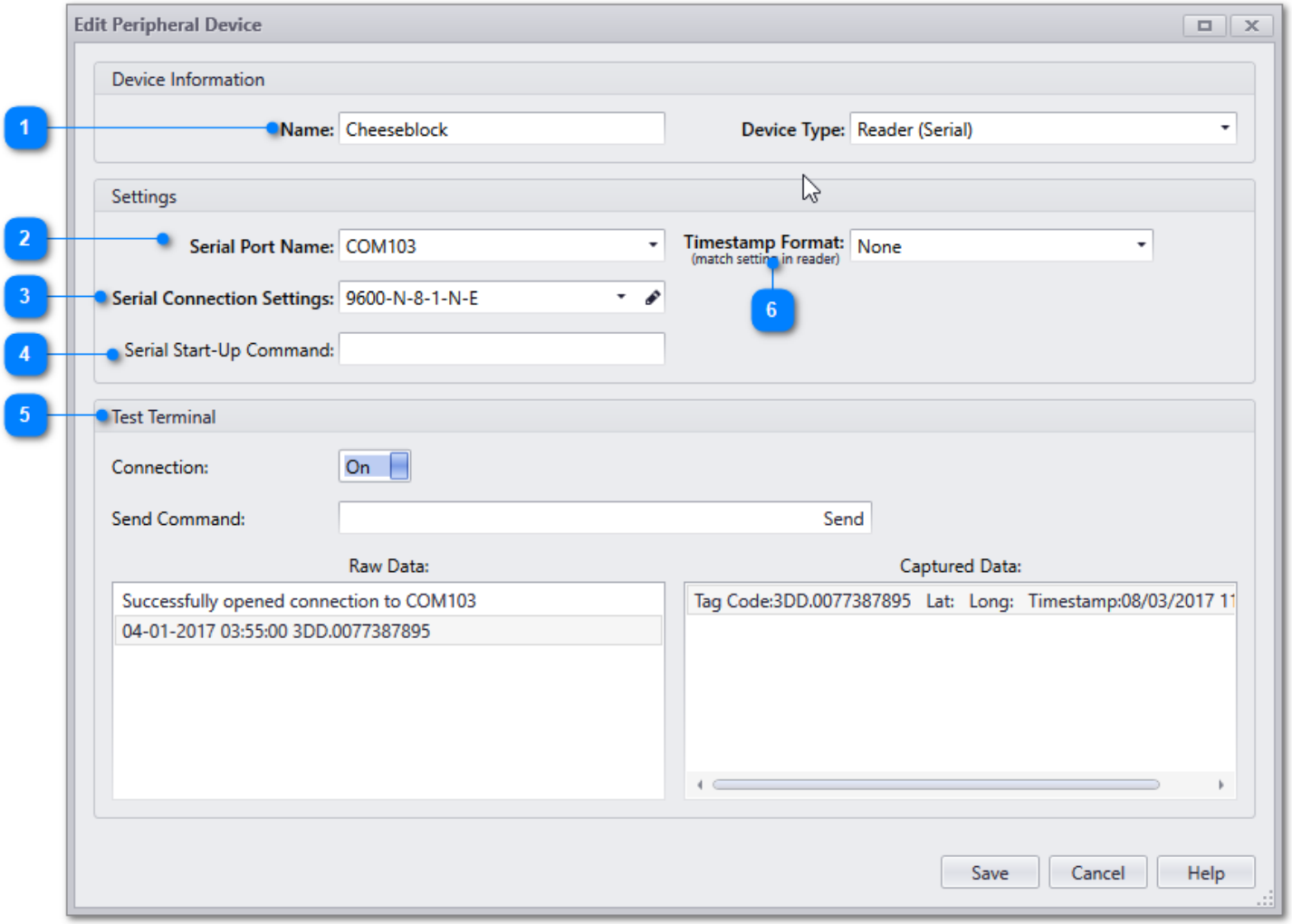
Device Type	Description
Reader (Serial)	This should be used for any reader that communicates through a hardware or virtual serial port. This would include the **Destron-Fearing FS1001F**, the **Biomark HPR connected via Bluetooth**, and the **Biomark 601**.
Reader (HPR USB)	This should be used only with the **Biomark HPR** reader when it is connected as a **native HID or USB device**. No other native USB readers are compatible with P4 at this time.
Digitizer (Serial)	This should be used for any digitizer tablet that communicates through a hardware or virtual **serial port without a WinTab driver**.
Digitizer (USB)	This should be used for any digitizer tablet that uses a **native USB** connection, or that uses a **serial port with a WinTab driver**.
Input Device (Serial)	This should be used for any device that communicates through a hardware or virtual serial port. This would include devices such as electronic **balances** or **calipers**. Any device that can send a value via serial port can be configured to send that value to a field in P4.

Generic (Serial)	This device type was developed to emulate a digitizer tablet to control and enter data into P4.
GPS (Serial)	This should be used for an external GPS unit that communicates through a hardware or virtual serial port.

5.1.6.1. PIT Tag Readers

Use this dialog to configure a PIT tag reader for connecting and sending data to P4. If you are having issues getting the connection to work, please see the Troubleshooting Device Connections section.

Multiple PIT tag readers can be configured for use in one installation of P4 during a single tag session. Multiple readers are generally used if more than one technician is pre-scanning for recaptured fish or for unattended detections of recaptured fish. When configuring multiple readers, each reader must be configured as a separate Peripheral Device. If more than one **Reader (HPR USB)** will be used you will need to connect them one at a time to configure them and each reader must have the same Timestamp Format. Once each unit is configured separately, you can connect all of them to the computer at one time for use during a tag session. It will also be helpful to give each HPR plus a different Reader ID, which can be set on the reader itself using the Device menu. When a tag code is scanned into P4, the Reader ID will be part of the message displayed in the Output window during data entry.



1 Name

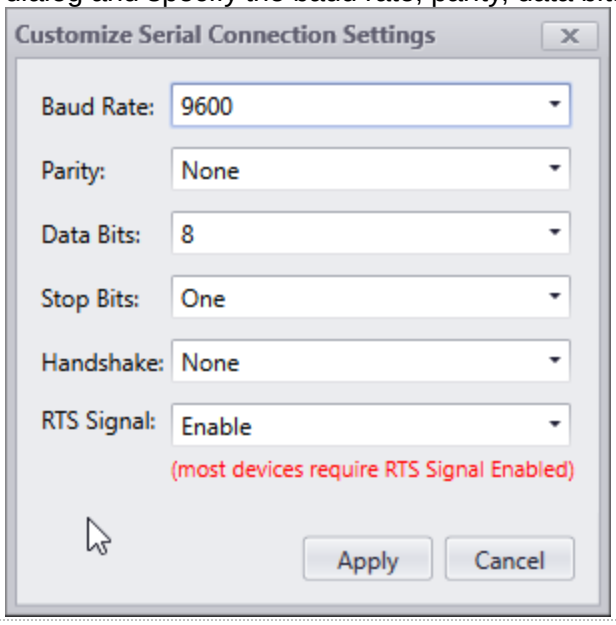
Specify a name to distinguish the reader from other devices or readers in P4.

2 Serial Port Name

If applicable, specify the COM port through which the reader will be connecting. If using the HPR in native USB mode, this is not necessary and will not be available.

3 Serial Connection Settings

Select from the list of predefined connection settings for devices with serial connections. To specify custom settings, click the edit button (pencil icon) to open the Customize Serial Connection Settings dialog and specify the baud rate, parity, data bits, stop bits, handshake, and RTS signal.



6 Timestamp Format

Specify the format in which the reader stores the timestamp. If the reader does not store a timestamp, select None.

4 Serial Start-Up Command

This setting is used to specify a command to be sent to the device when P4 connects to it. For example, if you want to send a command to a Destron-Fearing 2001F reader to start scanning when a session is opened, then enter **`ra1`** in this field.

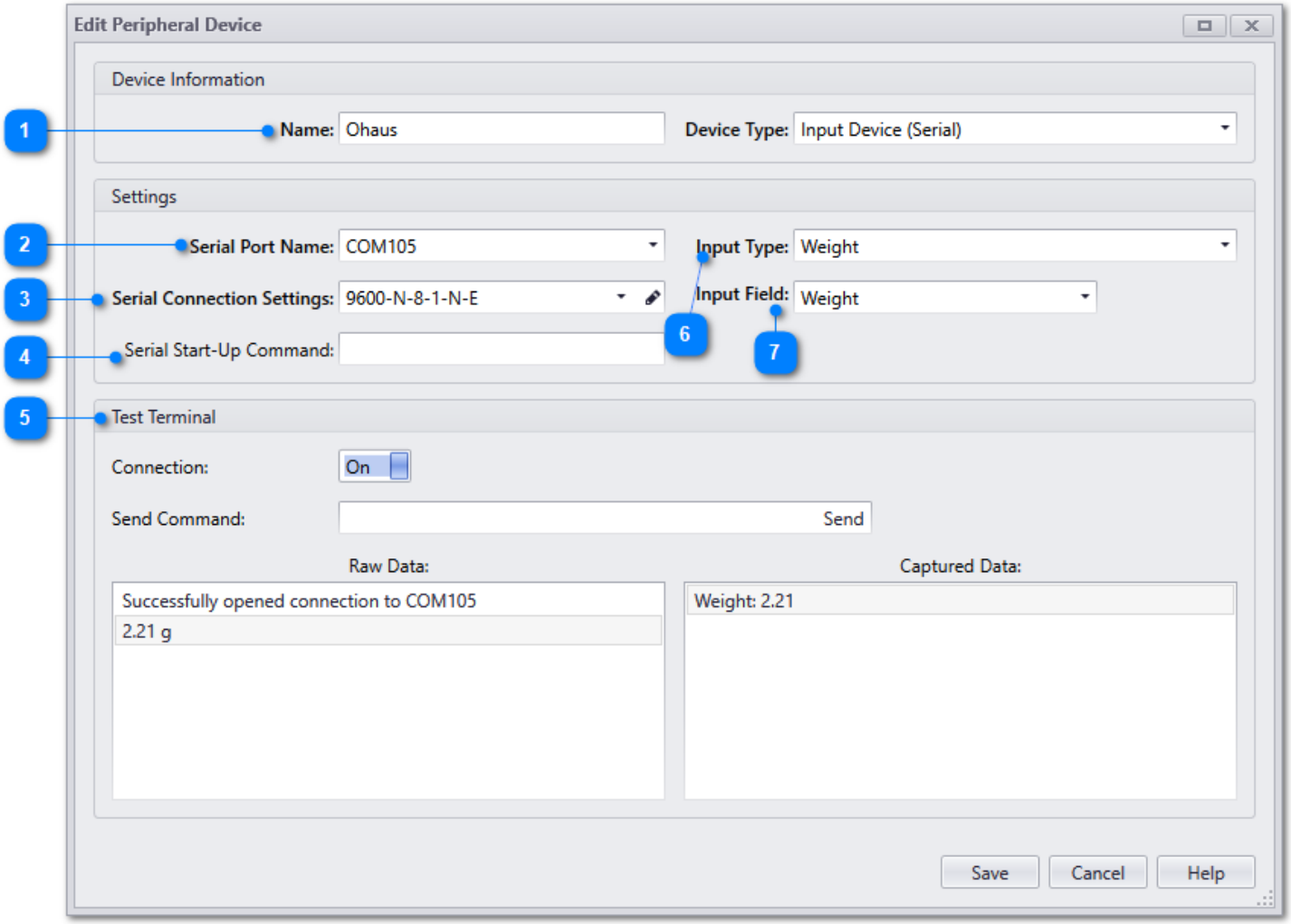
5 Test Terminal

To test that communication settings are correct for the reader, slide the Connection switch to the On position, then either send a command or scan a tag code. Check the Raw Data window to see the data as it is received by P4. Check the Captured Data window to verify that P4 correctly parses the tag code, timestamp, and lat/long coordinates (if applicable).

5.1.6.2. Input Devices

Use this dialog to configure any device that connects via serial port, other than a PIT tag reader or digitizer tablet, to communicate with P4. You can use this configure devices such as electronic balances, calipers or measuring boards. P4 now supports the new Biomark electronic measuring board with version 1.34.

Along with the serial port settings, you will need to specify the type data the device will send (**Input Type**) and the field into which the data should be entered (**Input Field**). If you are having issues getting the connection to work, please see the Troubleshooting Device Connections section.



1 Name

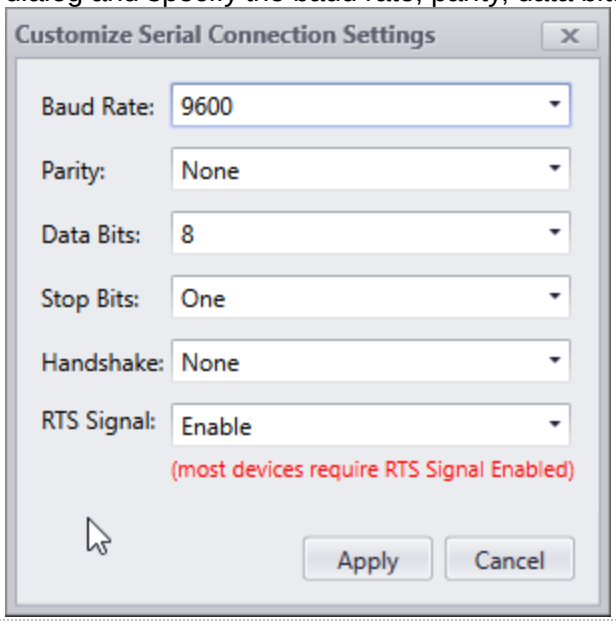
Specify a name to distinguish the device from other devices and readers in P4.

2 Serial Port Name

Specify the COM port through which the device will be communicating with P4.

3 Serial Connection Settings

Select from the list of predefined connection settings for devices with serial connections. To specify custom settings, click the edit button (pencil icon) to open the Customize Serial Connection Settings dialog and specify the baud rate, parity, data bits, stop bits, handshake, and RTS signal.



6 Input Type

If the device is a balance, select Weight. If the device is a caliper or some other device that sends a length measurement, select Length. If it is any other type of device, select General, and the value sent from the device will be captured by P4 as is.

- *Length:* P4 will accept integer or decimal values with an optional plus sign; decimal values will be rounded to the nearest integer (for example, **+ 1.23** will be rounded down to 1 while **1.55** will be rounded up to 2)
- *Weight:* P4 expects weights to be decimal values in grams and that the unit identifier of **g** is included with the value (e.g. **2.21 g**)
- *General:* P4 will accept any type of value

7 Input Field

Select the field into which the capture data from the device should be entered.

4 Serial Start-Up Command

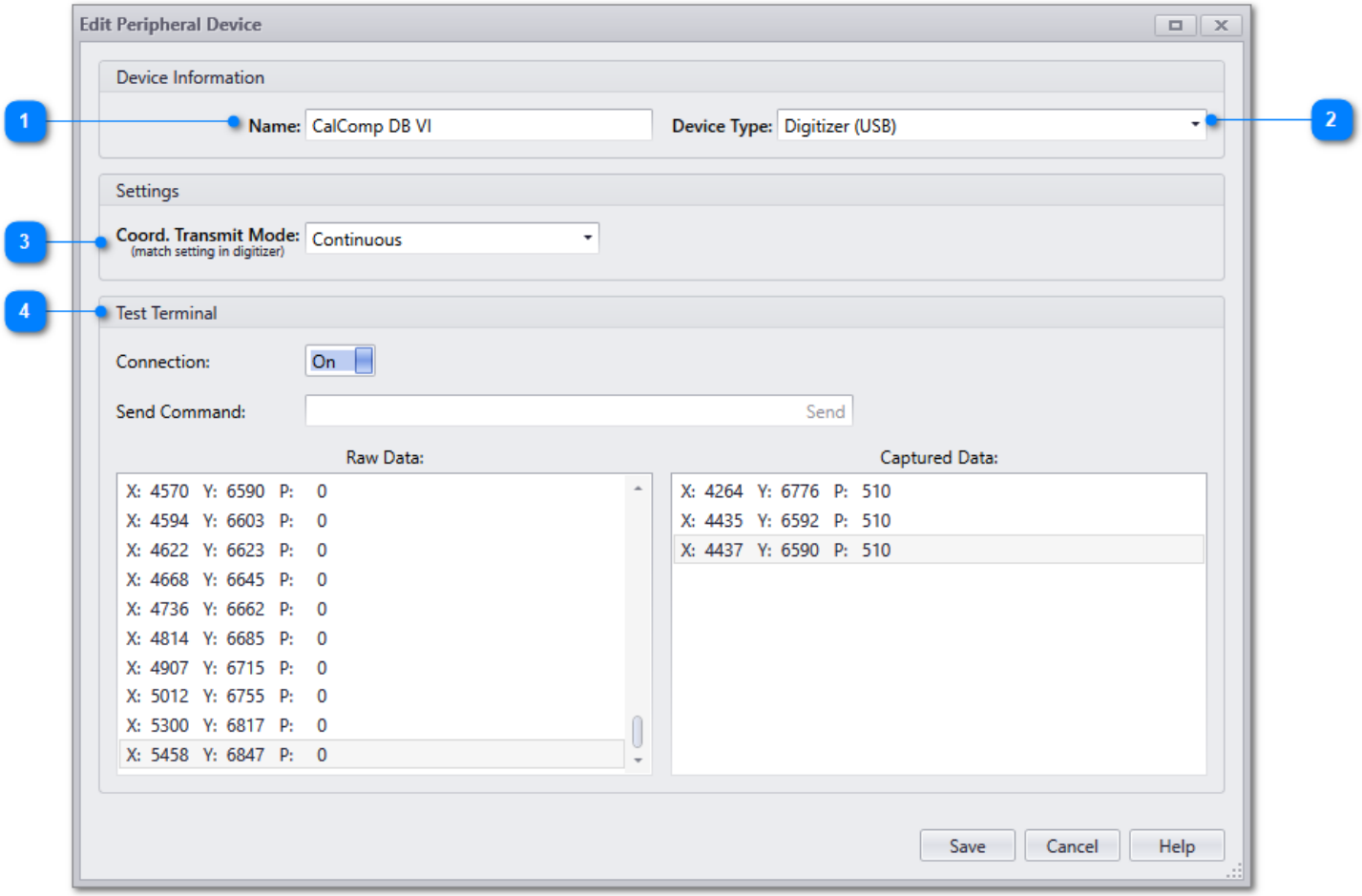
Enter a command to send to the device when the port is opened to begin communications with P4.

5 Test Terminal

To test that communication settings are correct for the device, slide the Connection switch to the On position, then either send a command to the device that will return output, or cause the device to send a value to the computer. Check the Raw Data window to see the data sent from the device as it is received by P4. Check the Captured Data window to verify that P4 parses the data correctly.

5.1.6.3. Digitizer Tablets

Use this dialog to configure a digitizer tablet to communicate with P4. If you are having issues getting the connection to work, please see the Digitizer Tablet Communication Settings section of the Troubleshooting Device Connections page.



1 Name

Specify a name to distinguish the digitizer tablet from other devices in P4.

2 Device Type

Select the type of connection the digitizer tablet will be using. P4 supports both serial and USB connections. If using a USB connection, there must be a suitable WinTAB driver installed; this is not required when using a serial connection. If you are using a CalComp digitizer connected via USB, the TabletWorks software packaged will need to be installed and running.

3 Coordinate Transmit Mode

Specify the coordinate transmit mode as Point or Continuous. If coordinates stream continuously in the Raw Data terminal window when the digitizer pen is near or on the tablet surface, then select Continuous. If coordinates only appear in the Raw Data terminal window when the pen is clicked on tablet, select Point.

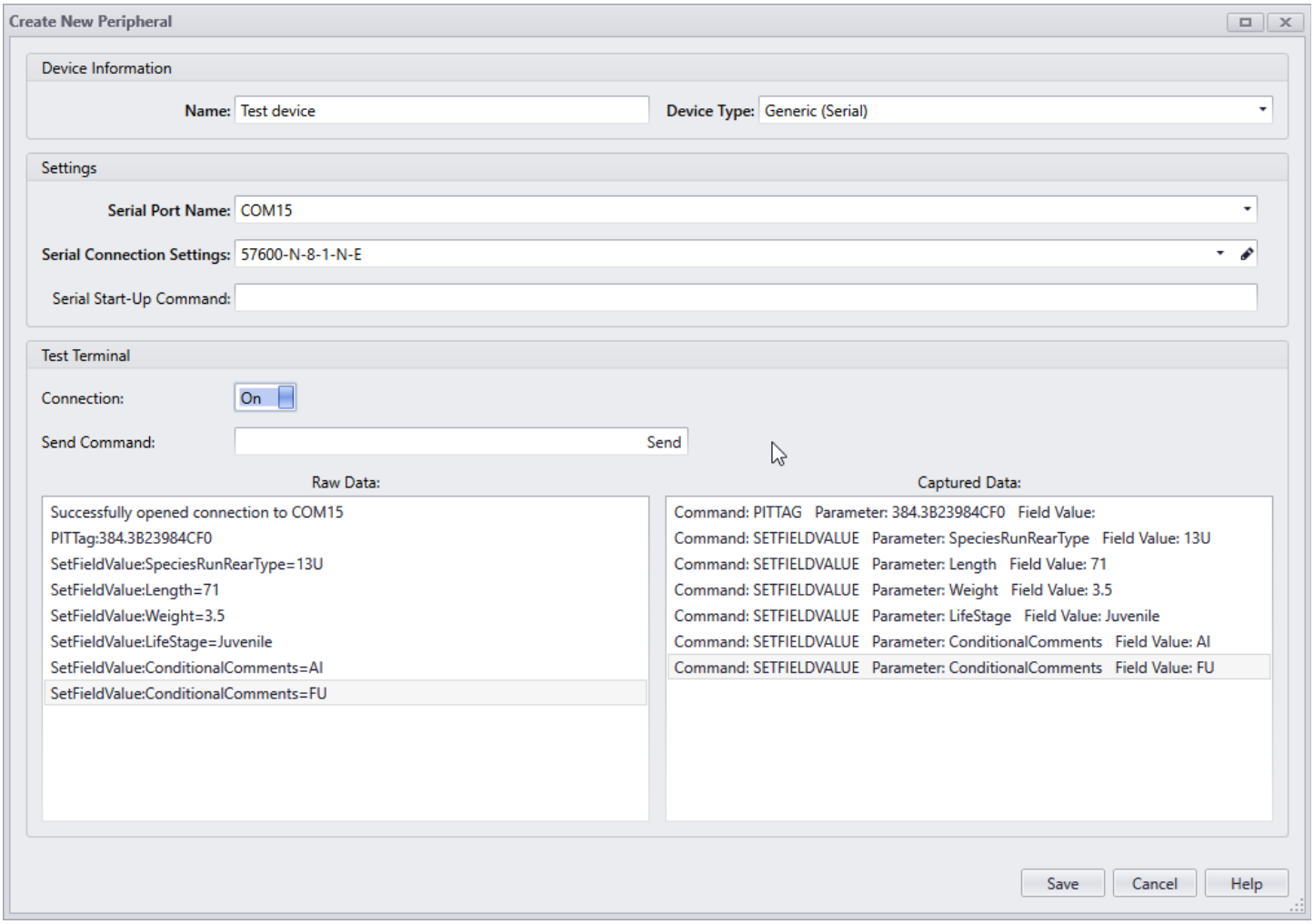
4 Test Terminal

To test that communication settings are correct for the tablet, slide the Connection switch to the On position, then click the digitizer pen anywhere on the surface of the tablet. If one X/Y coordinate appears in the Captured Data terminal window for each click, then it is configured correctly.

5.1.6.4. Generic Device

The P4 generic device is available to use with serial devices that are capable of sending clear text commands with well defined parameters. It provides access to most of the digitizer map commands.

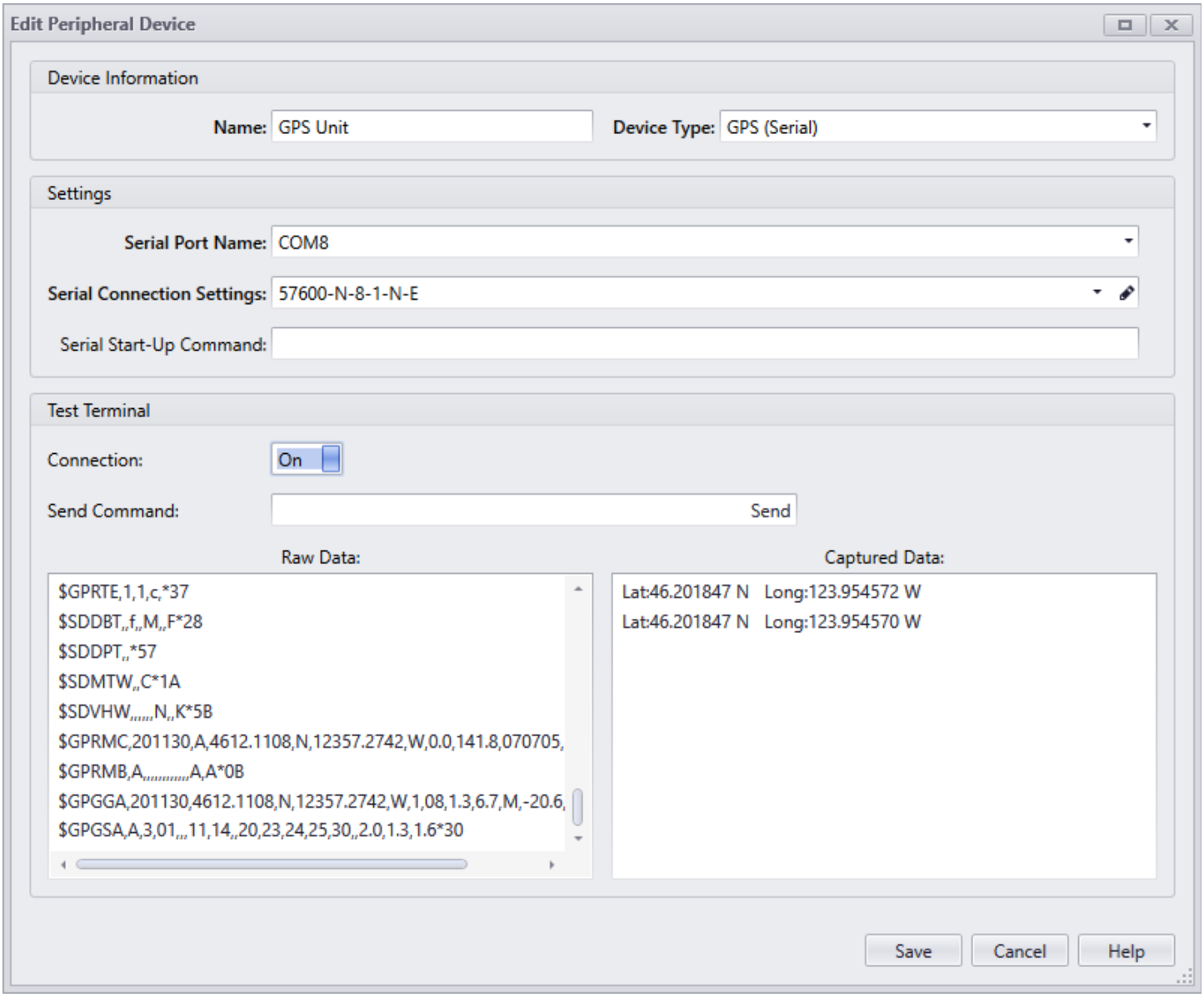
Generic devices must be configured to connect to P4 through an available serial port. Once connected P4 will accept commands from the device as outlined in Appendix B.



5.1.6.5. GPS Unit

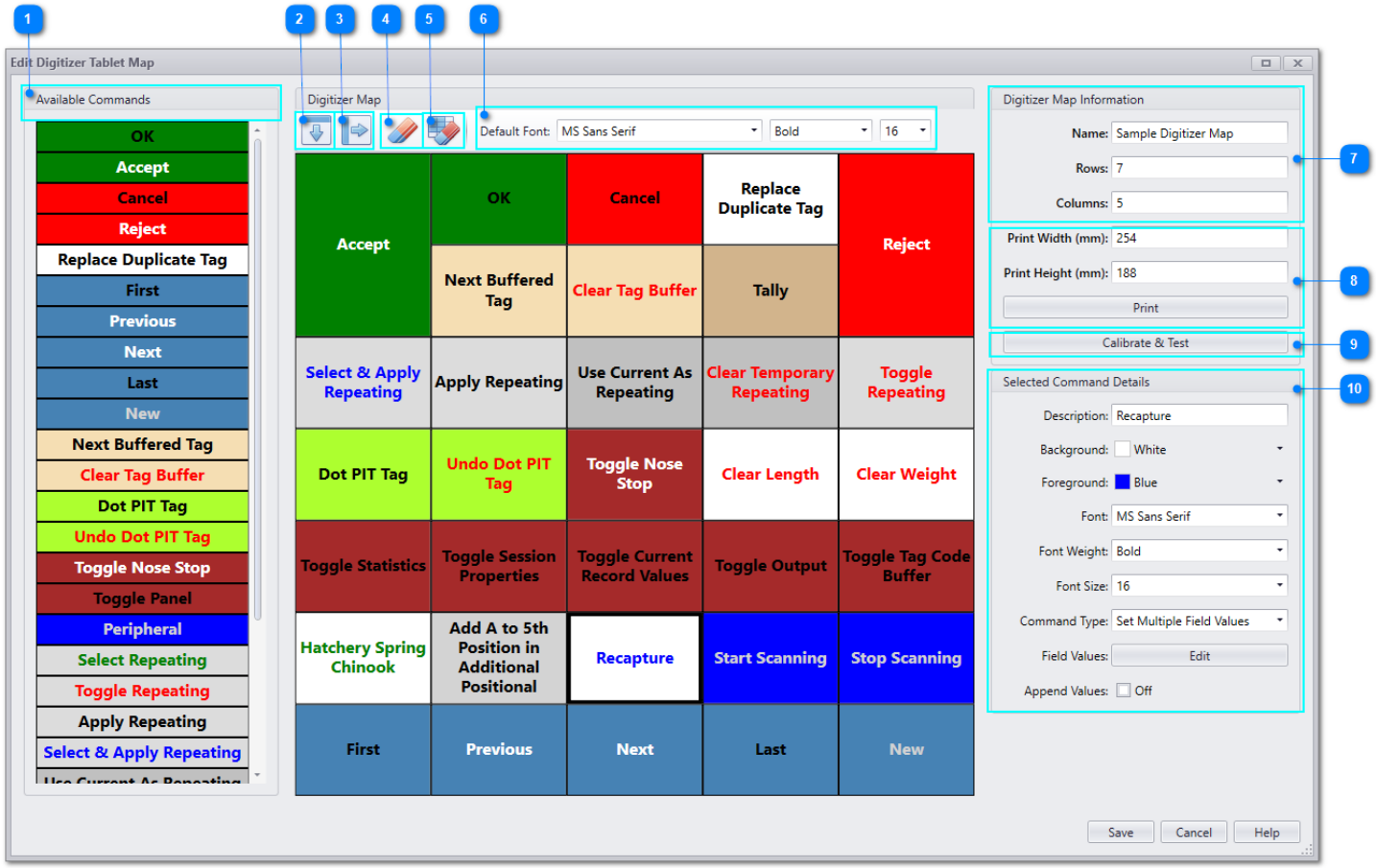
To use an external GPS unit (as opposed to the internal GPS unit available in the Biomark HPR Plus reader), you'll need to configure a peripheral device of type **GPS (Serial).** If a GPS device is enabled in the Profile that is active during a data collection session, the Latitude and Longitude fields will be populated automatically with the most recent set of coordinates transmitted by the GPS unit to P4 through the serial connection in the NMEA format. P4 parses both the **GGA** and **GLL** sentences from NMEA output. If you are having issues getting the connection to work, please see the Troubleshooting Device Connections section.

The most recent coordinates from the GPS unit will be entered into the Latitude and Longitude fields when a PIT tag is scanned. If no PIT tag is scanned, the coordinates will be entered when the record is saved (Accepted).



5.1.7. Digitizer Maps

Create digitizer maps in order to use a digitizer tablet in place of a mouse and keyboard during data entry. The digitizer map allows the user to define commands to send to P4 when the corresponding location on the tablet is clicked with a digitizer pen. A ruler can also be printed and placed below the digitizer map that can be used to measure the length of fish.



1 Available Commands

This list contains the digitizer commands that can be placed on a digitizer map. Drag a command from this list to a cell on the map to add that command to the map. Identical commands placed in adjacent squares will automatically merge to create a larger command area.

2 Merge Down

Used to merge the currently selected map cell with the cell immediately below.

3 Merge Right

Used to merge the currently selected map cell with the cell immediately to the right.

4 Clear

Used to clear the cell of all command and property details.

5 UnMerge

Used to un-merge a merged cell.

6 Default Font

Used to change the font type, weight, and size for all cells on the map. Once set, new cells will be created with these default font settings.

7 Map Name and Grid Size

Specify the name of the map and the number of cells in both rows and columns.

8 Print Settings

Enter width and height in millimeters to specify the size of the printed map. Click the Print button to see a print preview, select a printer, and print a hard copy of the map.

9 **Calibrate and Test**

After the map has been printed and attached to the digitizer tablet, along with the ruler, it needs to be calibrated before it can be used. Connect the digitizer to the computer, and click this button to open the Calibrate and Test dialog. The dialog helps to align the map on the digitizer tablet's active area, and determines the correct divisor to use for length measurements.

10 **Command Details**

Use this panel to specify what the command should do, which field it targets (if applicable) and how it looks on the printed map.

- *Background*: Select the background color for the command square.
- *Description*: Specify the text to display on the command square.
- *Font*: Select the font style for the command square text.
- *Font Size*: Enter the font size for the command square text.
- *Font Weight*: Select the font weight for the command square text.
- *Foreground*: Select the color for the command square text.
- *Command Type*: Select the type of command to perform when the command square is tapped during data entry. Depending on the command type, you may need to specify additional details, such as field and value and whether to append or overwrite values.
- *Append Values:* Check this box to append the values added by this command, where possible. If the field has an update type of Overwrite Only, the value set by this command will overwrite any existing value. If the field has an update type of Append with Space, the value set by this command will append to any existing value with a space between the old and new value. If the field has an update type of Append Without Space, the value set by this command will append to any existing value without a space between them. See Field Update Types for more information.

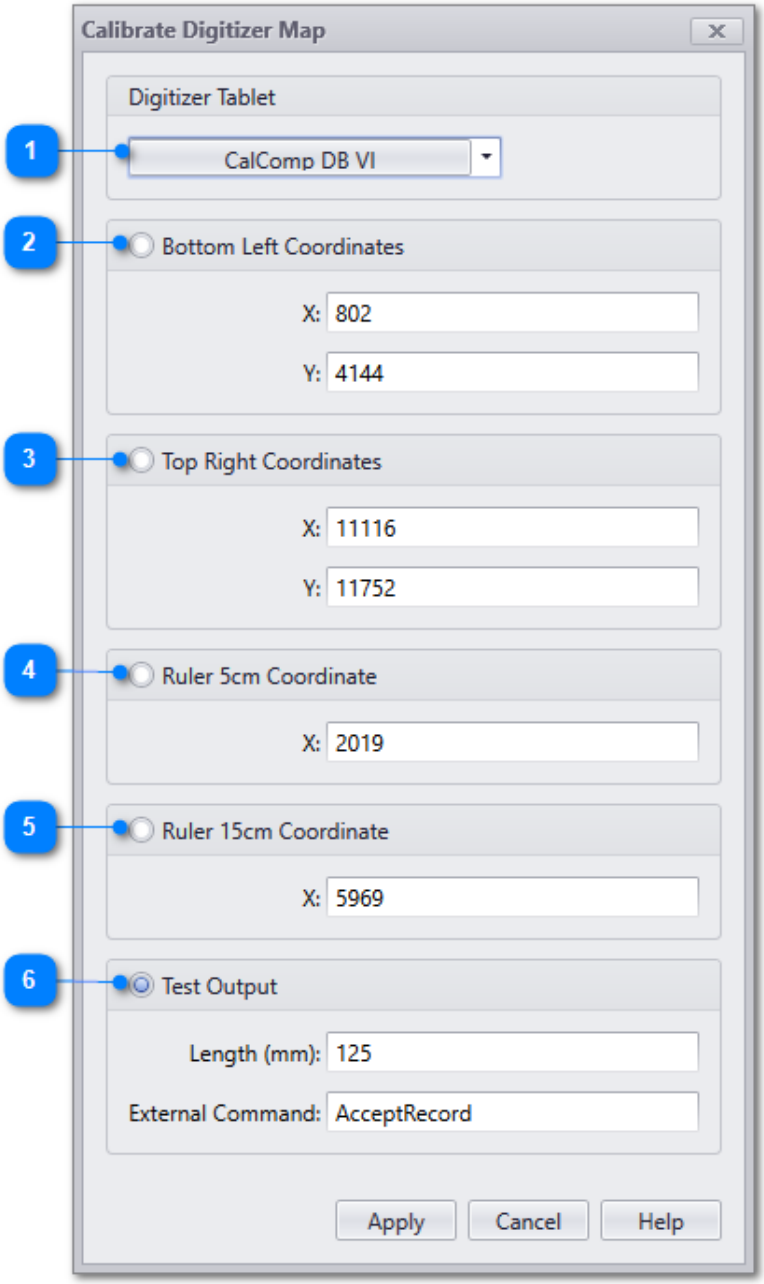
5.1.7.1. Calibrate Digitizer Map

After the digitizer map and ruler have been attached to the digitizer tablet, use this dialog to calibrate and test them. The digitizer tablet must be powered on and connected to P4. The rule should be more than 5mm below the bottom edge of the map.

After selecting the correct digitizer tablet, the dialog will first ask for the coordinates of the bottom-left corner of the digitizer map. Tap this corner with the stylus, and then do the same for the upper-right corner when prompted. This action tells P4 where the map is located on the digitizer tablet, as well as its exact size.

Next, the dialog will ask for the X coordinate of the 5cm line on the ruler, followed by the 15cm line. From those two locations, P4 will determine ruler-zero and the correct divisor to use for accurate length measurements. Ruler-zero can be anywhere on the digitizer tablet's active area (it does not need to be at the very edge of the active area).

Finally, use the Test Output section to confirm the map and ruler are properly calibrated.



1 Digitizer Tablet

Select the digitizer tablet device which will be used with this map. It must be powered on, connected to the computer, and correctly configured in P4 in order to continue.

2 Bottom Left Coordinates

Use the stylus to tap the location of the bottom left corner of the digitizer map.

3 Top Right Coordinates

Use the stylus to tap the location of the top right corner of the digitizer map.

4 Ruler 5cm Coordinate

Use the stylus to tap the location of the 5cm line on the ruler.

5 Ruler 15cm Coordinate

Use the stylus to tap the location of the 15cm line on the ruler. Once both the 5 and 15 cm marks have been mapped, P4 will automatically calculate the correct divisor to use when determining length.

6 **Test Output**

After the four sets of coordinates have been specified, use this area to test the map and ruler output. Tapping on the ruler will display the length that will be sent to P4. Tapping on a command square will display the command that will be sent to P4.

5.1.7.2. Digitizer Command Types

Command Name	Definition	Parameters
OK	Click OK button on dialog forms	None
Accept	Accept the current record and save it to the database	None
Cancel	Click Cancel button on dialog forms	None
Reject	Reject the current record reverting any changes that have been made	None
Replace Duplicate Tag	Replace the previous record with the current record's values. Will scroll the data entry form back to the previous record that is being replaced	None
First	Go to the first record in the session	None
Previous	Go to the previous record	None
Next	Go to the Next record in the session	None
Last	Go to the Last record in the session	None
New	Create and go to a new record	None
Next Buffered Tag	Create a new record using the next tag in the P4 data entry tag buffer	None
Clear Tag Buffer	Delete all tags from the P4 data entry tag buffer	None
Dot PIT Tag	Dot out the PIT tag code in the current record	None
Undo Dot PIT Tag	Restore the PIT tag code if it has been dotted-out and the record has not yet been Accepted.	None
Toggle Nose Stop	Click to disable or enable nose stop for measuring fish fork length. The nose stop is set in the profile that is currently active for the open tag session.	None
Toggle Panel	Click to show/hide a panel in the data entry screen	Select the panel to toggle
Peripheral	Send a command to a connected peripheral device	Select the device type and enter the command to send
Select Repeating	Select a saved Repeating Value to use with the open session. The values will be applied to the next new record.	Select the name of the saved Repeating Value
Toggle Repeating	Click to temporarily disable or enable the selected Repeating Value. A disabled Repeating Value is not applied to new records.	None
Apply Repeating	Applies the active Repeating Value to the current record.	None

Select & Apply Repeating	Select a saved Repeating Value set to use for the open session, and apply those values to the current record.	Select the name of the saved Repeating Value set
Use Current as Repeating	Set the values in the current record to a temporary Repeating Value that will only be in use while the current session is open.	None
Clear Temporary Repeating	Clear the temporary Repeating Value set from the open session and go back to using the Repeating Value set that was in use when the session was opened.	None
Set Field	Set a field value in the current record.	Select the field and value to set
Clear Field	Clear a field value in the current record.	Select the field to clear
Set Multiple Fields	Set multiple field values in the current record.	Select or enter the values to be set in each field. Check the box if the values should be appended rather than overwrite existing values.
Tally	Sets the PIT tag code field to 10-dots (dot-out) and Event Type field to Tally	None
Export Session	Exports the current Session to the folder specified in Utilities.	None

5.1.7.3. Field Update Types

All data fields in P4, except for the PIT Tag field, have an Update Type that governs whether or not a field can be appended to, and how that append will occur. Fields can be appended to from the digitizer Set Multiple Field values command, the Update From Session tool, the Fill Records tool in Record Management, and with Tag Actions. When a tool or digitizer command tries to append to a field, the Update Type determines what will happen as described below:

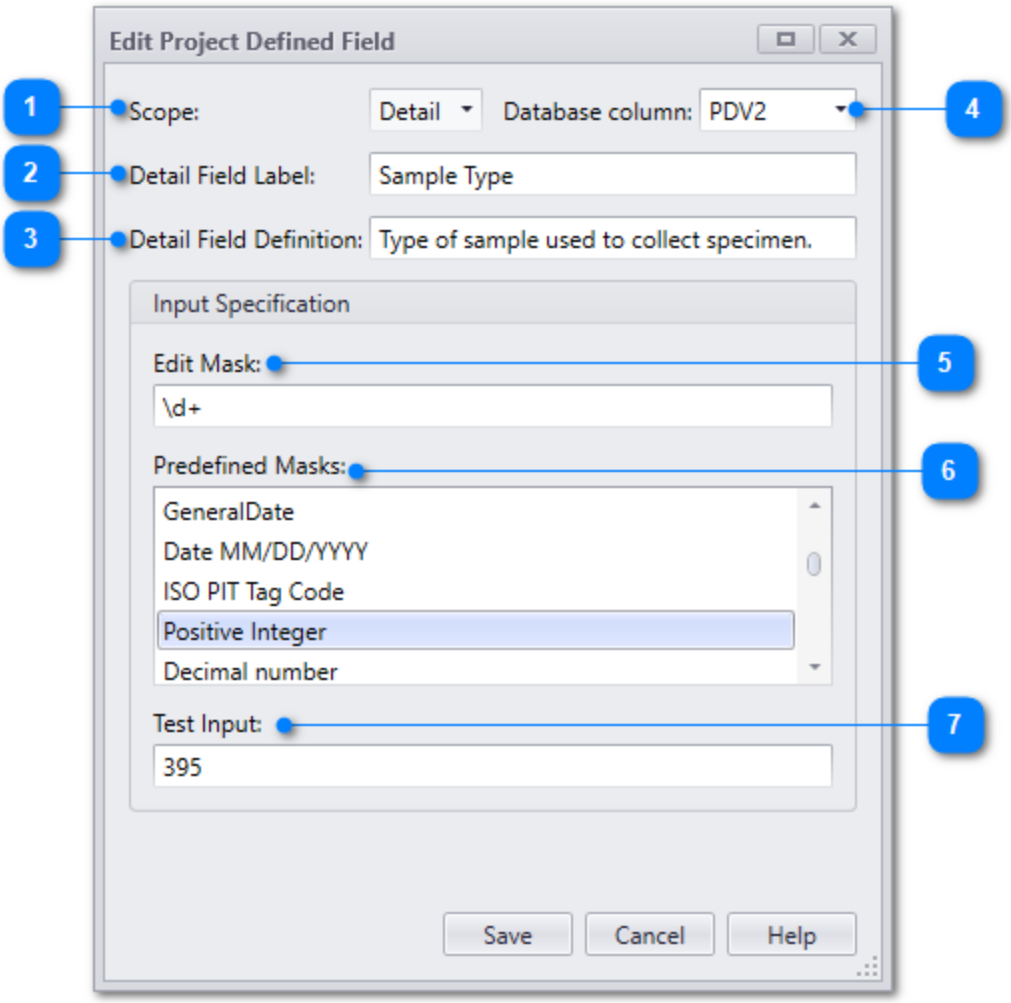
Append Without Space	The new value will be appended to any existing value without a space between the tw
Append With Space	The new value will be appended to any existing value with a space between them.
Overwrite	The new value will replace any existing value.

Field	Update Type
Acoustic Tag	Append Without Space
Brood Year	Overwrite Only
Capture Method	Overwrite Only
Coded-Wire Tag	Append Without Space
Conditional Comments	Append With Space
Detail Note	Append With Space
Event Date	Overwrite Only
Event Site	Overwrite Only
EventT ype	Overwrite Only
Genetic ID	Append Without Space

Hatchery	Overwrite Only
Hold Temp	Overwrite Only
Lat/Long Source	Overwrite Only
Length	Overwrite Only
Life Stage	Overwrite Only
Location Latitude	Overwrite Only
Location Longitude	Overwrite Only
Mark Method	Overwrite Only
Mark Temp	Overwrite Only
Migration Year	Overwrite Only
Organization	Overwrite Only
Other Tag	Append Without Space
PDV1	Append Without Space
PDV10	Append Without Space
PDV2	Append Without Space
PDV3	Append Without Space
PDV4	Append Without Space
PDV5	Append Without Space
PDV6	Append Without Space
PDV7	Append Without Space
PDV8	Append Without Space
PDV9	Append Without Space
Raceway/Transect/Tank	Append Without Space
Radio Tag	Append Without Space
Release Date	Overwrite Only
Release Site	Overwrite Only
Release Temp	Overwrite Only
RKM Ext	Overwrite Only
Scale ID	Append Without Space
Second PIT Tag	Overwrite Only
Spawn Year	Overwrite Only
SRR Code	Overwrite Only
Stock	Append Without Space
Tagger	Overwrite Only
Text Comments	Append With Space
Weight	Overwrite Only

5.1.8. Project Defined Fields

Configure both session and detail fields to be used for project specific data. User can specify a field definition and a mask for the appropriate data type. Data entered into these fields will be exported into P4 data files, but will not be loaded into the PTAGIS database. Data can be exported to CSV or Excel files along with regular P4 data fields.



1 Scope

Select the scope of the field - session or detail. Session-level fields allow entry of one value per session. Detail-level fields allow entry of one value per record.

2 Field Label

Enter the label to display for this field.

3 Field Definition

Enter the definition for this field.

4 Database Column

Select the database column to use for this field. By default the next available column will be selected. Session-level fields use database columns named SPDV1-SPDV10. Detail-level fields use PDV1-PDV10.

5 Edit Mask

Enter a regular expression to control the data entry mask for the field; or edit one of the predefined masks.

6 Predefined Masks

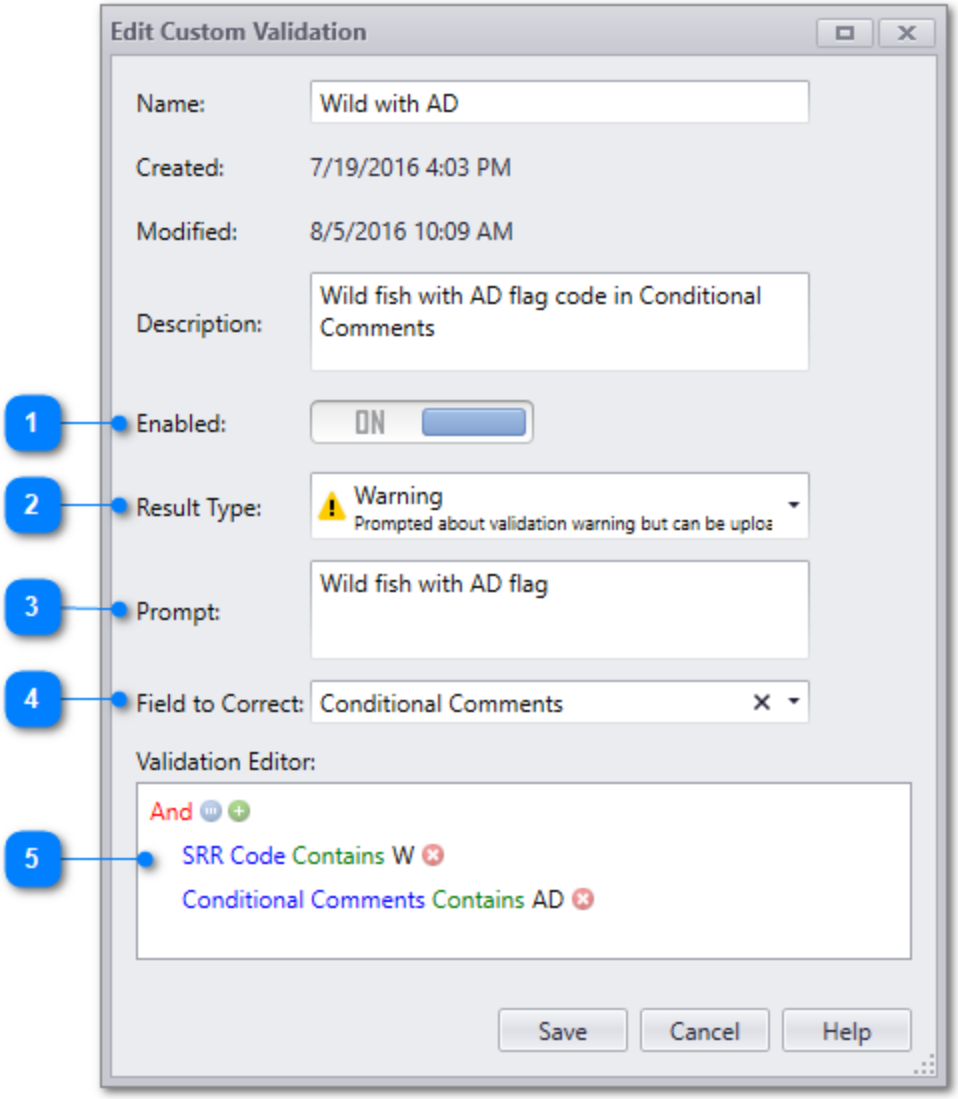
Select a mask to control data entry options for this field. The regular expression from the selected mask can be edited to suit specific needs.

7 Test Input

Used to test the regular expression data entry mask.

5.1.9. Custom Validation

Define custom validation rules to perform extra error checking on data before submission to PTAGIS. For example, a validation rule can look for records where the SRR Code has a rear type of Wild and the Conditional Comments field contains a flag code for adipose clip (AD). Any records that meet these criteria will be marked and displayed to the user for further review prior to submission to PTAGIS.



1 Enabled

When enabled (On), the custom validation rule will be checked whenever one or more sessions are validated in Session Management or Record Management.

2

Result Type

Select the type of validation result to report when the criteria in the Validation Editor are true:

- *Error*: If a session has a validation error, it cannot be submitted to PTAGIS. Select this result type if records that fail this rule should not be submitted to PTAGIS.
- *Warning*: If a session has a validation warning, the user is notified about the condition, but the session can still be submitted to PTAGIS. Select this result type if records that fail this rule can be submitted to PTAGIS.

3

Prompt

Enter the text to display for each record that fails this validation rule.

4

Field to Correct

Select the field that should be highlighted in Record Management for each record that fails this validation rule.

5

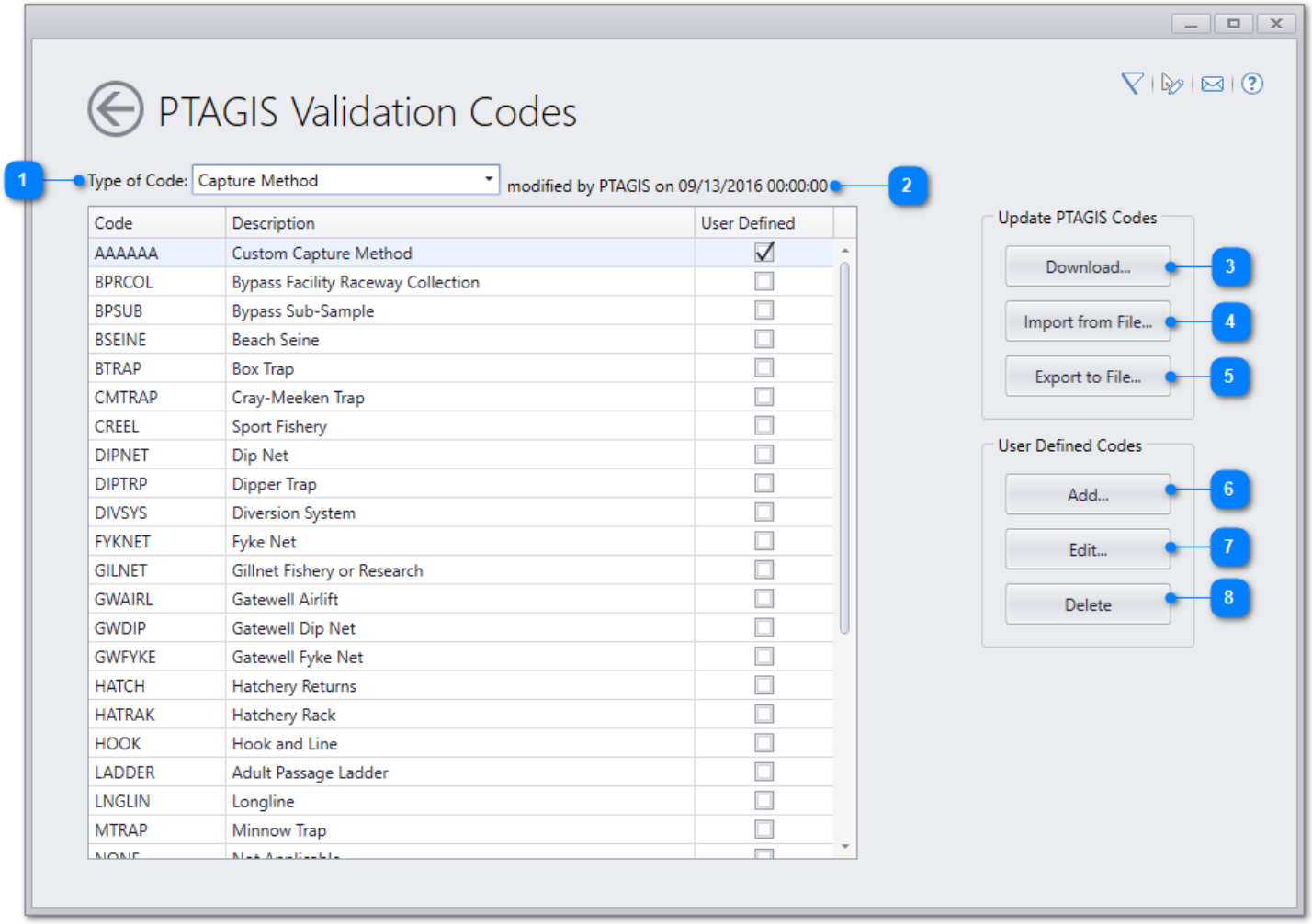
Validation Editor

Add the validation criteria here. Records will be identified with the selected Result Type and Prompt when these criteria evaluate to true. See the Filter Editor for more information about how to build the validation criteria.

5.2. Validation Codes

Many fields in PTAGIS are limited to a controlled set of values called Validation Codes, and those codes are appended to as the need arises. To keep P4's copy of the Validation Codes current, it is necessary to update them by either downloading them directly from P4 or by importing them from a file.

User-defined Validation Codes can be added to P4 if a new code has been requested but has not yet been implemented by PTAGIS, or if P4 is used to collect data that will not be submitted to PTAGIS. Sessions which contain records with user defined validation codes cannot be submitted to PTAGIS. An exception is made for Sessions with tally records, which are ignored by PTAGIS.



1 Type of Code

Select the type of Validation Code to the list of values:

- Capture Method
- Conditional Comments
- Hatchery
- MRR Site (used for both Event Site and Release Site)
- Organization
- SRR Verbose
- Project Code
- Tag Mask
- Mark Method

2 **Modified Date**

Displays the last modified date of the Validation Codes that are in the local P4 database.

3 **Download**

Click this button to download the most recent set of validation codes from PTAGIS. Access to the internet is required for this feature.

4 **Import from File**

Click this button to import a file containing the PTAGIS validation codes, which can be downloaded from the P4 page. This feature can be used to update validation codes on remote computers with no internet access.

5 **Export to File**

Export the local copy of validation codes to a file. This can be used to export custom validation codes along with the standard PTAGIS validation codes for use in another installation of P4.

6 **Add User Defined Code**

Click this button to add a custom code of the type that is selected in the Type of Code list. Custom validation codes are available to select during data entry or editing, however data with custom codes cannot be submitted to PTAGIS, with one exception: Tally records can use custom SRR codes.

7 **Edit User Defined Code**

Click this button to edit the description of the selected custom validation code. The code itself cannot be edited. If the code needs to be changed, it is recommended that you add the new code first, use the Update Query Results feature to change all existing records from the old code value to the new code value, and then delete the old code.

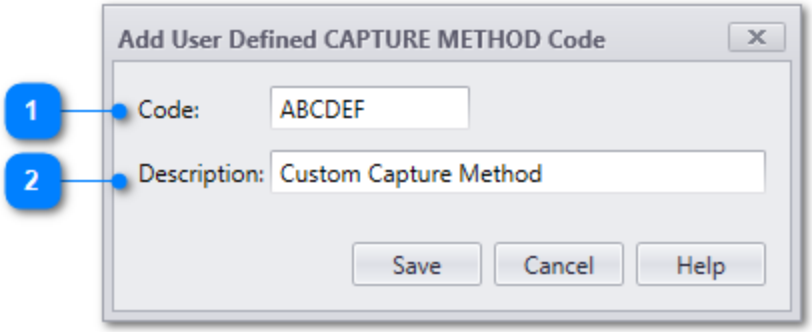
8 **Delete User Defined Code**

Click this button to delete the selected custom validation code.

Deleting a custom code will also remove it from any records where it has been selected as a value.

5.2.1. Add/Edit User Defined Capture Method

Capture method codes are used to record the method by which the fish were captured.



1 **Code**

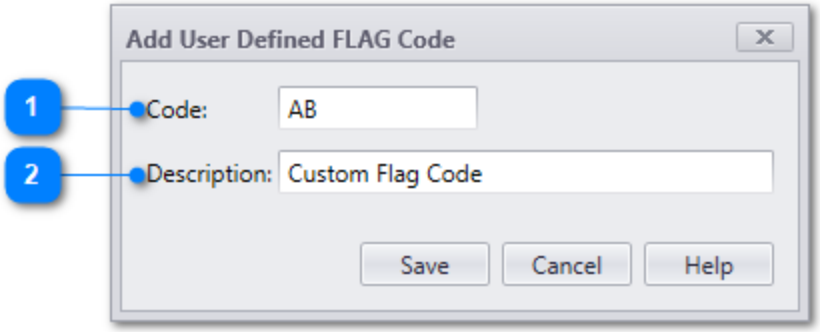
A custom Capture Method code can be up to 6 characters long.

2 **Description**

Enter the description for the custom Capture Method code.

5.2.2. Add/Edit User Defined Conditional Flag

Flag codes are used to record fish condition and other key criteria in the Conditional Comments field.



1 Code

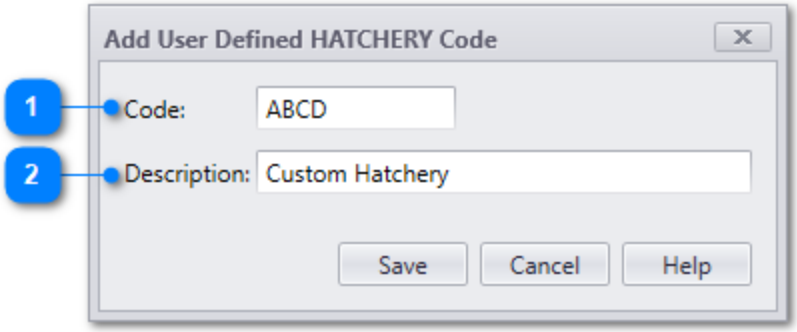
Custom conditional flag codes can be a maximum of 2 characters.

2 Description

Enter the description of the custom flag code here.

5.2.3. Add/Edit User Defined Hatchery

Hatchery codes are used to record the hatchery where the fish were reared.



1 Code

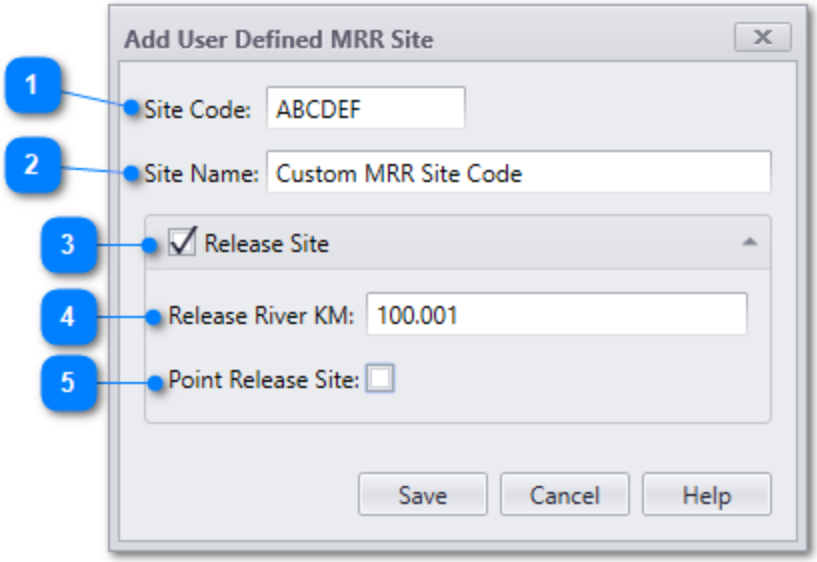
A custom hatchery code can be a maximum of 4 characters.

2 Description

Enter the description or name for the custom hatchery code.

5.2.4. Add/Edit User Defined MRR Site

MRR Site codes are used to record where fish are tagged, released, recaptured, or recovered. They can be used in both the Event Site and Release Site fields, and consist of point locations and stream (or stream segment) locations. If a MRR site will be used as a release location, it also needs to have a Release River KM value associated with it.



1 Site Code

The Site Code can be a maximum of 6 characters.

2 Site Name

Enter a name for the site here (maximum 125 characters).

3 Release Site

If the MRR site will be use as a Release Site, check this box. If it will only be used as a mark site, leave it unchecked.

4 Release River KM

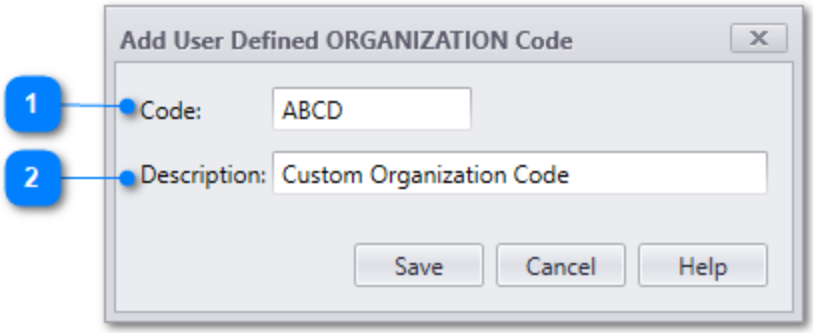
Enter the kilometers from the mouth of the Columbia River to the location of the site according to the Release River KM standards.

5 Point Release Site

If the MRR site is a point release check this box, if it is a stream site, leave it unchecked.

5.2.5. Add/Edit User Defined Organization

Organization codes are used to record the entity responsible for data collection.



1 Code

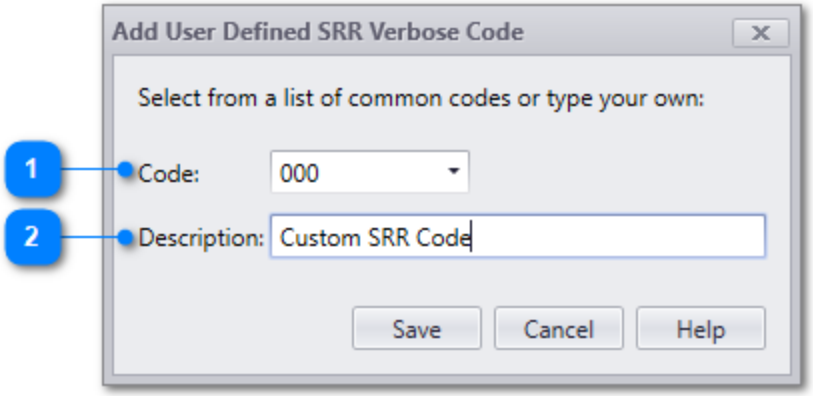
A custom organization code can be a maximum of 6 characters.

2 Description

Enter the name of the custom organization here.

5.2.6. Add/Edit User Defined SRR Verbose

SRR verbose codes are used to record the species, run, and rear type of the fish.



1 Code

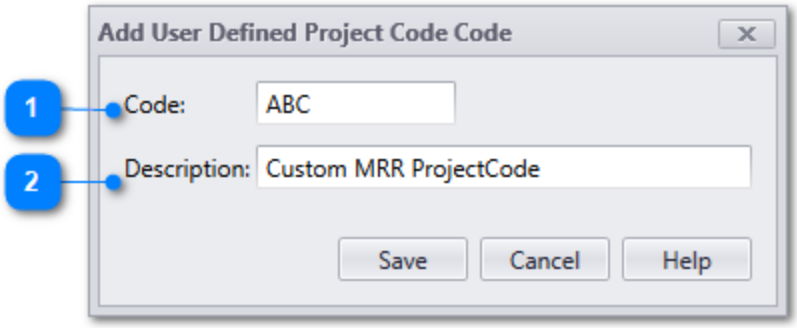
Select from a list of commonly used species codes or enter a completely new code to use as a custom SRR Code.

2 Description

Enter the name of the species represented by the custom SRR Code.

5.2.7. Add/Edit User Defined Tag Coordinator

Tag coordinator codes represent the person or long-term project (MRR Project) responsible for the tagging operation, data collection and data management.



1 Code

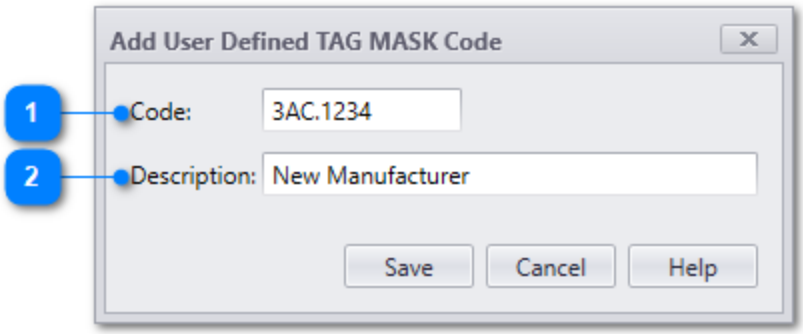
The Tag Coordinator code, now referred to as the MRR Project Code, has a maximum length of three characters.

2 Description

Enter the name of the tagging project here.

5.2.8. Add/Edit User Defined Tag Mask

Tag Mask codes are used to check that the PIT tag code being entered is valid and a tag known to be used in the Columbia River basin. If you are tagging outside the CRB, or are using tags that are new to the CRB, you may need to add custom tag masks. You may also considering turning tag mask validation off in the profile you plan to use when tagging. If you plan to submit these records to PTAGIS in the future, you will need to request that any custom codes also be added to the PTAGIS set of validation codes.



1 Code

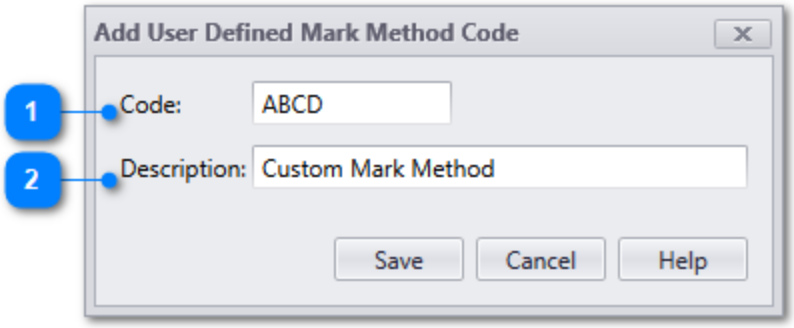
The tag mask code consists of the 3-character manufacturer code, a period, and the next four characters.

2 Description

Enter the name of the tag manufacturer here.

5.2.9. Add/Edit User Defined Tagging Method

Tagging Method codes are used to record the method used to inject PIT tags into the fish. If the record event type is not Mark, then the tagging method should be recorded as None.



1 Code

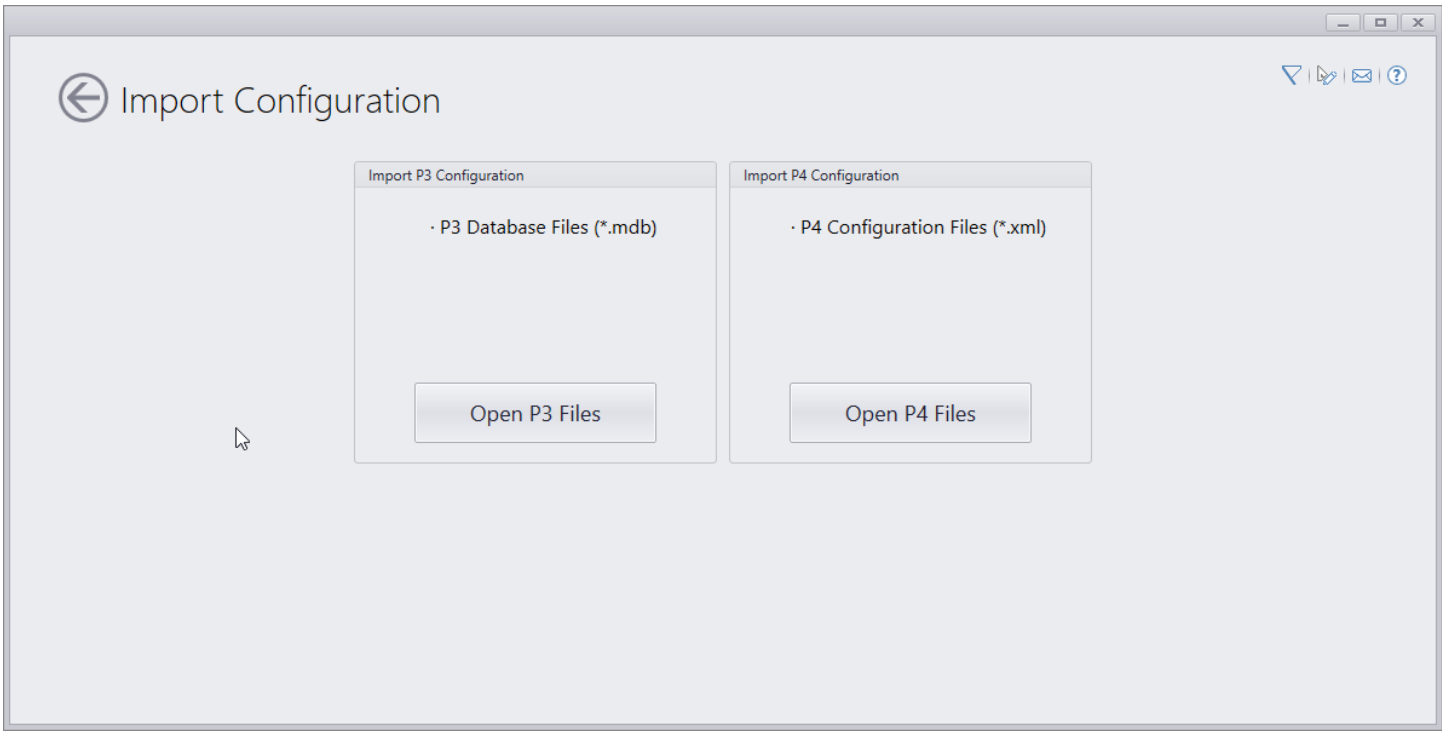
The Tagging Method code can be a maximum of four characters long.

2 Description

Enter a description of the new tagging method.

5.3. Import Configuration Dashboard

Configuration settings can be imported from both P3 and P4. After selecting one or more files to import, the configuration tools available for import will be displayed along with the possible import actions (e.g. import as new tool, update an existing tool, or use the existing tool as is).



Import P3 Configuration

When moving from P3 to P4, many of the P3 configuration settings can be imported directly from the **P3.mdb** database file. They will likely need to be edited before using P4.

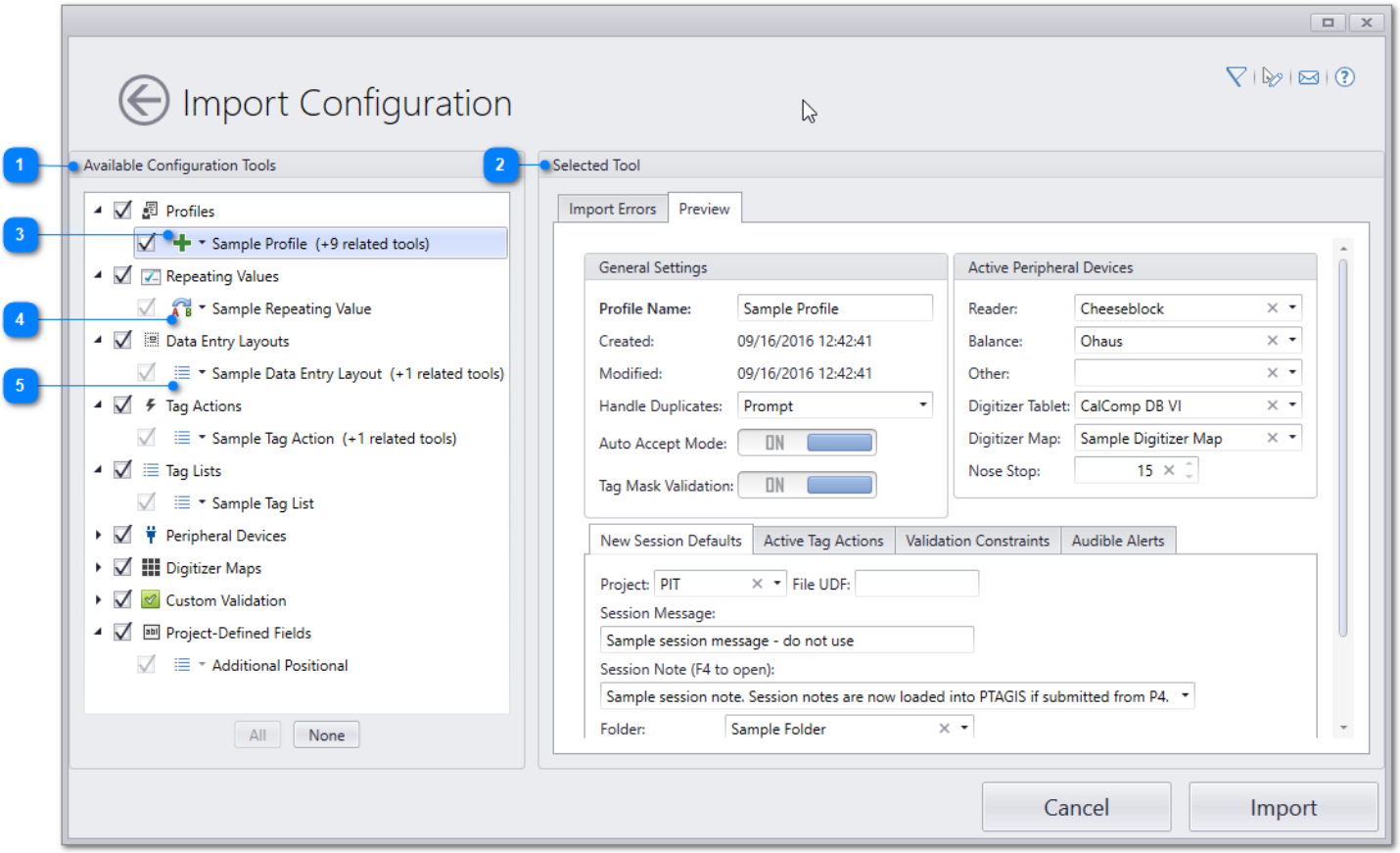
Configuration settings that can be imported from P3 include:

- Profiles
- Templates (will be imported as P4 Repeating Values)
- Default Repeating Comments (will be imported as P4 Repeating Values)
- Digitizer Maps
- Peripherals
- Tag Actions

Import P4 Configuration

Exported P4 configuration files can be imported to easily transfer configuration tools to other computers. All of the P4 configuration tools are available to import and export.

5.3.1. Import Configuration



1 Available Configuration Tools

This panel shows the configuration tools that are available to import from the selected file(s). Use the checkboxes to select the tools to import.

Some configuration tools can have other tools that are attached or related to them. For example, a profile can have related Peripherals, Repeating Values, Data Entry Layouts, etc. These will be identified with a notation showing the number of related tools that will also be imported. All tools that are related to the tool that is selected for import must also be imported; the related tools are designated with a light-gray check mark that cannot be removed.

Three actions are available when importing configuration tools:

- Import as New Record
- Use Existing Tool
- Replace Existing Tool

2 Selected Tool

Displays a read-only preview of the tool that is currently highlighted in the Available Configuration Tools panel. If any errors were detected in the file that was selected, they will be displayed in the Import Errors tab.

3 Import as New Record

This action will import the tool as a new record and is selected by default when a tool with the same name and type *does not* exist in the destination installation of P4.

4 Replace Existing Tool

This action will replace an existing tool with the imported tool. It is selected by default, and is only available, when a tool with the same name and type but different settings already exists in the destination installation of P4.

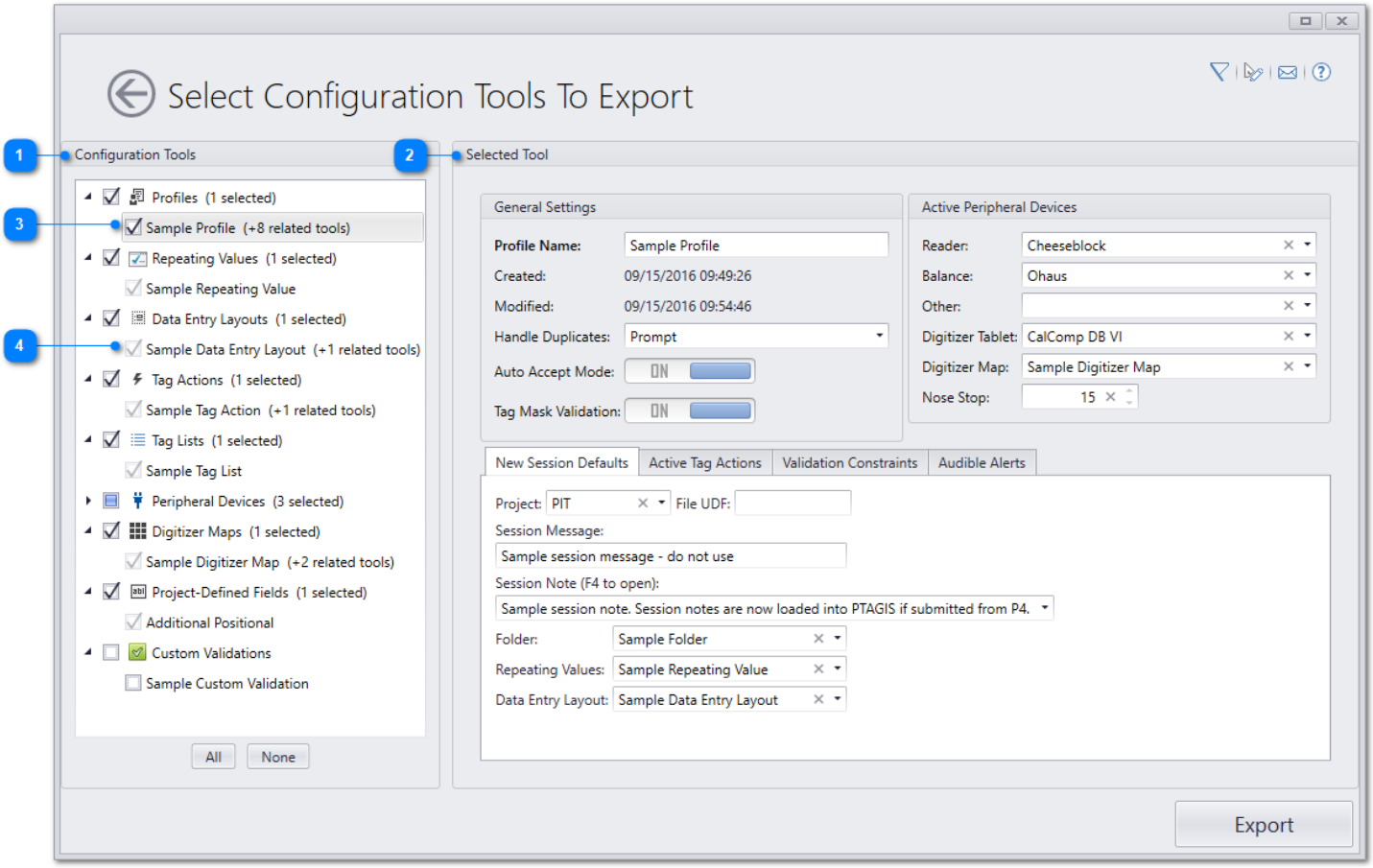
5

Use Existing Tool

This action will use an existing tool in place of the imported tool. It is selected by default, and is only available, when a tool with the same name, type and settings already exists in the destination installation of P4.

5.4. Export Configuration

All configuration tools can be exported from P4 in order to transfer them to another computer.



1 Configuration Tools

This panel shows the current list of configuration tools. Use the checkboxes to select which tools to export.

Some configuration tools can have other tools that are attached or related to them. For example, a profile can have related Peripherals, Repeating Values, Data Entry Layouts, etc. These will be identified with a notation showing the number of related tools that will also be exported. All tools that are related to the selected tool must also be exported. The related tools are designated with a light gray check mark that cannot be removed.

2 Preview of Selected Tool

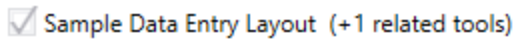
Displays a read-only preview of the tool that is highlighted in the Configuration Tools panel.

3 Selected Tool

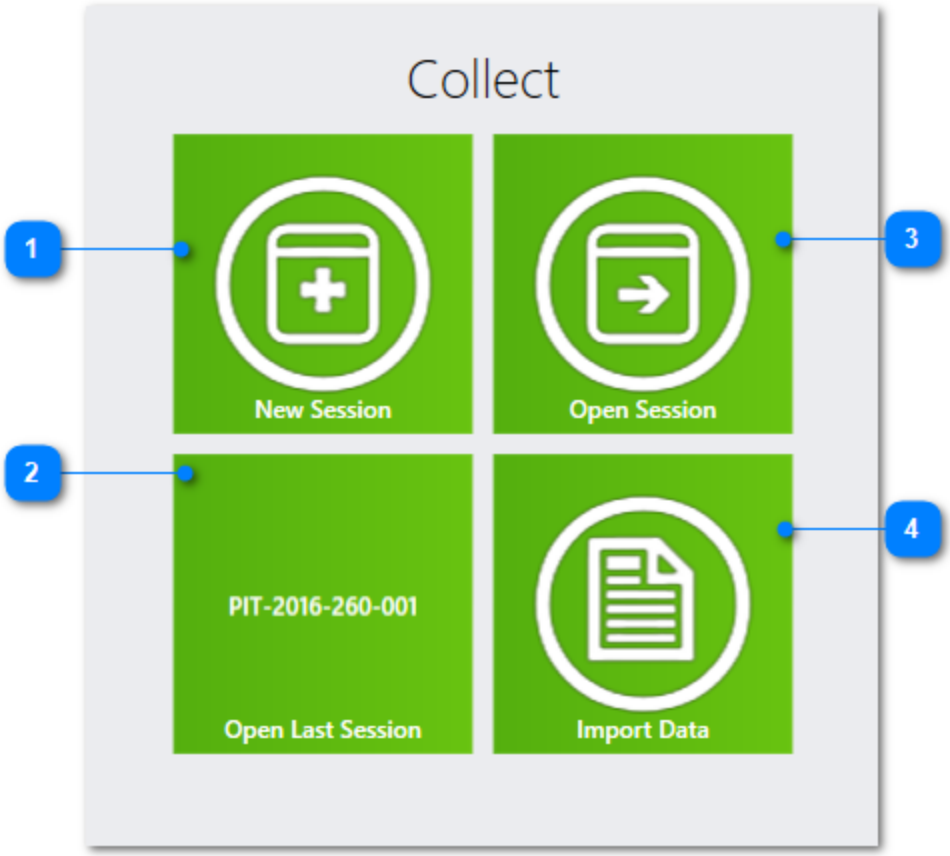
This Profile is selected for export. Notice that there are 8 related tools, and that each of those related tools are also selected for export.

4 Related Tool

This Data Entry Layout is related to the Profile that is selected for export and will also be exported, as indicated by the light gray check mark that cannot be removed.



6. Collect



1 **New Session**

Click this tile create a new Session.

2 **Open Last Session**

Click this tile to open the last Session that was opened in data collection. It will open directly into the Data Entry screen.

3 **Open Session**

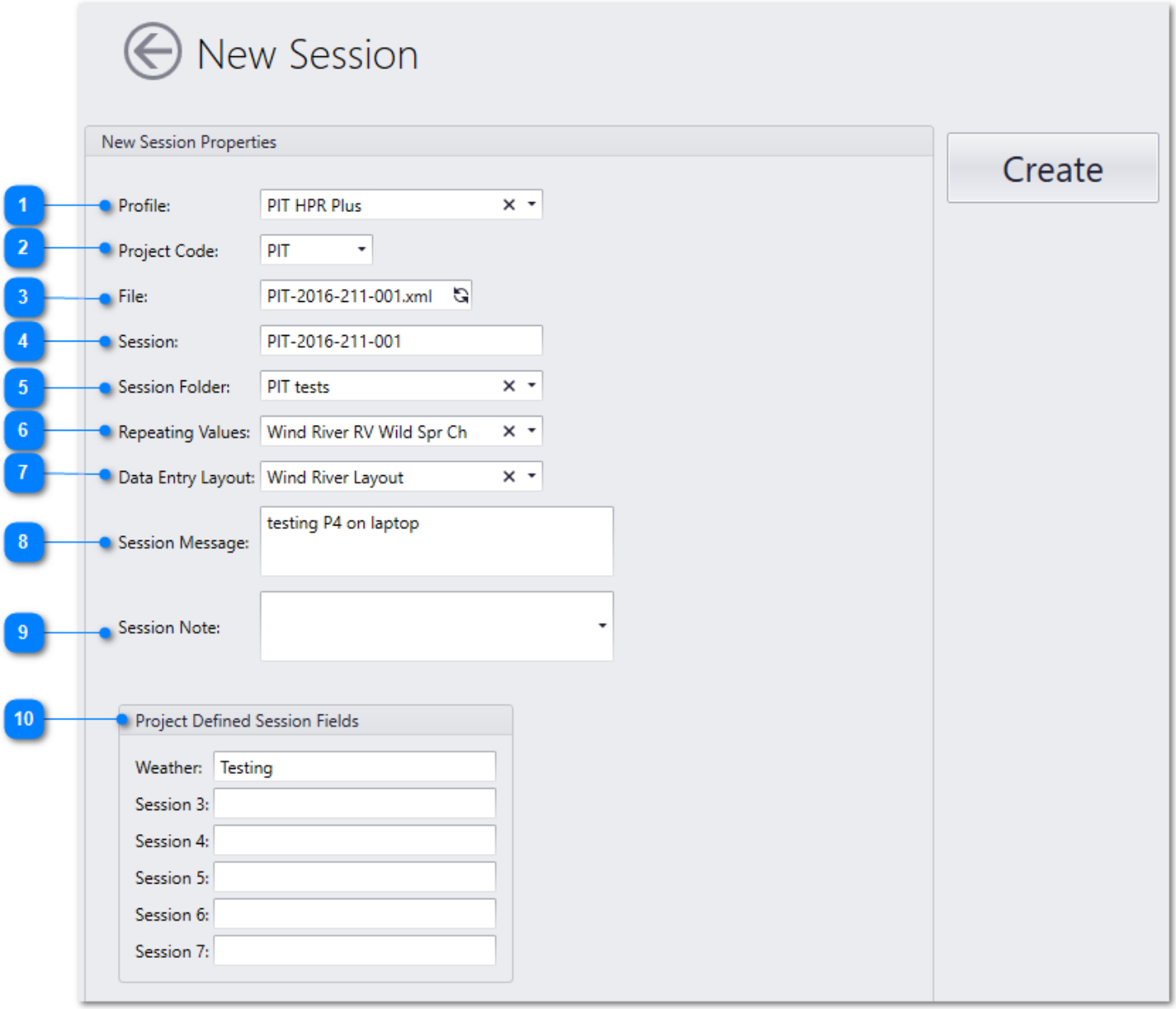
Click this tile to open a previously saved or imported Session.

4 **Import Data**

Click this tile to import PIT tag data into P4. Data can be imported from P3 tag files, P3 database, P4 files, or delimited files.

6.1. New Session

A Session is the container for a set of MRR records. A Session can only contain records for a single Project Code, but most other fields can be different for each record in the Session. A Session can be empty or contain thousands of records, encompass one day of marking or several months of marking, however it is not recommended to cross calendar year boundaries in a Session.



1 Profile

Select the Profile to associate with the new Session. Existing values in the New Session Defaults section of the Profile will be used to complete the rest of the form. Settings and devices specified in the selected Profile will be active while the Session is open.

2 Project Code

Select the Project Code (which used to be known as the Coordinator ID) for the new Session.

3 **File**

The File name will be automatically generated based on the Project Code, the current date, and the default value for UDF specified in the selected Profile. If a Project Code has not been selected, the File name will remain blank. If a default value for UDF has not been specified, it will use incremental numbers, starting with 001.

4 **Session**

Enter a name for the Session. Defaults to the File name, if it is generated, but can be changed.

5 **Session Folder**

Select an existing folder or enter a name to create a new folder into which the Session will be saved. If left blank, the Session will not be placed into a folder.

6 **Repeating Values**

Select a Repeating Value to use with this Session.

7 **Data Entry Layout**

Select a custom Data Entry Layout to use with this Session. If left blank, the default data entry form will be used.

8 **Session Message**

Enter a value to be saved in the Session Message field for this Session.

9 **Session Note**

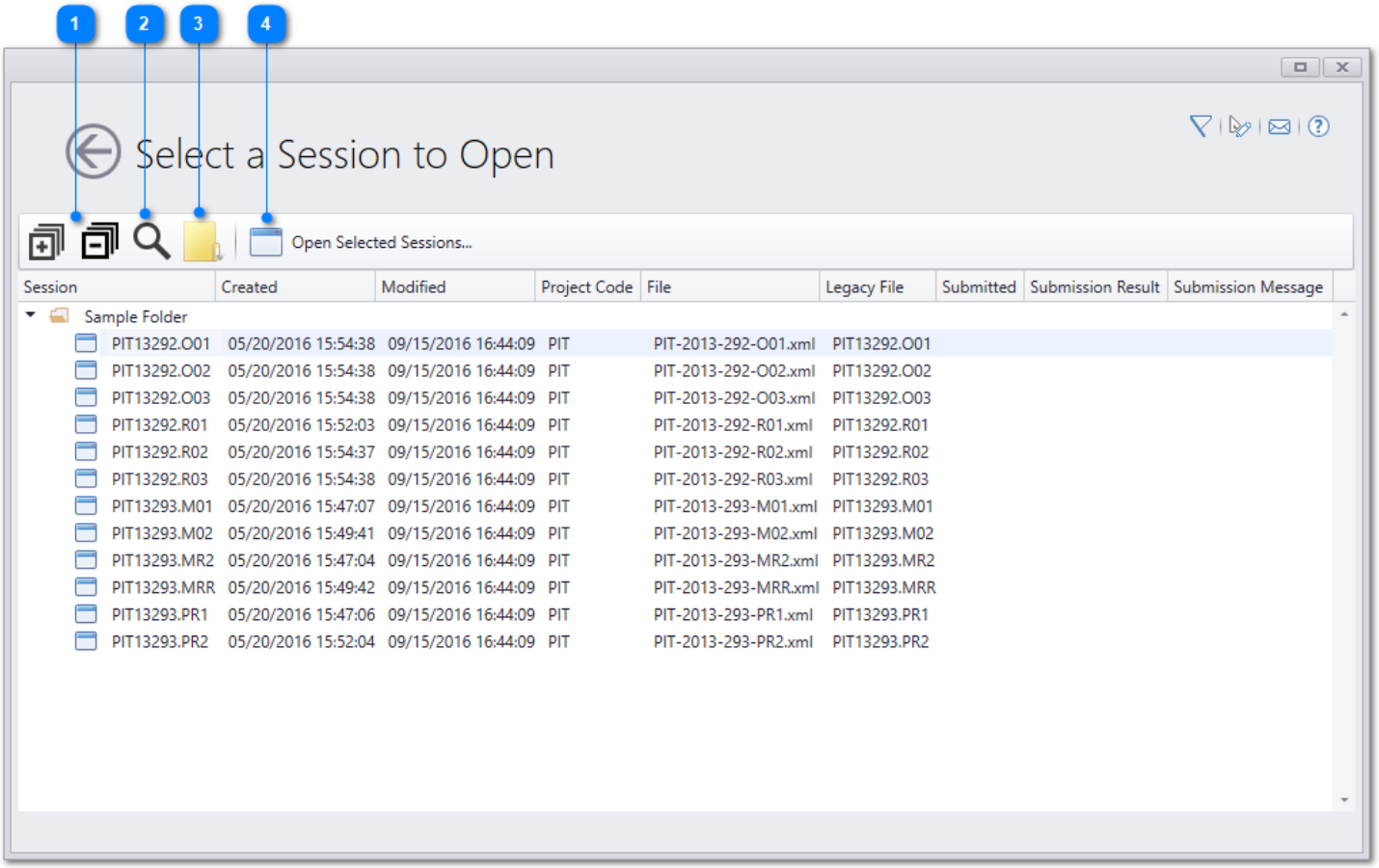
Enter a value to be saved in the Session Note field for this Session.

New in P4, Session Notes are now loaded into the PTAGIS database.

10 **Project Defined Session Fields**

All session-level Project Defined Fields will be displayed here. Enter a value to be saved in those fields for this Session.

6.2. Open Session



1 Expand or Collapse Folders

Used to expand or collapse all the folders. Expanding folders shows all the Sessions stored within them. Collapsing hides all the Sessions. Single folders can be expanded by double-clicking the folder name or clicking on the black arrow to the left of the folder icon.

2 Show Search Panel

Used to open a panel to search for a Session by name.

3 Create New Folder

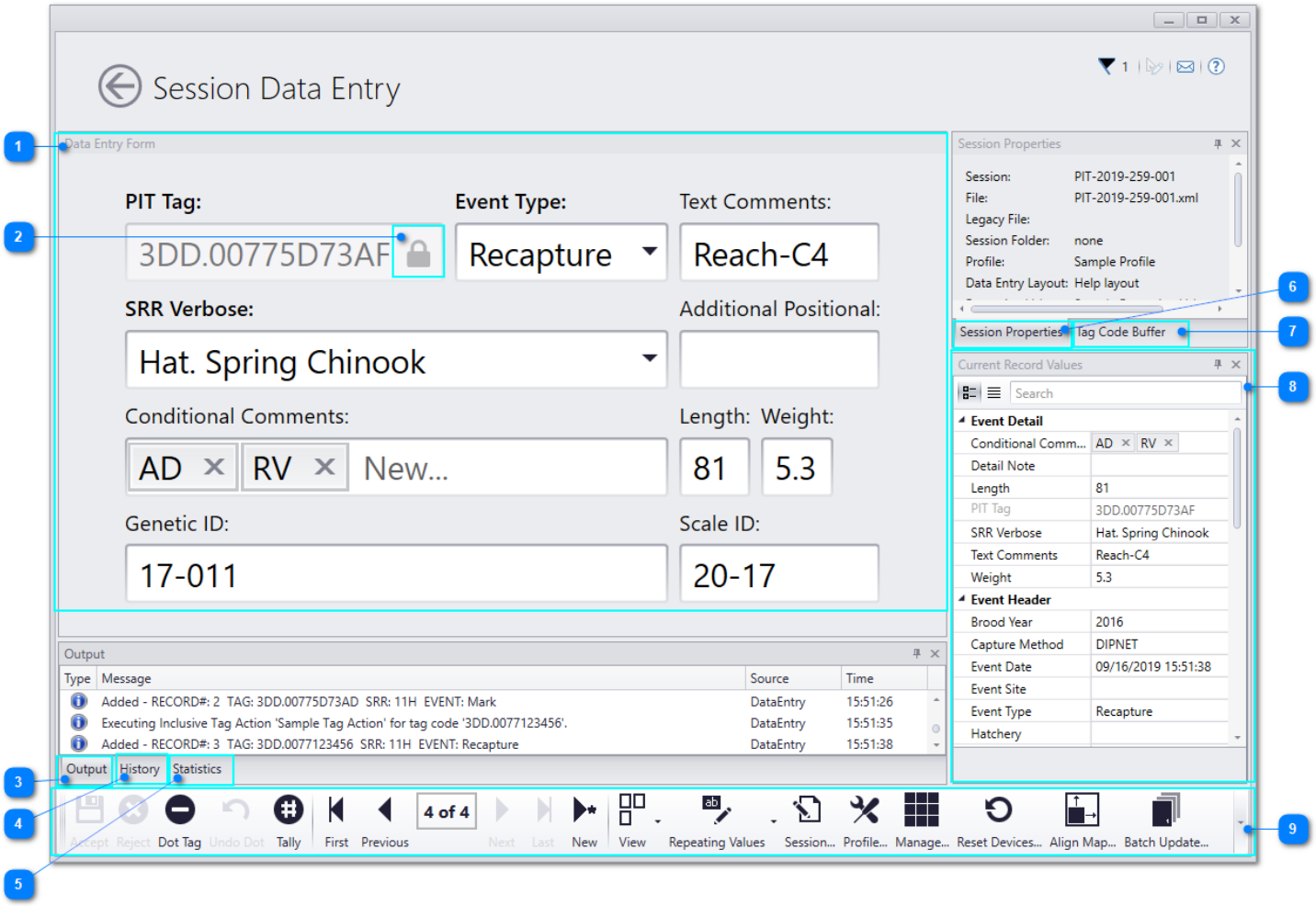
Used to create a new folder. The new folder will be created as a sub-folder if an existing folder is selected when the button is clicked.

4 Open Selected Session

Used to open the selected Session. A Session can also be opened by double-clicking it.

6.3. Data Entry

Session Data Entry in P4 is composed of several dockable panels and a tool bar. By default the panels and tool bar will be visible and docked as shown in the screen shot below. Each panel can be hidden, closed, or docked to another location in the data entry screen. The tool bar can also be undocked and/or moved to the sides or top of the data entry screen. P4 will remember the location and visible state of each panel and tool bar between sessions. A hidden or closed panel can be restored to its former position from the View button on the tool bar, or by using the appropriate keyboard shortcut or digitizer command. The tool bar can be restored from a hidden state by pressing ALT-M on the keyboard.



1 Data Entry Form Panel

The Data Entry Layout associated with the Session and the main form for entering data into P4.

2 PIT Tag Field Lock

Beginning in v1.26, the PIT Tag field will lock after a PIT tag code has been scanned into the field. To unlock the field, click once on the padlock icon, or right-click anywhere in the field and select Unlock from the context menu.

3 Output Panel

Displays a log of events that have occurred since the Session has been opened. A log of all events from the complete history of the Session can be viewed in Manage Database.

4 History

Displays the records in the current session in tabular view

5 **Statistics Panel**

Displays the number of marks, recaptures, recoveries, dot-outs, and tallies by SRR in the Session.

6 **Session Properties Panel**

Displays the properties of the Session in read-only mode. Session properties can be edited by clicking the Session button on the tool bar to open the Update Session Properties dialog.

7 **Tag Code Buffer Panel**

Displays tag codes that have been placed in the P4 buffer. When a tag code is placed in the P4 buffer, this panel will be displayed if it is hidden or closed.

8 **Current Record Values Panel**

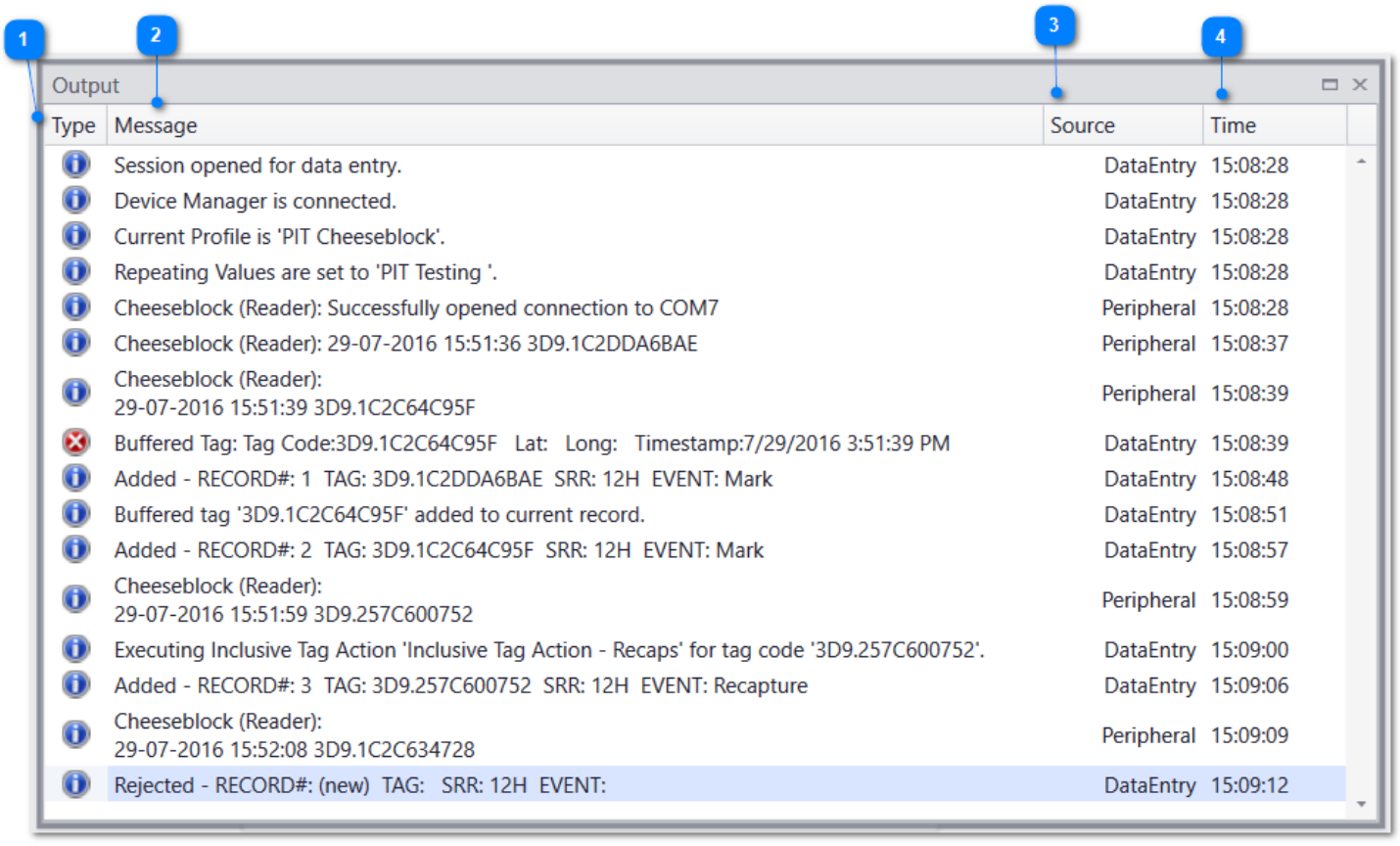
Displays every field and the values in those fields for the current record.

9 **Tool Bar**

Contains buttons that can be used to interact with the current record; show/hide panels; edit properties of the Session; or edit configuration tools associated with the Session. The tool bar can also be undocked, hidden, or moved.

6.3.1. Output Panel

The Output Panel displays events and errors that have been logged during the current data entry session. The complete log history for a Session is available to view in the Manage Database screen.



1 **Type**

Icon showing the type of message: Information, Warning, or Error.

2 **Message**

Displays the event or error that has been logged.

3 **Source**

Displays where the error came from.

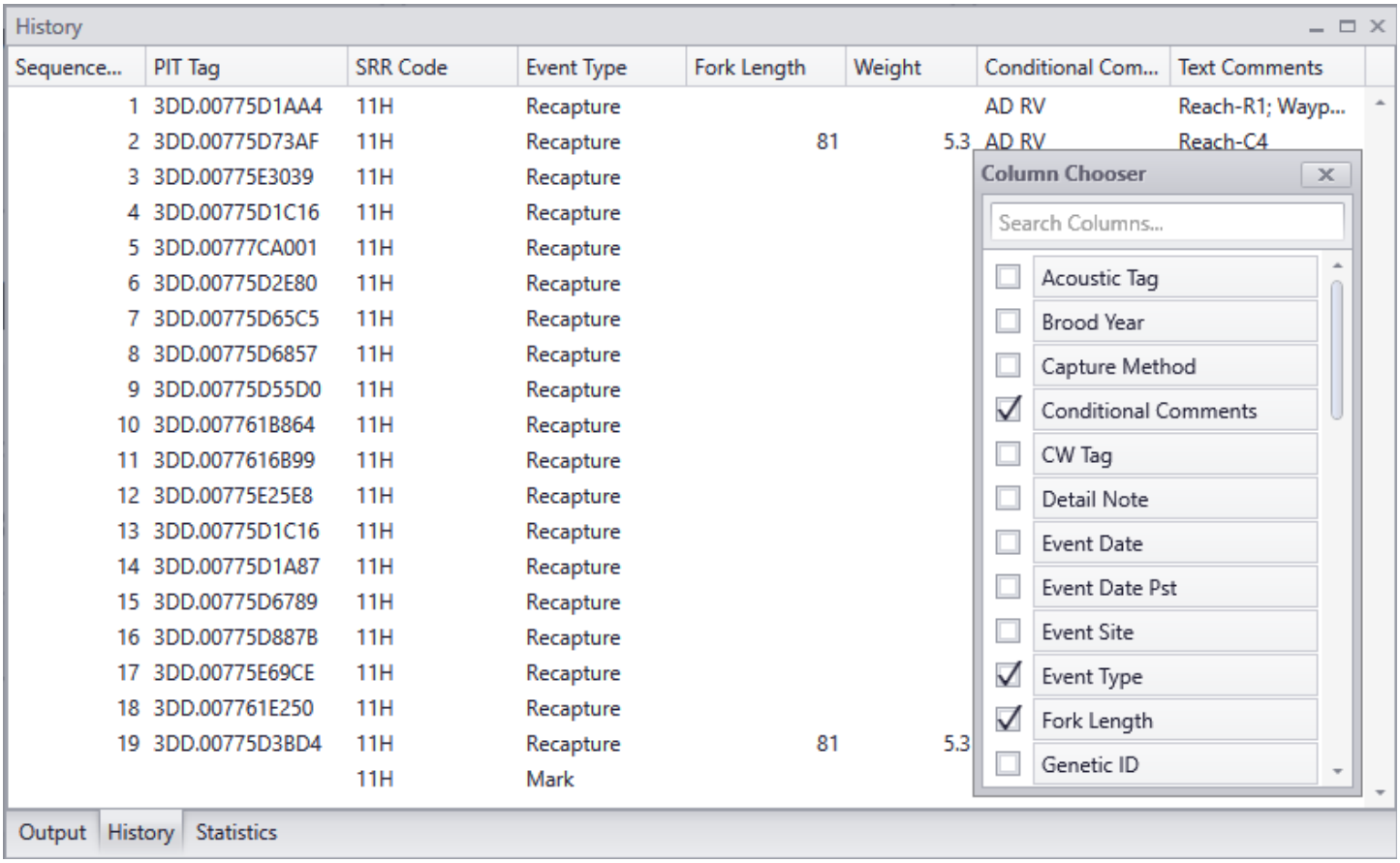
4 **Time**

The time the event was recorded.

6.3.2. History Panel

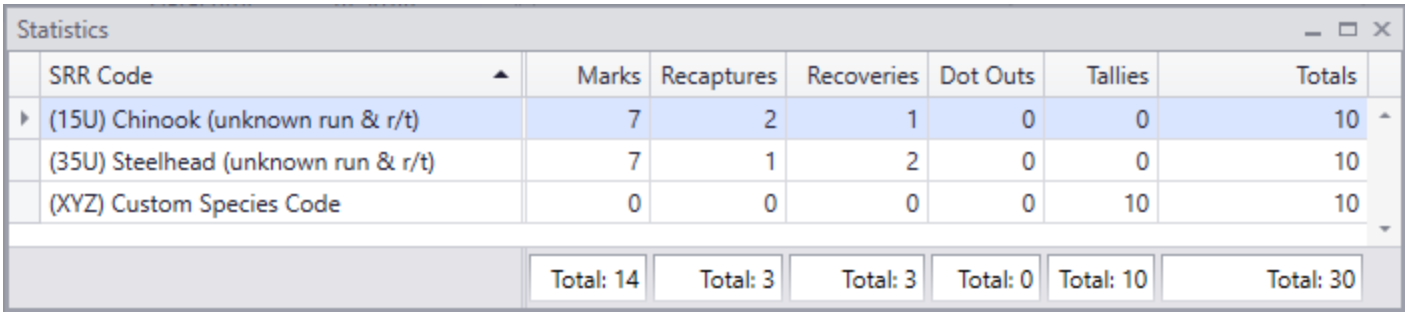
The History Panel was added to P4 in v1.21. It displays the records in the currently open session in a read-only tabular view. This panel is not shown by default, but can be accessed by clicking the View button on the tool bar and selecting History. By default the panel will be grouped with the Output and Statistics panels, but it can be moved and docked anywhere

Any column can be displayed in the History panel by right-clicking any column header and selecting Column Chooser. From the Column Chooser, a column can be added to the grid either by checking the box next to it or dragging and dropping it in on the grid.



6.3.3. Statistics Panel

The Statistics Panel shows basic counts of records by SRR code and Event Type. The columns can be resized, moved, or removed from the panel. To restore a column that has been removed, right click on any column and select the Column Chooser.



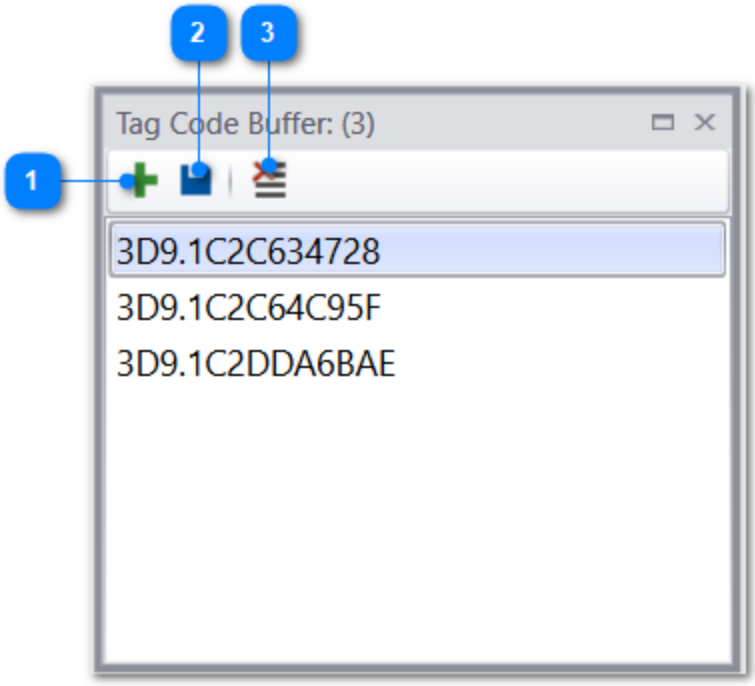
Marks	Counts records where Event Type = Mark and PIT Tag contains valid tag code
Recaptures	Counts records where Event Type = Recapture and PIT Tag contains valid tag code
Recoveries	Counts records where Event Type = Recovery and PIT tag contains valid tag code
Dot Outs	Counts records where Event Type is Mark, Recapture or Recovery and PIT Tag is dotted out
Tallies	Counts records where Event Type = Tally

6.3.4. Tag Code Buffer Panel

A tag code will be stored in the P4 buffer when one of the following conditions exist:

- A PIT tag is scanned when Auto Accept is disabled in the current Profile AND the current record has not been Accepted or Rejected
- A PIT tag is scanned when Auto Accept is enabled in the current Profile AND the current record has a validation error preventing it from being Accepted

When a tag code is placed in the buffer, the Tag Code Buffer Panel will be opened and displayed if it is closed or hidden and a message will be written to the Output Panel. Tag codes only remain in the buffer as long as the Session is open. If the Session needs to be closed before all buffered tag codes are addressed, the buffered tag codes can be saved to a text file.



1 **Add Buffered Tag to Record**

Used to add the next buffered tag code to the current record and remove it from the buffer. This command is only available if the current record is a new record.

2 **Save Buffered Tags to File**

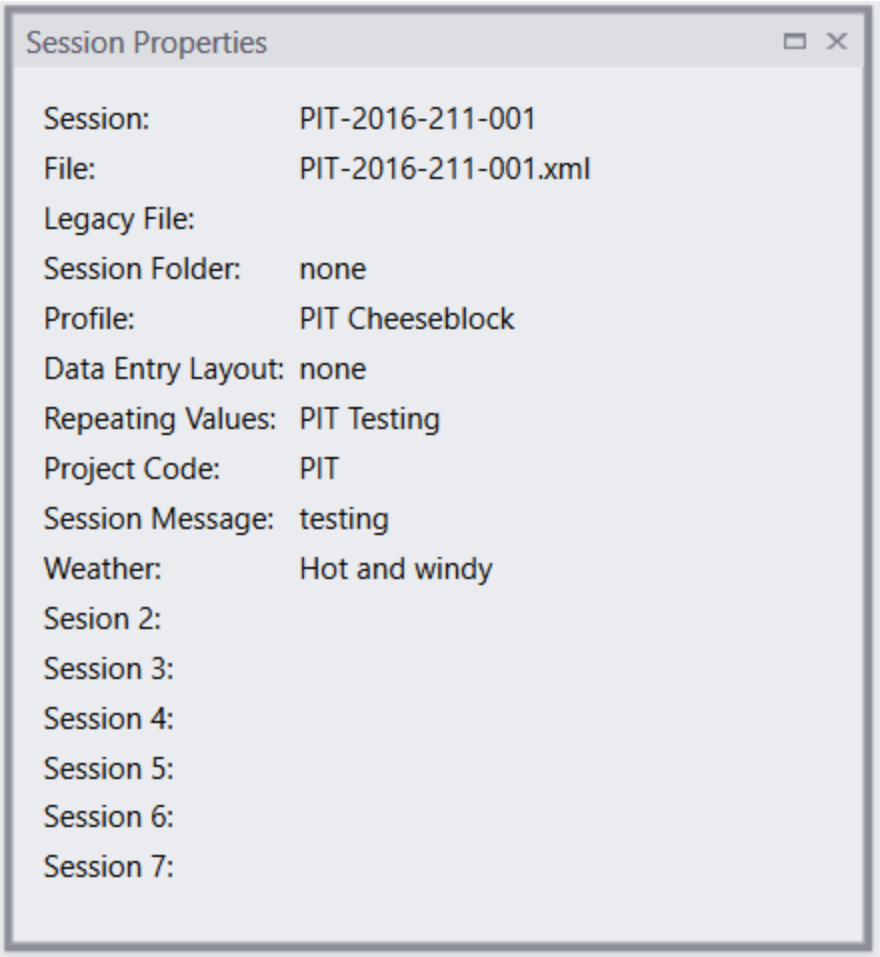
Used to save the buffered tag codes to a text file.

3 **Clear Buffered Tags**

Used to clear all the tag codes from the buffer.

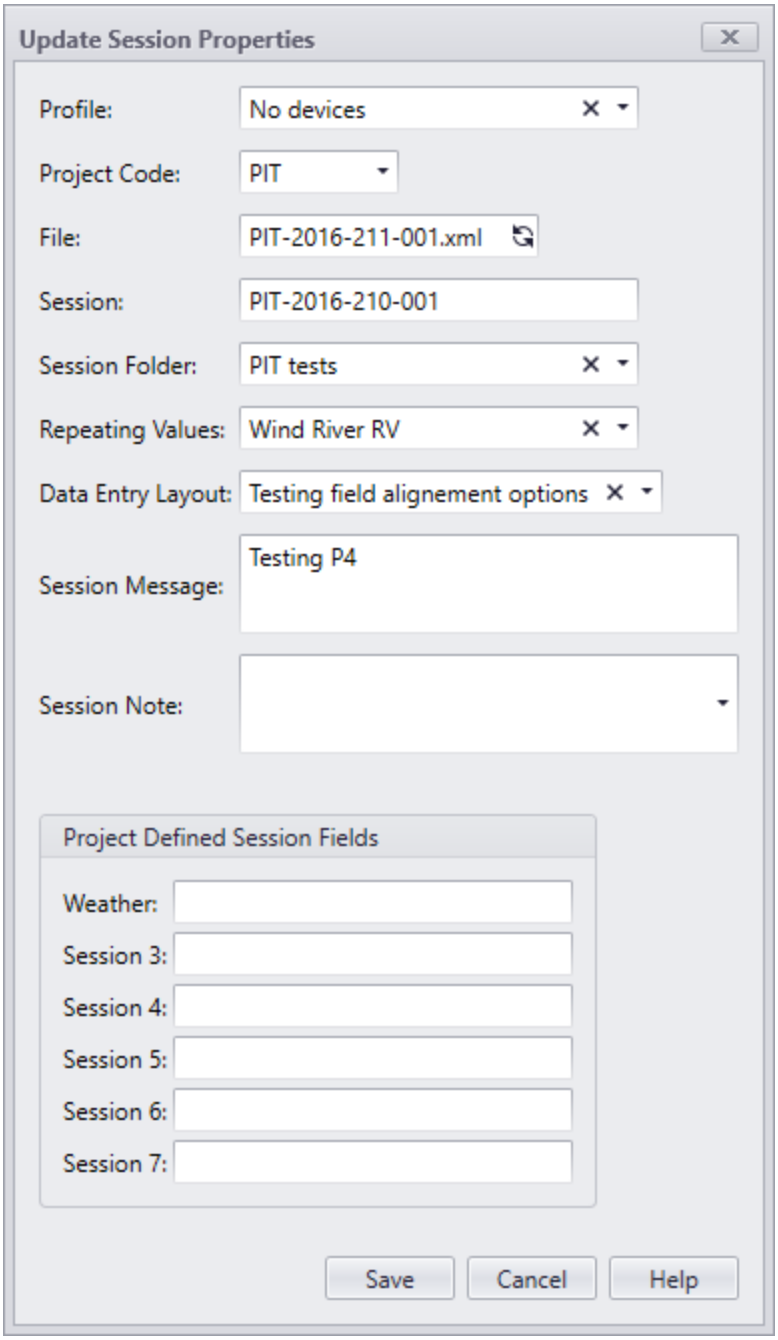
6.3.5. Session Properties Panel

This panel displays the Session properties and session-level data fields, including Project Defined Fields, in a read-only format. To edit the properties, click the Session button on the Tool Bar to open the Update Session Properties dialog. The current record must be Accepted (saved) before Session properties can be edited.



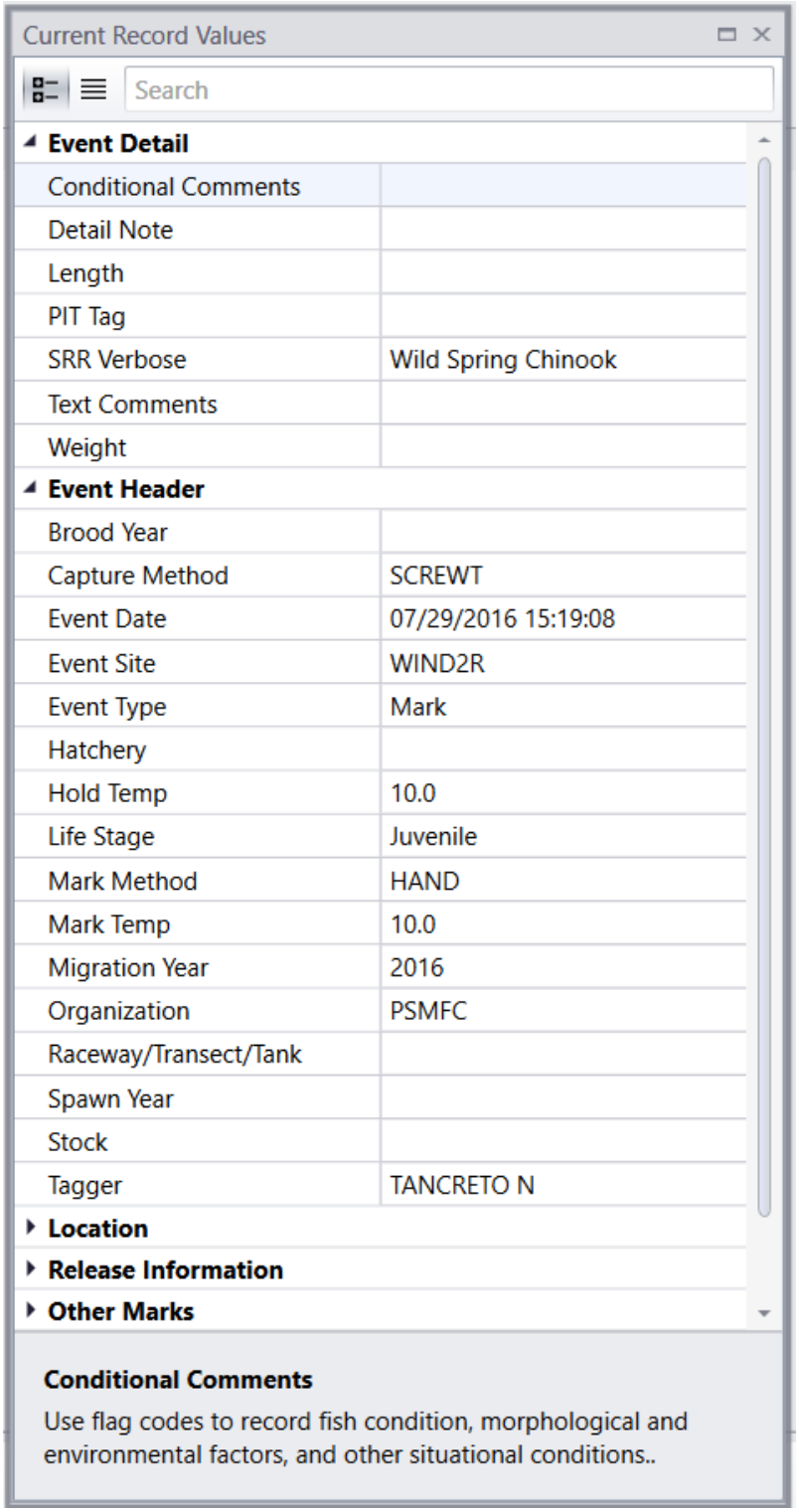
6.3.5.1. Update Session Properties

This dialog is used to change Session properties, such as Repeating Values or Data Entry Layout, or Session data fields, such as Project Code or Session Message, for the current Session.



6.3.6. Current Record Values Panel

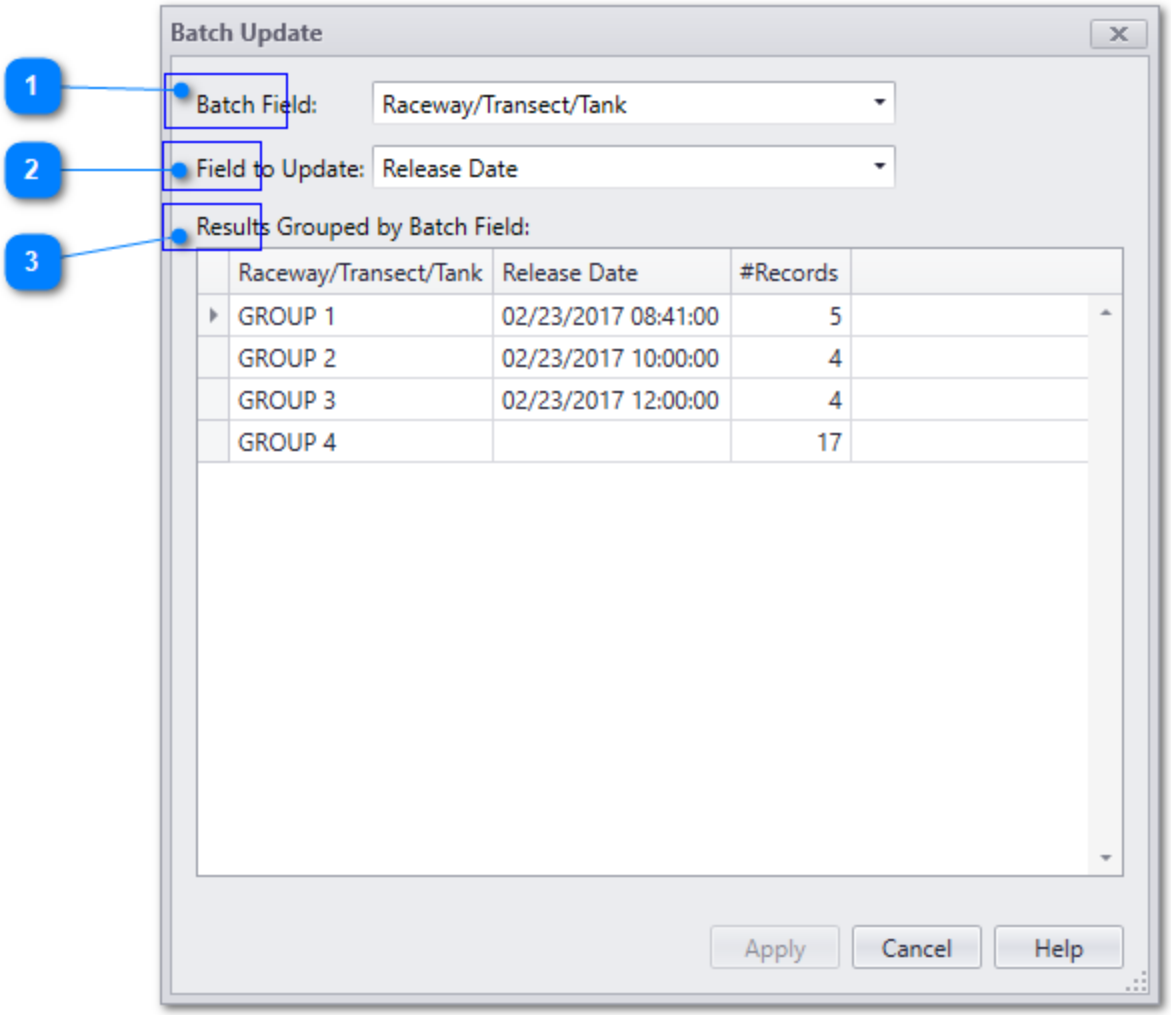
This panel provides access to all available data fields in the current record. All fields, including those fields that are on the Data Entry Form, can be viewed or edited from this panel. It is similar in function to the Repeating Values configuration tool, except that it directly edits the values in the current record. It is available primarily as way to ensure that the correct repeating values are being entered into each record, and is not recommended to be the main source of data entry. It is strongly recommended that any fields that will need to be interacted with during data entry be placed on the Data Entry Layout.



6.3.7. Batch Update

The Batch Update feature allows the updating of values in multiple records that are grouped by a value in the selected batch field. For example, a recovery container group identifier can be stored in the Raceway/Transect/Tank field, which can then be used as the Batch Field to update the Release Date field when the group of fish in that container are released post-recovery while still in the tagging session.

Most of the applicable detail record fields can be selected as either the Batch Field or the Field to Update. This dialog is accessed by clicking the Batch Update button on the data entry or record management tool bars.



1 Batch Field

Select the field that contains the values by which the records should be grouped for updating.

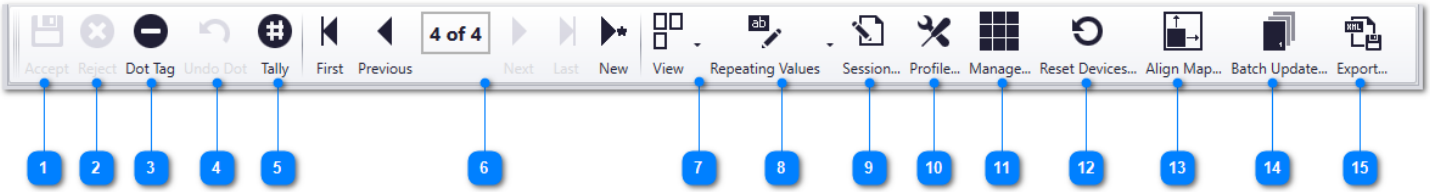
2 Field to Update

Select the field that will be updated.

3 Results Grouped by Batch Field

Records will be displayed in this grid grouped by the Batch Field. The Field to Update can be edited directly in this grid to apply the desired value to the desired group of records.

6.3.8. Tool Bar



1 Accept Record

Used to Accept (save) the record to the database.

Hot Key = ALT-A

2 Reject Record

Used to undo changes made to the current record since it was last accepted. If used on a new, unsaved record, all values that have been entered (except those from Repeating Values) will be removed.

Hot Key = ALT-R

3 Dot Out Record

Used to enter 10 dots into the PIT Tag field. If the PIT Tag field is not empty when this command is used, the value will be replaced by the dots.

Hot Key = ALT-D

4 Undo Dot Out

Used to undo the dot-out command in cases where the existing tag should not have been overwritten.

Hot Key = ALT-U

5 Tally

Used to enter 10 dots into the PIT tag field and change the Event Type to Tally. This is a new feature in P4 intended to facilitate data collection on fish that will not be marked with a PIT tag.

Hot Key = ALT-T

6 Scroll Records

Used to scroll to the first, previous, next, last or new records in the current Session. Click the record counter to go to a specified record number.

Hot Keys:

Function	Key Combination
Go To Specified Record #	CTRL-G
First Record	CTRL-Home
Previous Record	CTRL-Page Up
Next Record	CTRL-Page Down
Last Record	CTRL-End
New Record	CTRL-Insert

7 View Panels / Restore Layout

Used to show panels that have been hidden or closed, and to restore the Session Data Entry panels to the last used layout or the default layout.

Hot Keys:

Function	Key Combination
Show main tool bar	ALT-M
Show Data Entry Form	F1
Show Session Properties Panel	F2
Show Tag Code Buffer	F3
Show Statistics Panel	F4
Show Current Record Values Panel	F5
Show Output Panel	F6
Show History Panel	ALT-H
Restore the last-used layout of panels	F7

8 Repeating Values

Starting with v1.26, there are three functions accessible with this button: Edit Repeating Values, Use Current as Repeating, and Clear Temporary Repeating.

Edit Repeating Values: Opens the set of Repeating Values currently associated with the tag session for editing. Any changes made will be entered into the next new record. Hot Key is F8.

Use Current as Repeating: Uses the values in the current record to create a set of temporary repeating values that will be used until they are cleared or the tag session is closed. Hot Key is ALT-Plus.

Clear Temporary Repeating: Clears the set of temporary repeating values from the session. If an existing Repeating Value is associated with the session, those values will now be entered into new records. Hot Key is ALT-Minus.

9 Edit Session Properties

Used to edit the properties and session-level field values of the current Session.

10 Edit Profile

Used to edit the Profile that is associated with the current Session.

11 Manage Records

Used to open the Session in Record Management, where it can be validated, reviewed, edited, and/or exported.

12 Reset Devices

Used to reconnect all devices specified in the Profile associated with the current Session. This is useful if the Session was opened before all devices were powered on or connected to the computer.

13 Align Map

Used to open the Test and Calibrate dialog for the Digitizer Map.

14 Batch Update

Used to edit multiple records in the current session based on a value in a batch field. For example, if fish from specific recovery containers get released at different times, the Raceway\Transect\Tank field can be used to group these records and the release time can be entered while the session is open for data entry.

15 Export

Used to export the current session in P4 XML file format. A default export folder can be set in Utilities.

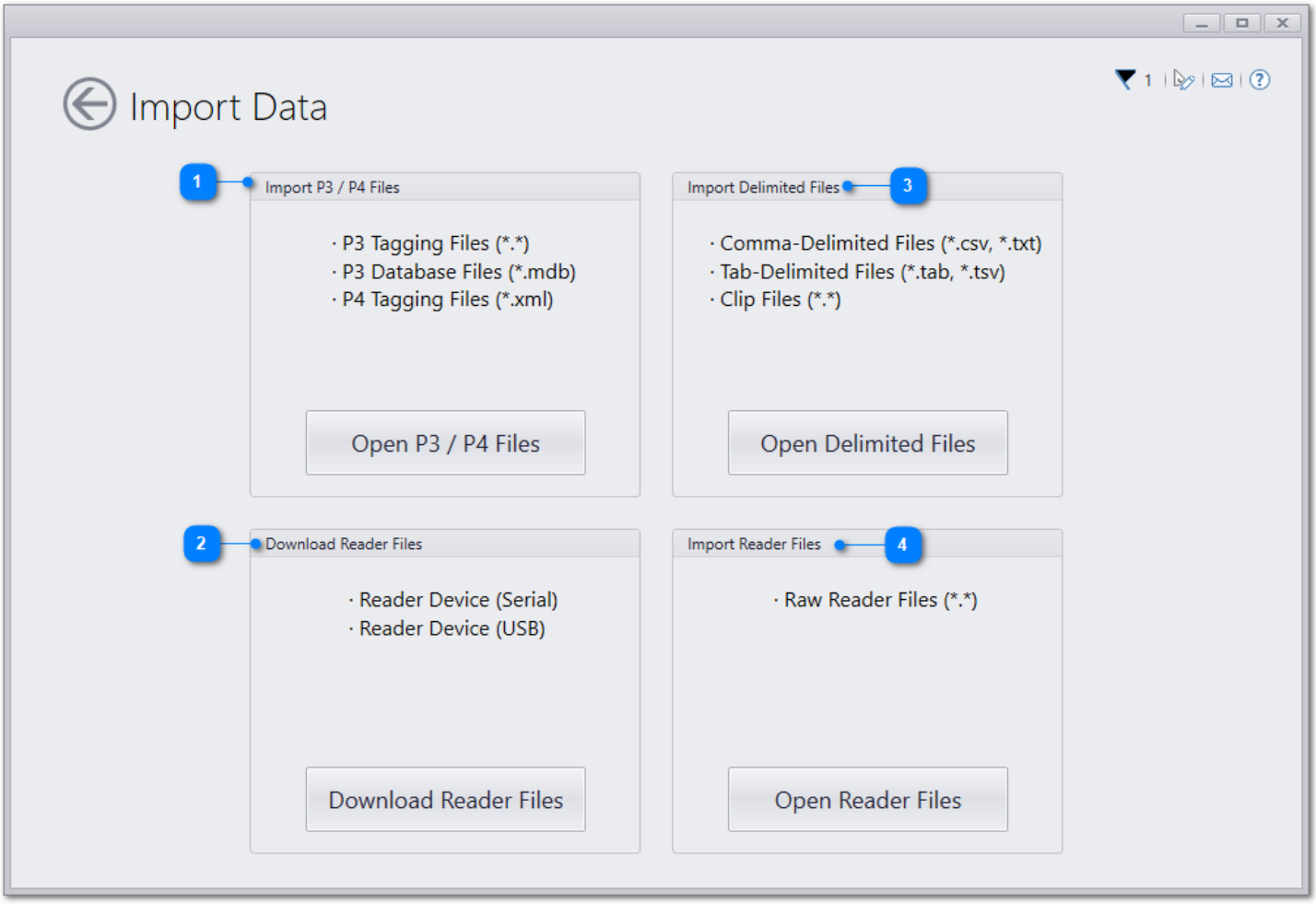
6.3.8.1. Keyboard Shortcuts

Most of the commands available from the Tool Bar can also be used with a keyboard shortcut.

Command	Shortcut
Accept Record	ALT-A
Reject Record	ALT-R
Replace Record	ALT-P
Dot Out Tag Code	ALT-D
Undo Dot Out	ALT-U
Tally	ALT-T
Add Next Tag in Buffer	ALT-B
Clear All Tags in Buffer	CTRL-SHIFT-Delete
Go to First Record	CTRL-Home
Go to Previous Record	CTRL-Page Up
Go to Next Record	CTRL-Page Down
Go to Last Record	CTRL-End
Go to New Record	CTRL-Insert
Go to Specific Record Number	CTRL-G
Show Main Tool Bar	ALT-M
Show Data Entry Form Panel	F1
Show Session Properties Panel	F2
Show Tag Code Buffer Panel	F3
Show Statistics Panel	F4
Show Current Record Values Panel	F5
Show Output Panel	F6
Show History Panel	ALT-H
Restore Layout to previous state	F7
Edit Repeating Values	F8
Use Current as Repeating	ALT-Plus
Clear Temporary Repeating	ALT-Minus
Edit Session Properties	F9
Edit Profile	F10
Reset Devices	F11
Align Digitizer Map	F12
Batch Update	CTRL-B
Export to XML	ALT-E

6.4. Import Data

Data can be imported into P4 from a variety of sources, including P3 files and database, delimited files, and PIT tag readers.



1 Import P3 or P4 Files

Used to import PIT tag data from P3 tagging files, P3 database files, or P4 tagging files.

3 Import Delimited Files

Used to import PIT tag data from CSV or other delimited files.

2 Download Reader Files

Used to download and import PIT tag codes and associated timestamps directly from reader devices.

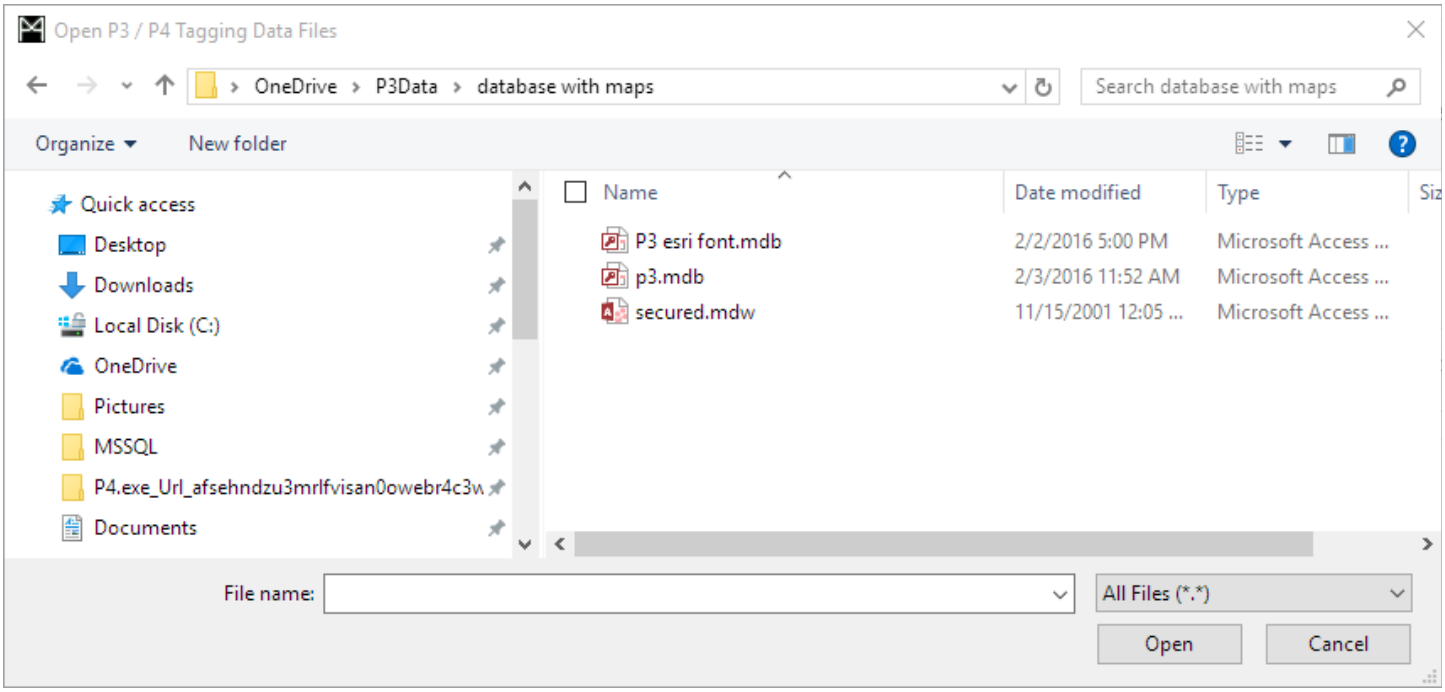
4 Import Reader Files

Used to import text files containing raw reader data which has been downloaded using another communications utility.

6.4.1. Import P3 or P4 Files

To import data from P3 or P4 formatted files, navigate to the directory where they are located and select one or more files to import. They will be parsed and displayed in the Import Data Preview screen for your review.

To import data from P3 database files, navigate to the directory where P3 is installed (usually **`C:\Program Files\PTAGIS\P3`**) and select the **P3.mdb** file. Before doing this, ensure that the file **secured.mdw** also exists in that directory. If the database file appears to contain no sessions, please check the Windows Virtual Store.

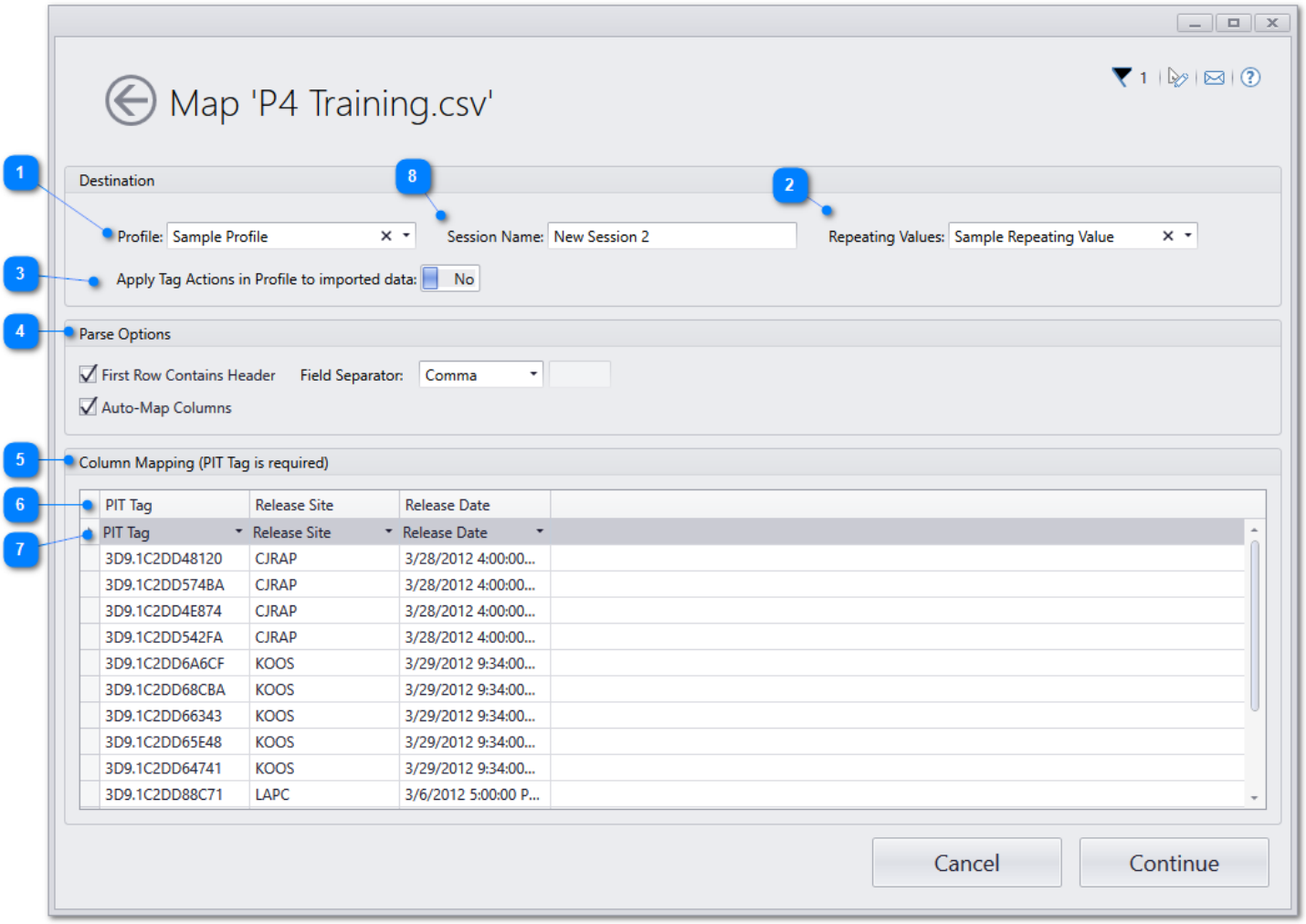


6.4.1.1. Windows Virtual Store

The Windows Virtual Store is a feature of Microsoft Windows that allows software developed before modern computer security practices were put in place to function as normal. When P3 was originally developed, it was best practice to keep the database in the installation directory (**`C:\Program Files\PTAGIS\P3`**). Now, computer security policies often make it impossible for non-administrator accounts to write to files in this directory. To solve this problem, Windows makes a copy of the file that needs to be written to (in this case, P3.mdb) and places it in a directory where non-admin accounts do have permissions to write. To find the Virtual Store location copy and paste this into the File Explorer: **`%localappdata%\VirtualStore.`**

6.4.2. Import Delimited Files

This screen is used specify import parameters for delimited files. After completing the Destination, Parse Options and Column Mapping sections, click the Continue button to preview the data and finalize the import process.



1 Profile

Optionally select a profile to apply the Default Property Values for New Sessions to the session that will be created from the imported delimited file.

8 Session Name

Enter or edit the name for the new Session that will be created.

2 Repeating Value

Optionally select a set of Repeating Values to apply to the records as they are created from the imported data. Values in the selected Repeating Value will only be entered if the source file contains no values for that field.

3 Apply Tag Actions

Set this slider to **Yes** in order to apply an Tag Actions that are enabled in the selected Profile.

4 Parse Options

Specify whether the first row in the CSV file contains column headers and the field separator. Checking the **Auto-Map Columns** box will automatically map any columns in the CSV that have the same header as P4 fields.

5 Column Mapping

This section is used to map the field names from the file being imported to P4 field names.

6 File Column Name

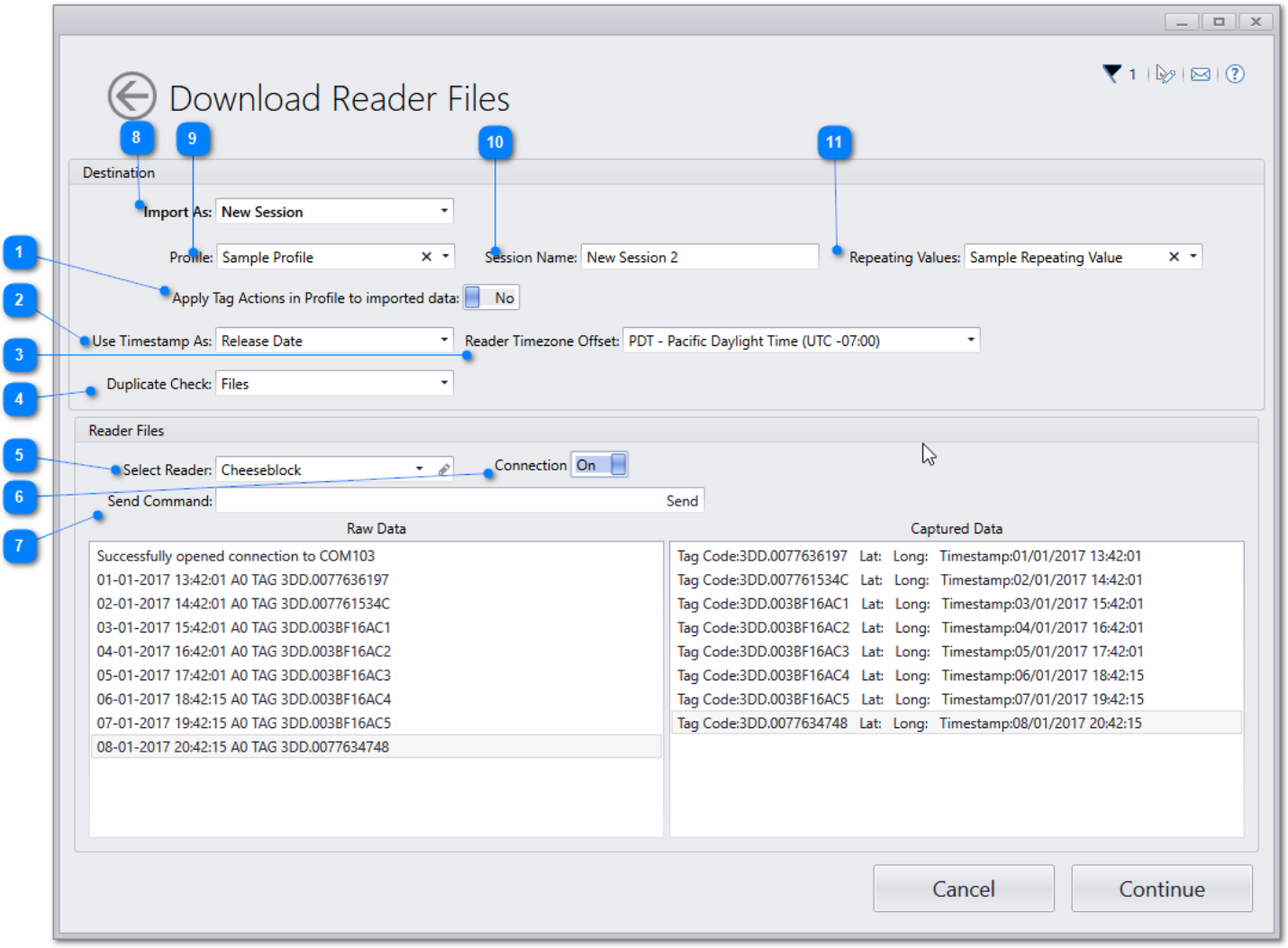
This row displays the column names found in the file being imported. If no headers exist in the file, the columns will be numbered from left to right.

7 P4 Field Name

Select the appropriate P4 field into which the file column above should be imported. If the column should not be imported, select (skip) instead.

6.4.3. Download Reader Files

Use this form to download tag codes directly from a connected reader into a new Session or Tag List. A Profile and/or a set of Repeating Values can optionally be specified to apply those values to the new session and the records in that session. If the reader stores timestamps, those timestamps can be applied to the Event Date, Release Date, or ignored. Once the reader files have completed downloading, click the Continue button to preview the imported records and finalize the import process.



8 Import As

Used to select whether to import the reader file as a new Session or as a Tag List.

9 Profile

Optionally select a Profile to apply the Default Property Values for New Session to the Session that will be created.

10 **Session Name**

Enter or edit the name for the Session or Tag List that will be created.

11 **Repeating Values**

Used to select a set of Repeating Values to apply to each record that is created from imported reader files.

1 **Apply Tag Actions**

Set this slider to Yes in order to apply an Tag Actions that are enabled in the selected Profile.

2 **Use Timestamp As**

Used to specify which field the reader timestamp should be imported into: Event Date or Release Date. If the timestamp should not be imported or the reader does not store timestamps, Ignore should be selected.

3 **Reader Timezone Offset**

Used to specify the timezone offset for reader timestamps. Defaults to the timezone offset of the local computer, and only needs to be changed if the reader is using a different timezone offset. See Dates and Times in P4 for more information.

4 **Duplicate Check**

Select whether to check for and filter out duplicate tag codes:

- *None:* All tag codes will be imported, including duplicates
- *Files*: Duplicate tag codes in the selected reader files will be ignored. Only one record will be created for each distinct tag code.
- *Files and Sessions*: Duplicate tag codes in the selected reader files will be ignored, as well as tag codes that are already in the P4 database. Only one record will be created for each distinct tag code.

5 **Select Reader**

Used to select a previously configured reader Peripheral Device from which to import tag codes. The reader must be powered on and connected to the computer.

6 **Connection**

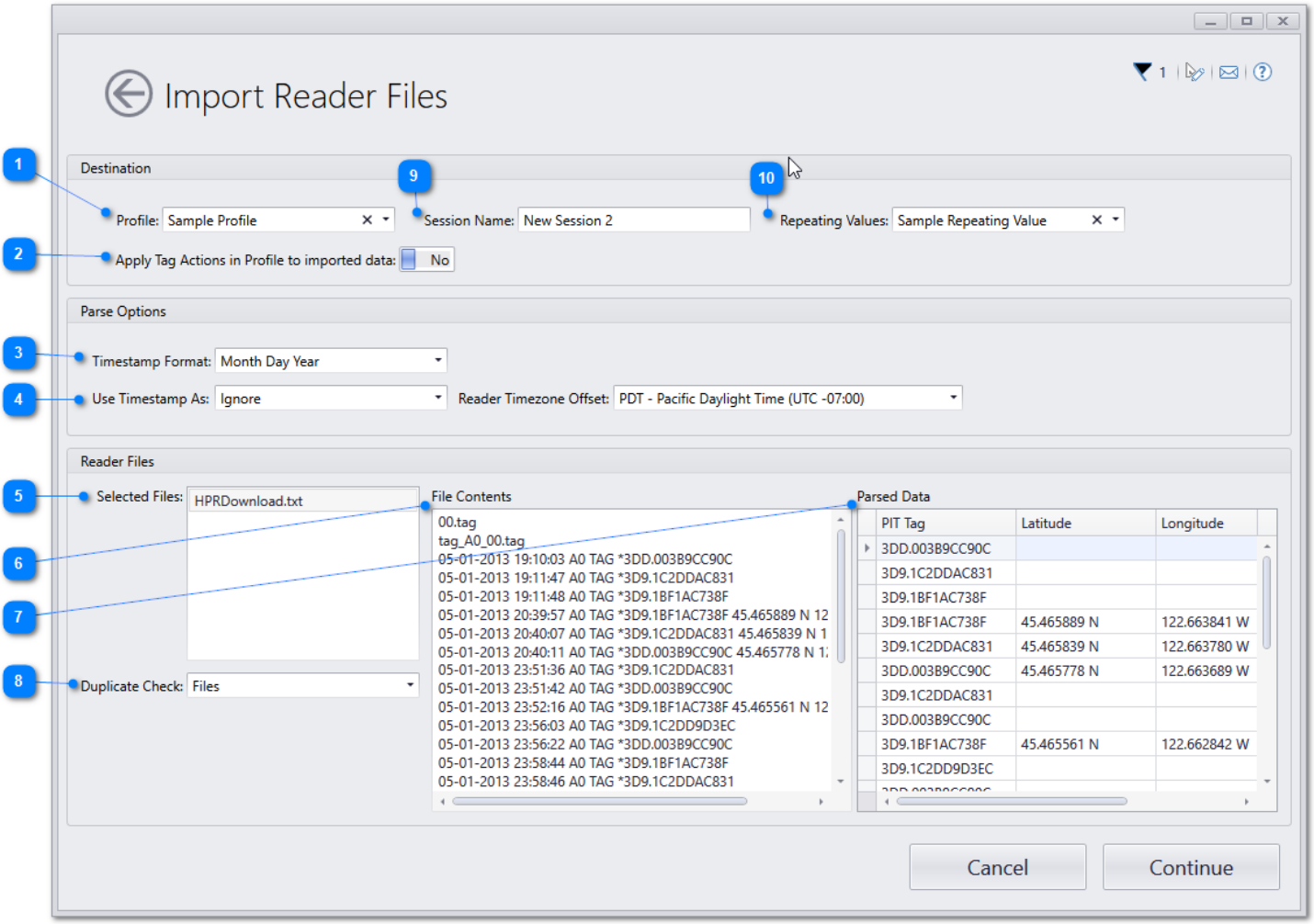
Used to open a connection to the selected reader.

7 **Send Command**

Used to send a command to the reader to download tags. This can also be initiated from the reader itself.

6.4.4. Import Reader Files

Used to import raw output from a reader that has been saved to a text file. Any text file that contains data with a tag code, timestamp, and/or lat/long coordinates on the same line can be imported using this tool.



1 Profile

Optionally select a Profile to apply the New Session Default values to the session that will be created.

9 Session Name

Enter or edit the name for the Session or Tag List that will be created.

10 Repeating Values

Used to select a set of Repeating Values to apply to each record that is created from imported reader data.

2 Apply Tag Actions

Set this slider to **Yes** in order to apply an Tag Actions that are enabled in the selected Profile.

3 Timestamp Format

Specify the format of the timestamp, if there is one, in the selected files. All files must have the same date format.

4 Use Timestamp As

Specify which field the timestamp should be imported into: Event Date or Release Date. If the timestamp should not be imported along with the tag code, Ignore should be selected.

5 Selected Files

Used to show the list of files selected to import. Click on a file to view its contents and the parsed data in the windows to the right.

6 File Contents

Displays the raw data as it is formatted in the selected file.

7 Parsed Data

Displays the data as it has been parsed from the selected file.

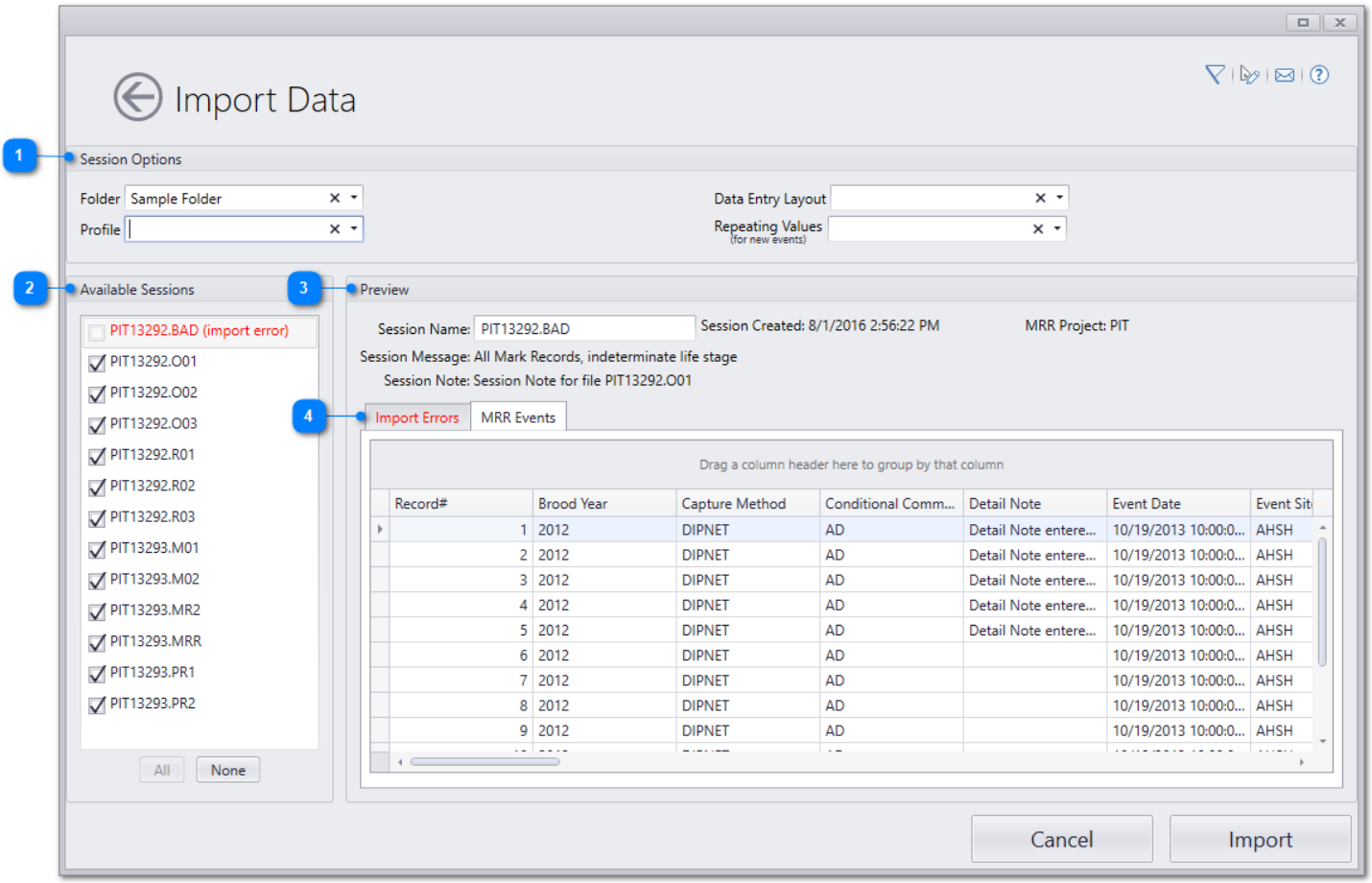
8 Duplicate Check

Select whether to check for and filter out duplicate tag codes:

- *None:* All tag codes will be imported, including duplicates
- *Files*: Duplicate tag codes in the selected reader files will be ignored. Only one record will be created for each distinct tag code.
- *Files and Sessions*: Duplicate tag codes in the selected reader files will be ignored, as well as tag codes that are already in the P4 database. Only one record will be created for each distinct tag code.

6.4.5. Import Data Preview

This screen displays a preview of the sessions that can be imported



1 Session Options

Optionally select or create a folder into which the Sessions will be saved. If planning to open the imported Sessions in data entry, it may be useful to select a Profile, Data Entry Layout and/or Repeating Value to associate with the Sessions.

2

Available Sessions

This displays the Sessions that were found in the selected file(s). Use the checkboxes to select the Sessions to be imported. Sessions with import errors will be displayed in red. Some import errors prevent Session from being imported; these will need to be edited outside of P4 before then can be imported.

3

Preview

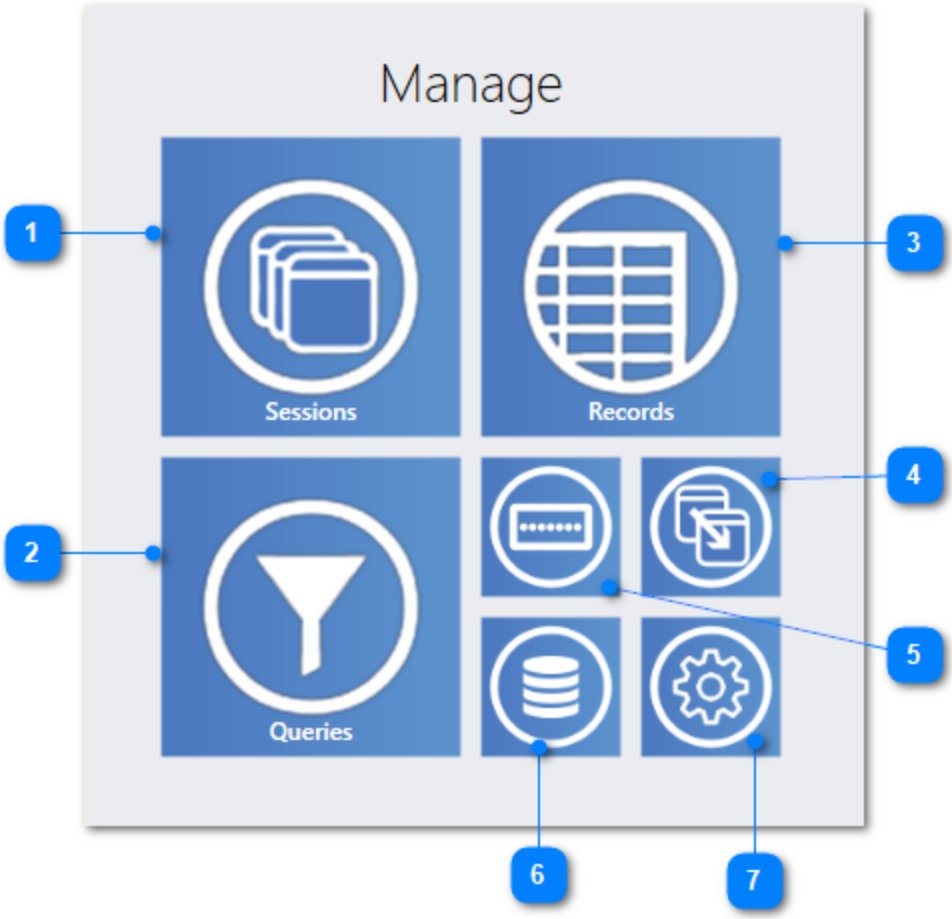
This displays a preview of how the data will look when it is imported. The Session Name can be edited here.

4

Import Errors

This tab is used to display details about errors encountered during the import process. Select (highlight) the Session with the error and click this tab to see the details.

7. Manage



1 Manage Sessions

Validate and submit Sessions to PTAGIS and perform other operations on multiple Sessions at one time, such as copying, exporting or joining.

2 Query

Create custom queries across all Sessions in the local P4 installation.

3 Manage Records

View and edit the records in individual Sessions.

4 Update Records From Another Session

Used to update values in one Session using the values stored in another Session.

5 Update Records From Tag List

Used to update and/or dot out records across multiple Sessions based on one or more Tag Lists. This tool used to be called Dot Out Records from Tag list, but in v1.22 it was enhanced to allow updating records, as well as, dotting them out.

6 Database Log

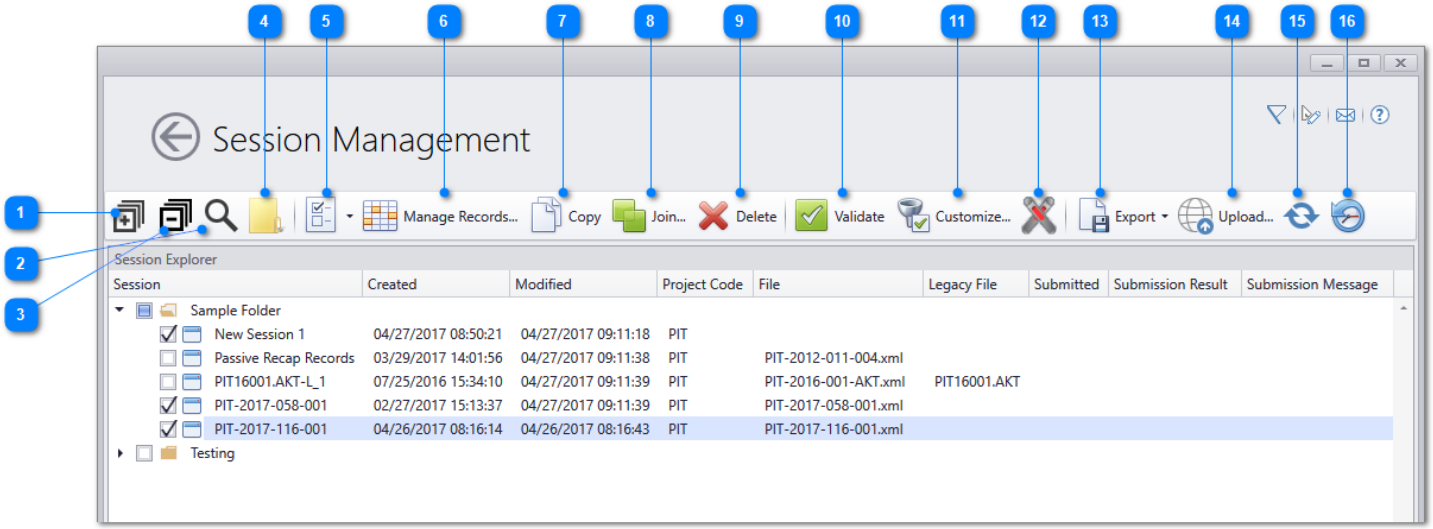
View the database log, which retains a history of actions taken within the application since it was first installed. Actions such as upgrading P4, importing and collecting data into Sessions,are recorded.

7 Utilities

A collection of utilities for exporting/importing P4 layout settings and managing the P4 database (backup, restore, clear, and shrink).

7.1. Session Management

Session Management is used to submit data to PTAGIS and to perform operations on multiple Sessions at one time.



1 Expand All Folders

Expands all folders, showing the Sessions in them.

2 Search

Opens the search panel and allows searching for Sessions by name.

3 Collapse All Folders

Closes all folders and hides the Sessions in them.

4 New Folder

Creates a new folder.

5 Check Selection

Used to check or uncheck selected (highlighted) Sessions or all Sessions.

6 Manage Records

Used to open the checked Sessions in Record Management.

7 Copy

Used to create a copy of each checked Session.

8 Join Sessions

Used to join two or more checked Sessions into one new Session.

9 Delete

Used to delete all checked Sessions.

10 Validate

Used to validate all checked Sessions. Validation results will be shown in a panel that opens at the bottom of the screen.

11 Customize Validation

Used to enable/disable the Custom Validation routines to run when validating Sessions.

12 View Duplicate Records

Used to search for duplicate records of the selected Session(s) across the entire local P4 database. Check one or more Sessions and click this button to begin. If any duplicate records are found in the selected Sessions, the Duplicate Records screen will open.

13 Export

Used to export each checked Session to the specified format.

14 Upload

Used to submit all checked Sessions to PTAGIS for loading.

15 Refresh Status

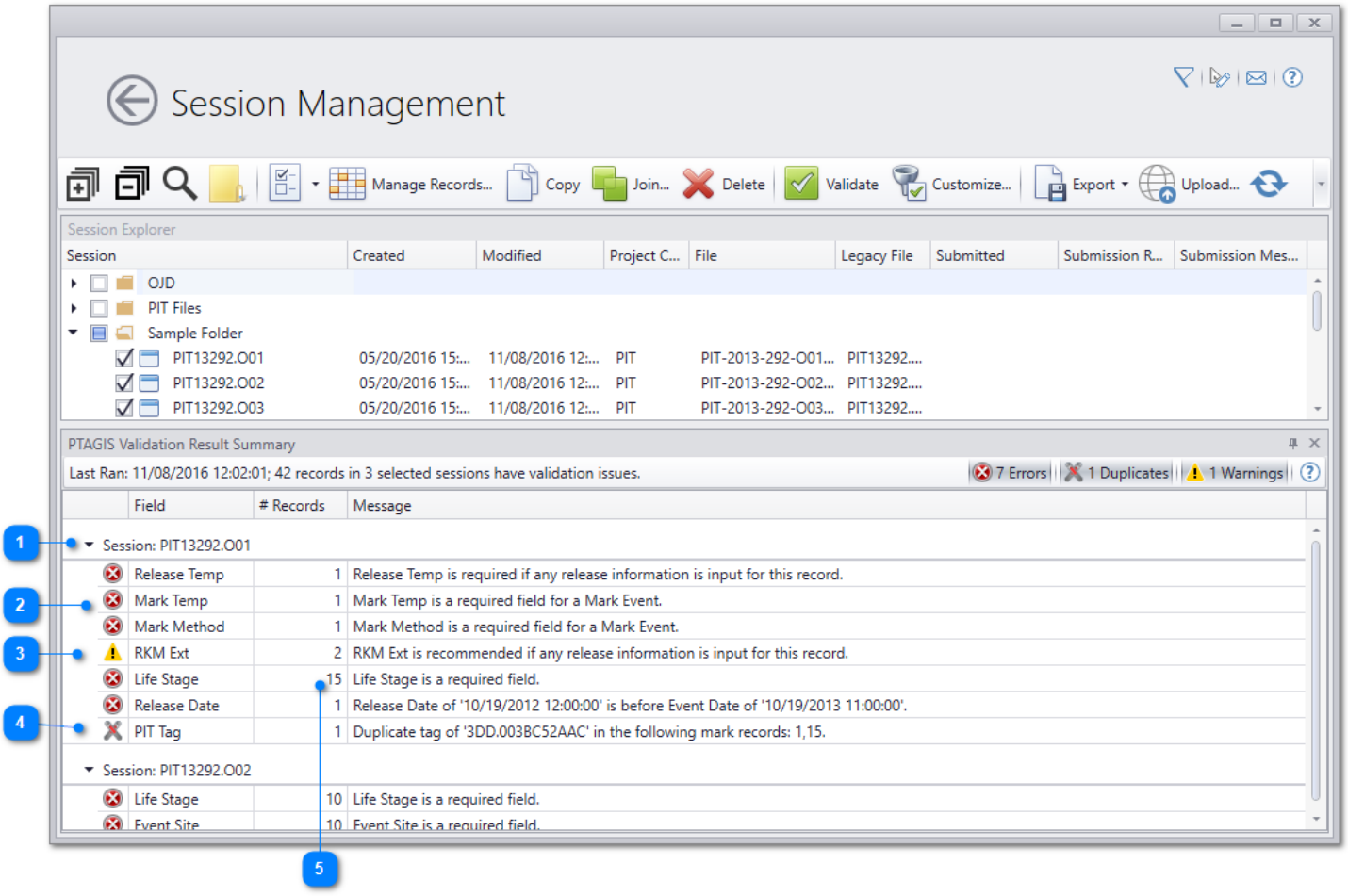
Used to refresh the file load status of submitted Sessions manually or to enable auto refresh of status every time Session Management is opened.

16 Get Upload History

Used to open a report in the default browser that shows the complete upload history for all checked Sessions. Access to the internet is required for this feature.

7.1.1. Validation Results Summary

Validation in Session Management can be performed on multiple Sessions at once. The validation results are summarized per Session, displaying the number of records per validation failure.



1 Session

Name of the Session with validation failures.

2 Error

A validation error is marked with a red X icon and indicates an error that must be corrected before the file can be submitted to PTAGIS for loading

3 Warning

A validation warning is marked with a yellow exclamation point icon and indicates an error that should be reviewed, but won't prevent the file from being submitted to PTAGIS. Validation Constraints will also be displayed as a warning.

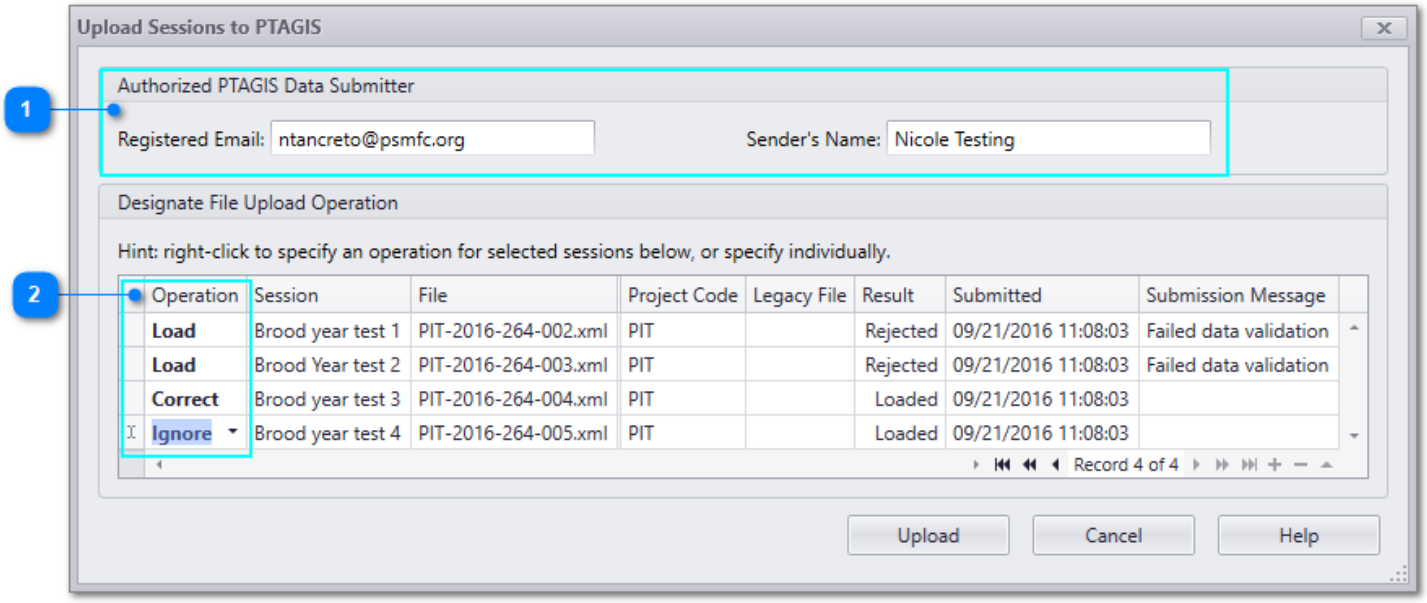
4 Duplicate

Duplicate records are marked with this icon, and indicate that two records exist in the Session with the same PIT tag code and an event type of Mark. Multiple records with the same PIT tag code are allowed in a Session, as long as the Event Types of the records make sense, i.e. only one mark event exists for that PIT tag code.

5 Number of Records

Number of records with that particular validation failure in the Session.

7.1.2. Upload Sessions to PTAGIS



1 Authorized Data Submitter

Enter the email address and name of person submitting the Sessions to PTAGIS. That person must be an authorized data submitter for the Project Codes used in the Sessions.

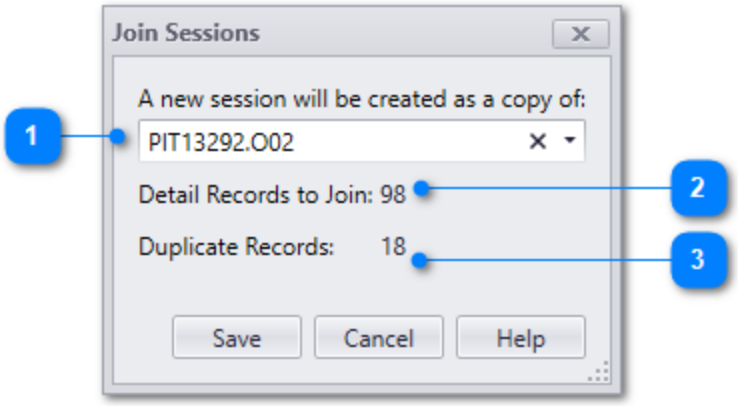
2 **Operation**

Specify the operation that should be performed for each Session. To set the operation for each Session individually, click into the field and select the appropriate operation from the list. To set the same operation for multiple Sessions at once, highlight them and right-click to select the appropriate operation.

- *Load*: Used to submit a file containing new, previously unloaded records.
- *Correct*: Used to correct the previously loaded version of this file.
- *Ignore*: Used if a Session has been checked by mistake and should not be processed.

7.1.3. Join Sessions

Join Sessions is used to combine two or more checked Sessions into one newly created Session. It copies the records from each of the checked sessions into a newly created Session, including any duplicate records.



1 **New Session as Copy Of**

Select the Session that will be used to populate the Session Properties of the new Session that will contain all the records.

2 **Detail Records to Join**

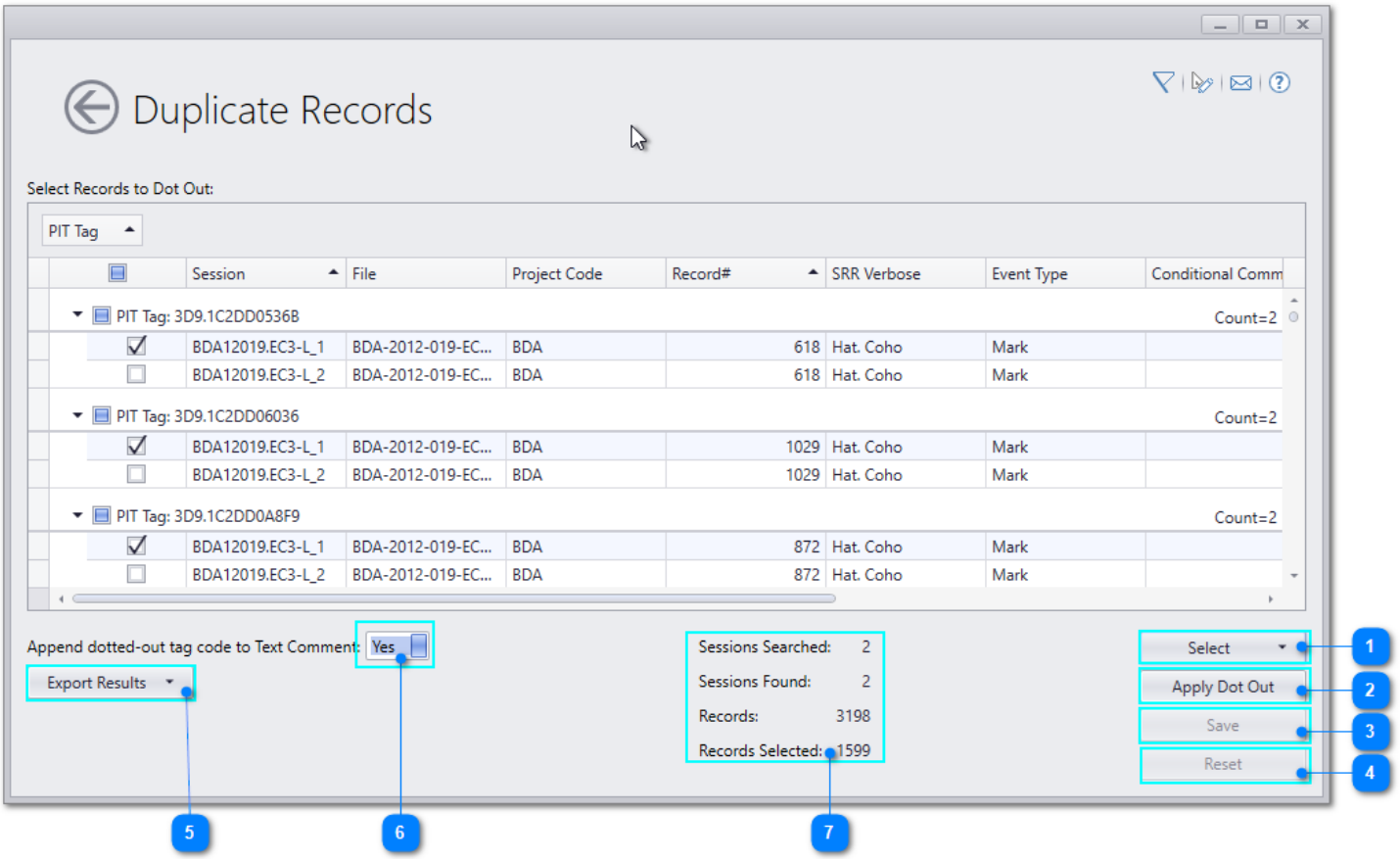
Displays the number of records that will be in the new Session.

3 **Duplicate Records**

Displays the number of those records that are duplicates.

7.1.4. Duplicate Records

This is the results screen of the View Duplicate Records button in the Session Management tool bar. This tool will search the selected sessions and show records that appear to be duplicates across those sessions. Records are grouped by PIT Tag to enable comparing the duplicates side-by-side. To reconcile duplicate records, either change the Event Type of individual records directly or select one or more records to dot-out.



1 Select Tags To Dot Out

Used to automatically dot out all duplicates of each tag code except for the first record or the last record. Individual records can also be selected for dotting out by checking the box in the grid next to the record that should be dotted out.

2 Apply Dot Out

Used to dot out the selected records and display the a preview of the results in the grid. If the results are satisfactory, the Save button will write those changes to the database. If the results should not be saved to the database, use the Reset button.

3 Save

Used to save the applied dot-outs preview to the database. Once this button is clicked, the dot-outs cannot be undone.

4 Reset

Used to undo the applied dot-outs preview and cancel the dot-out operations. Can only be used if the Save button has not been clicked.

5 Export Results

Used to export the duplicate search results to Excel.

6 Append Dot Out Tag Code To Text Comments

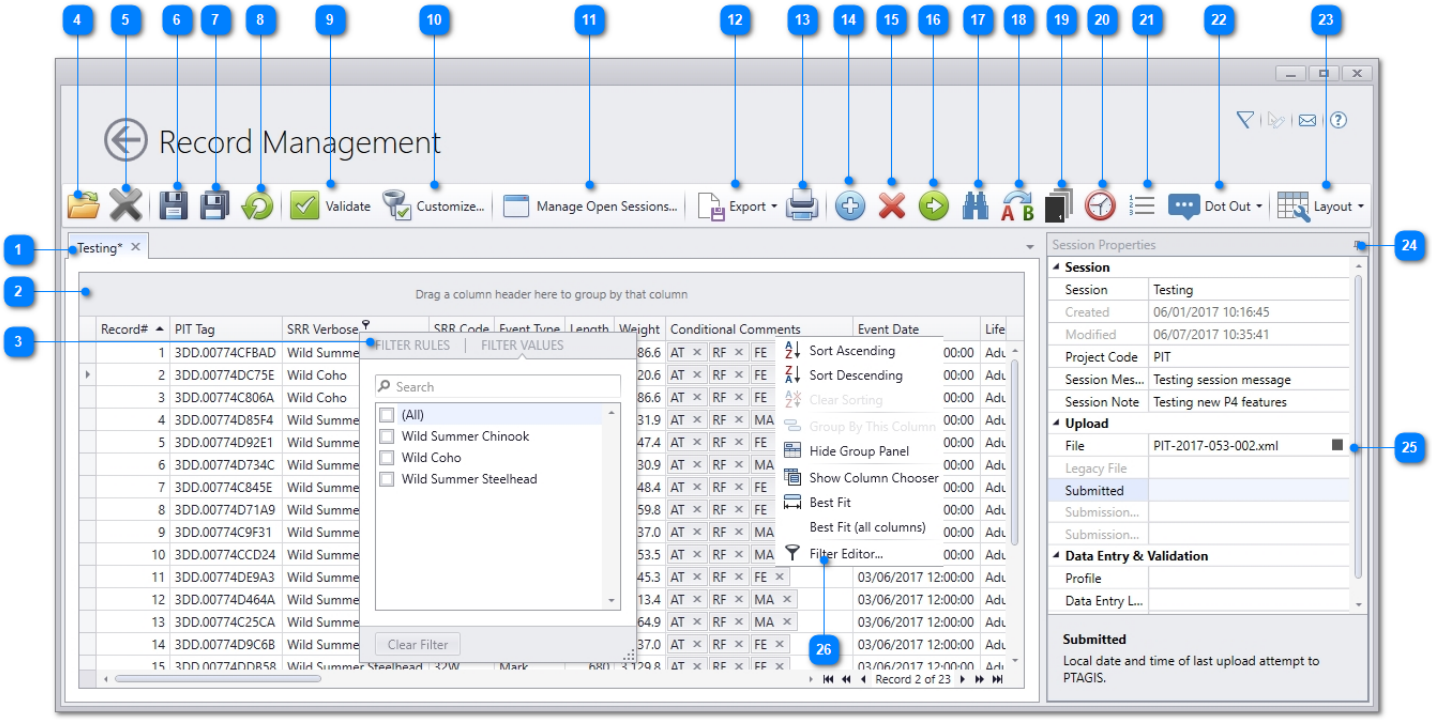
Used to specify that the dotted-out tag codes should be written to the Text Comments field when applied.

7 Duplicate Search Results

Provides a summary of the number of sessions searched, number of sessions with duplicate records, total number of duplicate records found, and number selected for dotting out.

7.2. Record Management

Record Management is used to view, validate and edit Sessions in a tabular view. Multiple Sessions can be opened at one time into tabbed documents, which are also dockable into horizontal or vertical views.



1 Active Session

A table view of all the records in a Session. Records can be edited individually, filtered, and sorted (right-click on column header). Column layout can be customized and will be saved for each Session separately.

2 Group Panel

Used to group event records by one or more columns.

3 Filter Rules/Filter Values

Left click the filter icon in any column to filter by selecting values or by specifying rules. This feature is also available in Query Management and can be used to create a query rather than the filter editor.

26 Right-Click Menu

Right-clicking any column header will bring up this context menu, which offers the following functions:

- *Sort Ascending:* sort records by the selected column in ascending order
- *Sort Descending:* sort records by the selected column in descending order
- *Clear sorting:* clear sorting on the current column
- *Group By This Column:* groups records by the values in the selected column
- *Show Group Panel:* shows the columns being grouped on and offers access to the Group Summary Editor
- *Show Column Chooser:* shows a list of columns not displayed on the active session in order to add them to the grid
- *Best Fit:* resizes the width of the selected column based on the lengths of the values in that column
- *Best Fit (all columns):* resizes all columns based on the lengths of the values in them
- *Filter Editor:* opens the filter editor to allow filtering on records in the active Session

4 Session Explorer

Used to open the Session Explorer to select Session(s) to open.

5 **Close All Sessions**

Used to close all open Sessions.

6 **Save Session**

Saves the active Session.

7 **Save All Sessions**

Saves all open Sessions that have unsaved changes.

8 **Reject Changes**

Undoes all changes that have been made to the active Session since the last time it was saved.

9 **Validate**

Validates the active session and opens a panel at the bottom of the screen showing the validation results.

10 **Customize Validation**

Enable or disable Custom Validation routines to run when a session is validated.

11 **Manage Open Sessions**

Used to navigate to Session Management and select the Sessions currently open in Record Management.

12 **Export**

Export the active Session to Excel, CSV, or P4 file.

13 **Print**

Print the active Session.

14 **New Record**

Add a new record to the active Session.

15 **Delete Record**

Deletes selected records in the active Session.

16 **Go To Record**

Used to move the grid view to the specified record number. The keyboard shortcut of ALT-G will also perform this task.

17 **Find and Replace**

Used to search for a specific value in one field/column in the active Session and replace it with another value.

18 **Fill Records**

Used to set, overwrite, or append to multiple fields/columns in the active Session.

19 **Batch Update**

Used to edit multiple records in the current session based on a value in a batch field. For example, if fish from specific raceways were released in different locations or at different times, the Raceway field can be used to group these records and the release information can be updated based on those groups.

20 **Adjust Dates**

Used to replace or adjust a part of a date/time value.

21 **Resequence Records**

Used to renumber the records in the session using the current sort order.

22 **Dot Out**

This menu has several methods for dotting out records:

Selected Records will dot out any records in the currently active Session that have been selected (selected records show up as highlighted in the grid).
All Records will dot out all the records in the currently active Session regardless of any filtering currently enabled on the grid.
All But First Duplicate will dot out any duplicate records, except for the first record with that tag code.
All But Last Duplicate will dot out any duplicate records except for the last record with that tag code.
Append Dot-Out Tag to Text Comments will add the tag code of any dotted-out records to the Text Comments field.

23 **Column Layout**

- Save the current column layout as the default layout to use for newly opened Sessions.
- Reset the column layout of the active Session to the default layout.
- Open the column chooser to add columns to the active Session.

24 **Session Properties**

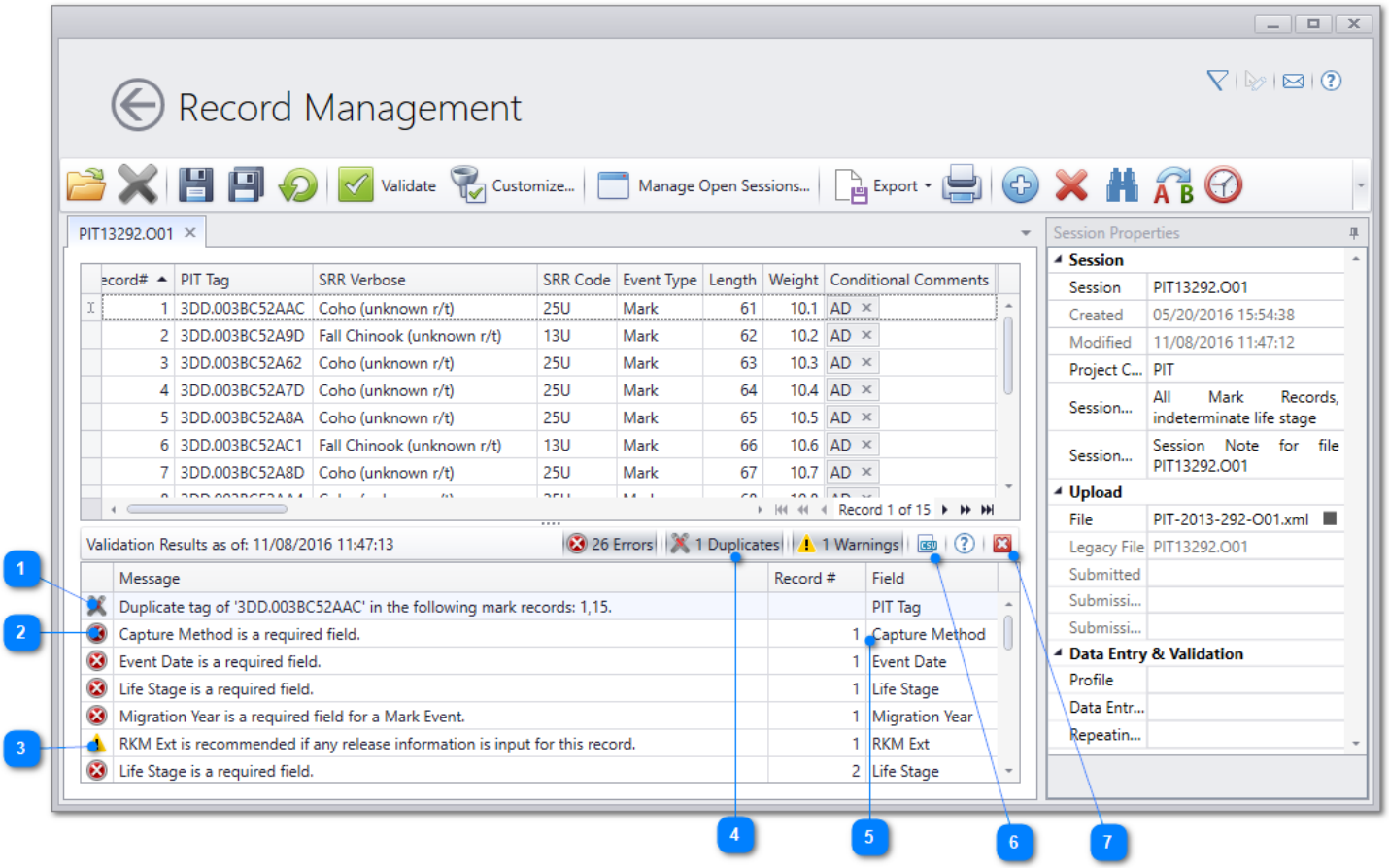
Edit session-level values, such as Session Message, Session Note, Session name, Project Code, and File Name. View other session properties, such as created and modified dates.

25 **Reset File Name**

Used to change the File Name to match the earliest Event Date in the active Session.

7.2.1. Validation Results

Validation in Record Management is performed on one Session at a time and shows validation failures on a per-record basis.



1 Duplicates

Records with the same PIT Tag and Event Type values are marked as Duplicates during validation. Multiple records with the same PIT tag are allowed in a single Session, as long as the Event Types make sense: there can only be one record with a Mark event type, but there could be multiple records with Recapture event types.

2 Errors

Validation failures that prevent the Session from being submitted to PTAGIS are marked as Errors during validation. These errors will need to be corrected before the Session can be submitted to PTAGIS for loading.

3 Warnings

Validation failures that do not prevent the Session from being submitted to PTAGIS are marked as Warnings during validation. Validation Constraints will also be marked as warnings.

4 Show/Hide Validation Failure Types

These tabs are used to toggle between showing and hiding the validation failures of each type.

5 Field to Correct

Shows the field that needs to be edited to correct the validation failure. Click the field name to be taken directly to the cell that needs to be edited.

6 Export to CSV

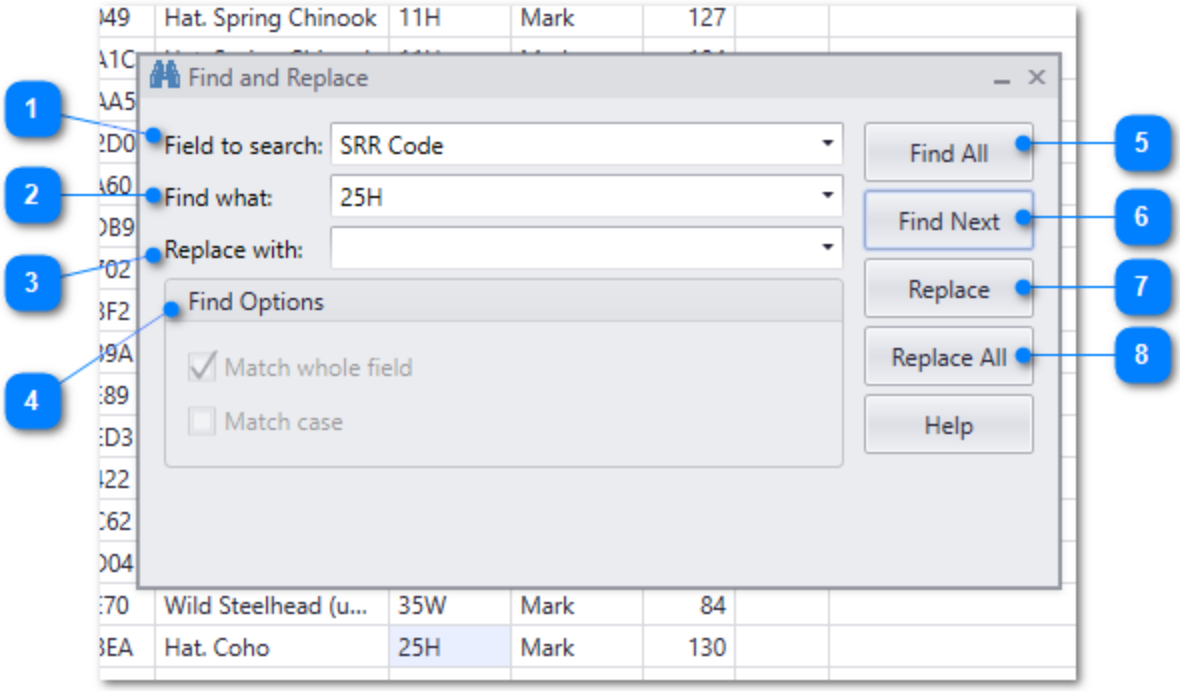
Used to export the validation results to a CSV file.

7 Close Validation Results

Used to close the Validation Results panel.

7.2.2. Find and Replace

Find and Replace is a dockable panel that can be used to search for values within a specified field and optionally replace them. It can also be used to find blank fields and to insert a value into them. It can be accessed by clicking the binoculars icon on the Record Management tool bar or by hitting CTRL-F on the keyboard.



1 Field to Search

Select the field in which to search for values. If a field in the active Session is selected when Find and Replace is opened, it will also be selected here.

2 Find What

Select or enter the value to search for, or leave blank to search for blank values. If a cell in the active Session is selected when Find and Replace is opened, the value in that cell will also be selected here.

3 Replace With

Select or enter the value that should replace the searched for value when the Replace All button is clicked. If this field is left blank, the searched for value will be cleared when the Replace All button is clicked.

4 Find Options

These options are only available for text fields and the Conditional Comments field. By default, Find and Replace will search for partial values in these fields. If the entire value should be matched, check the *Match whole field* box. If the case matters for the value to be replaced, check the *Match case* box.

5 Find All

Use this button to find all records in the active Session where the Field to Search and the Find What value match. A message box will display the number of matching records found. All matching records will be highlighted and the grid will be scrolled down to the first matching record.

6 **Find Next**

Use this button to find the next matching record. The matching cell will be highlighted and the grid will be scrolled down to the first matching record.

7 **Replace**

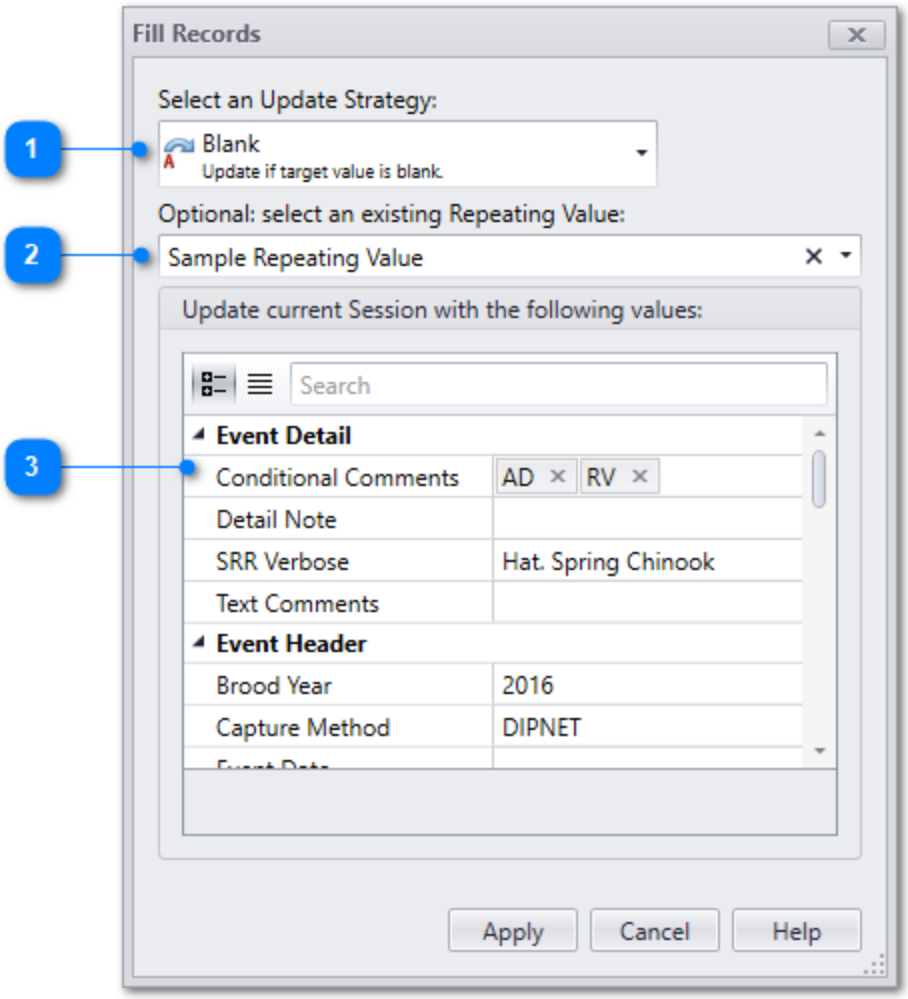
Use this button to replace the currently highlighted matching Find value with the Replace value.

8 **Replace All**

Use this button to replace all matching Find values with the Replace value. When the operation has completed a message box will display th number of records that were edited.

7.2.3. Fill Records

The Fill Records feature can be used to insert, overwrite, or append values to multiple fields in a Session at one time. Saved Repeating Values can be used as a source of the update values.



1 Update Strategy

Select the strategy to use when updating values:

- *Append:* Append the update value to current value, if possible. If the field has an update type of *Overwrite Only*, the value set by this command will overwrite any existing value. If the field has an update type of *Append with Space*, the value set by this command will append to any existing value with a space between the old and new value. If the field has an update type of *Append Without Space*, the value set by this command will append to any existing value without a space between them. See Field Update Types for more information.
- *Blank:* Insert the update value only if the field in the Session is currently blank/null.
- *Overwrite:* Insert the update value regardless of the current value of the field in the Session. Any current values will be overwritten by the new value, even if that field has an update type that indicates it can be appended to.

2 Select Repeating Value

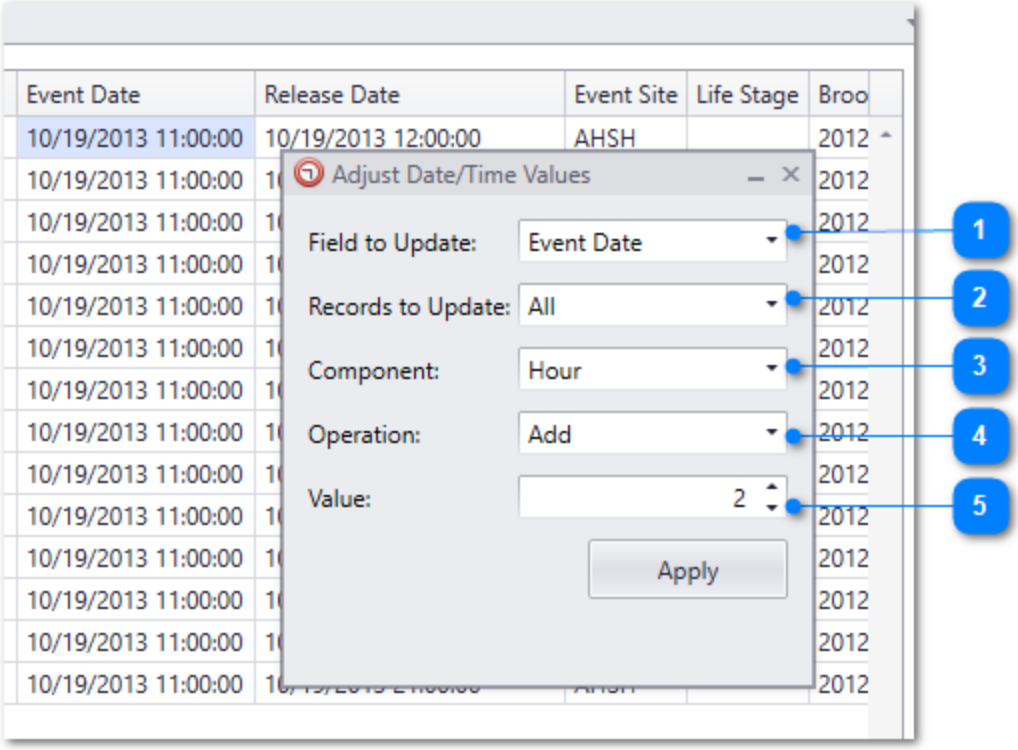
Optional - select a saved set of Repeating Values to fill in the update values. Update values can be edited by the user prior to applying them to the Session.

3 Update Values

Enter values into fields to have those values inserted into the Session according to the Update Strategy selected above. Only the fields that contain an update value will be edited, blank fields will be ignored.

7.2.4. Adjust Dates

Adjust Date is a dockable panel that can add to, subtract from, update from another filed, or replace any part of a date/time field. In the example below, all the Event Date values in the active Session will be updated by adding 2 to the hour. This will change the Event Date from 10/19/2013 11:00:00 to 10/19/2013 13:00:00.



1 **Field to Update**

Select the date field to be updated. The column must be on the active Session grid to be included in the drop-down list.

2 **Records to Update**

Select to update all records in the Session or only the selected records.

3 **Operation**

Select the operation to perform on the selected component. Choices are Replace, Add, Subtract or Update.

4 **Component**

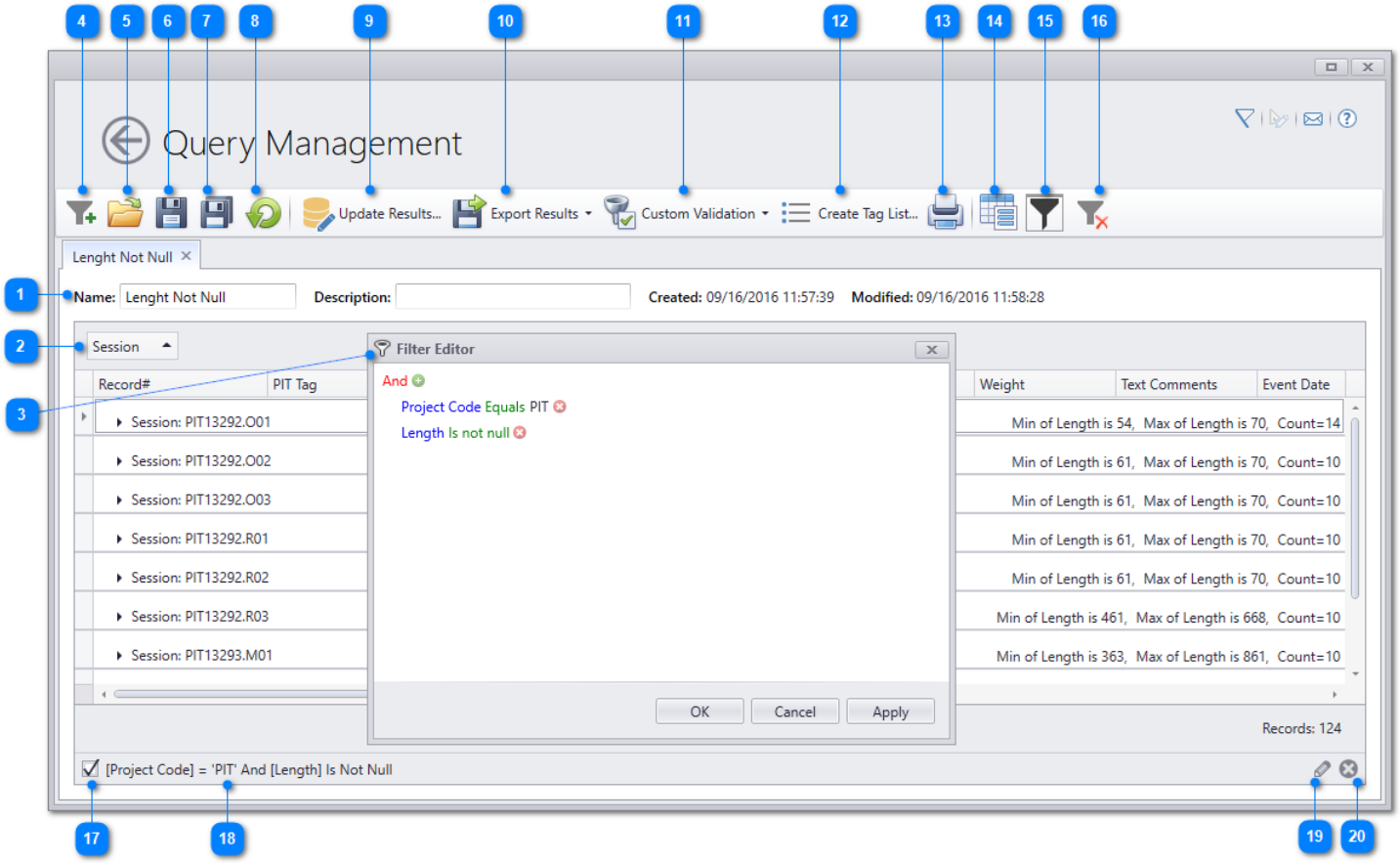
Select the date or time component to update. Choices are Year, Month, Day, Hour, Minute or Second. This field is only available when Update is not the selected Operation.

5 **Value**

Enter the value with which to complete the operation. This field is only available when Update is not the selected Operation.

7.3. Query Management

The Query feature is used to query the P4 database. Simple and complex filter statements can be built using the Filter Editor and the results set can be exported, used to create a Tag List, or updated. Filter statements can also be used to create Custom Validations.



1 Query Properties

The name, description, created date, and modified date of the Query.

2 Group By Panel

Displays the group by fields for the Query and gives access to the Group Summary Editor and other group by properties via a right-click context menu.

3 Filter Editor

Used to build the statements that define the Query.

4 New Query

Used to create a new Query.

5 Open Query

Used to open a previously saved Query.

6 Save Query

Save the active Query.

7 Save All Queries

Save all open Queries.

8 **Reset Query**

Undo any changes made to the active Query since the last time it was saved.

9 **Update Query Results**

Used to update the records returned by a query.

10 **Export Results**

Used to export query results to CSV or Excel file.

11 **Custom Validation**

Used to create or update a Custom Validation tool from the definition of the active Query.

12 **Create Tag List**

Used to create a Tag List from the results of a Query.

13 **Print Results**

Print the results of a Query.

14 **Show Column Chooser**

Used to add available columns to the Query results set.

15 **Show Query Editor**

Shows the Filter Editor, which is used to build the statements that define the Query.

16 **Clear Query**

Clears all statements from the Filter Editor.

17 **Disable Filter**

Uncheck this box to temporarily disable the filter, but not clear it. Check the box to enable it again.

18 **Filter Details**

Displays the Query definition.

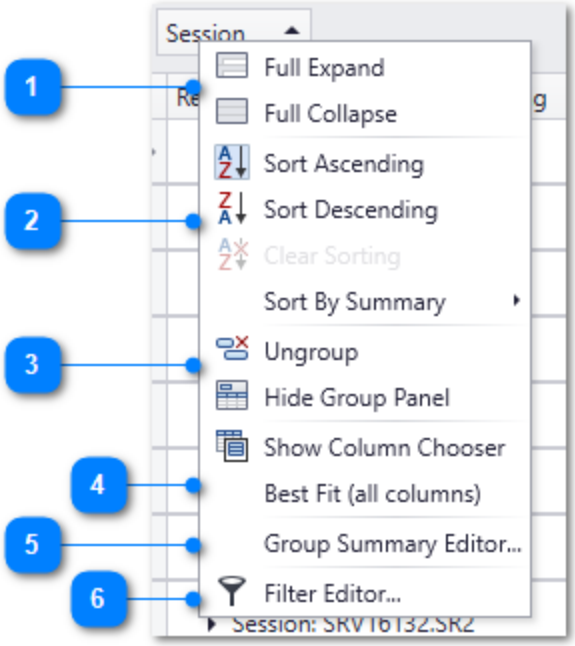
19 **Edit Filter**

Opens the Filter Editor for the active Query.

20 **Clear Filter**

Clears all statements from the Filter Editor.

Group Panel Right-click Context Menu



1 Full Expand / Collapse

Expand (show all records) or collapse (hide records) all groups in the Query results.

2 Sorting

Sort records in ascending or descending order using the group by field. If summary values have been enabled, the Sort by Summary option allows sorting by those values.

3 Ungroup / Hide Group Panel

Select Ungroup to remove the group by field. Select Hide Group Panel to hide the panel from view. The group by will still be in effect if the panel is hidden.

4 Column Chooser / Best Fit

Open the column chooser to add available columns to the Query results. Select Best Fit to make all column widths fit the contents of the fields.

5 Group Summary Editor

Opens the Group Summary Editor.

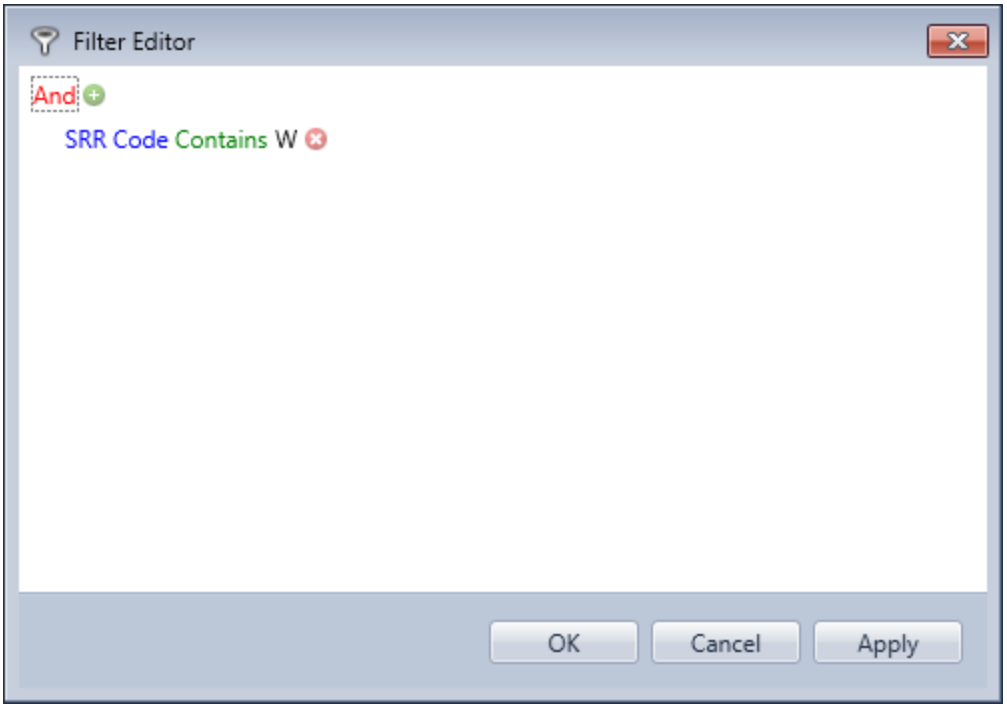
6 Filter Editor

Opens the Filter Editor.

7.3.1. Filter Editor

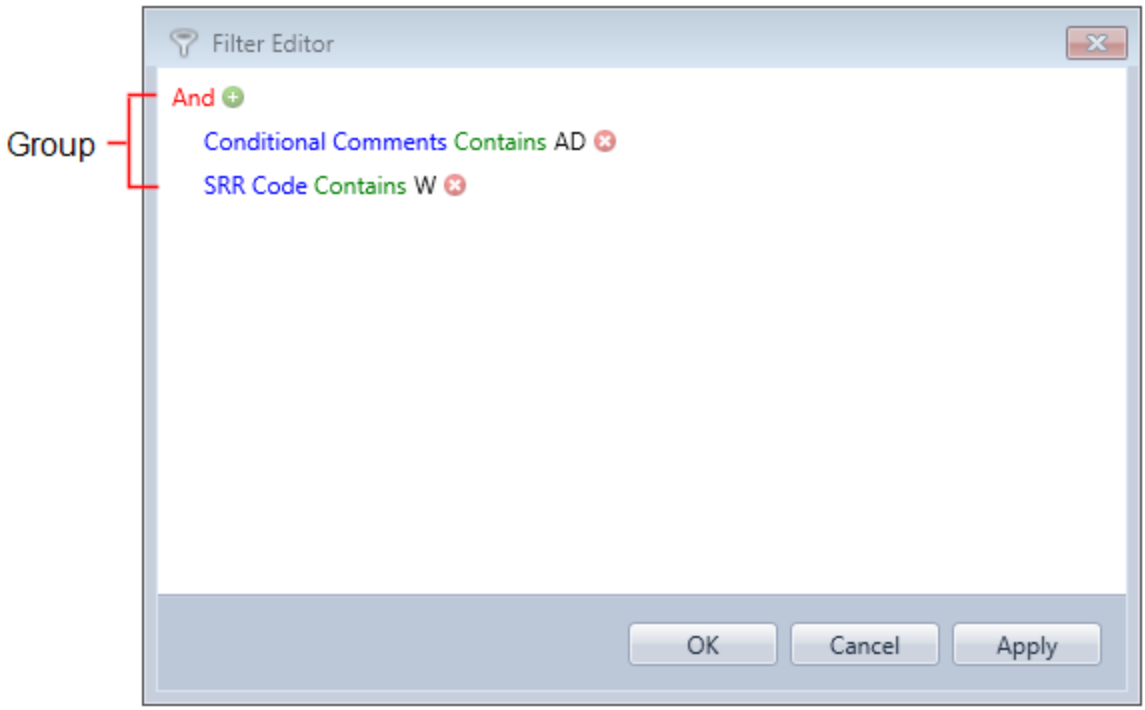
The Filter Editor can be used to build complex statements to filter records from a single Session (in Record Management) or across Sessions (in Query Management). It displays the criteria in a tree structure where the nodes are the logical operators linking the conditions under them.

A single condition still appears under a node. The query criteria in this image will return all records where the SRR Code contains the letter W.



If another condition is added underneath the And node, the filter criteria will return records where both the conditions are true:

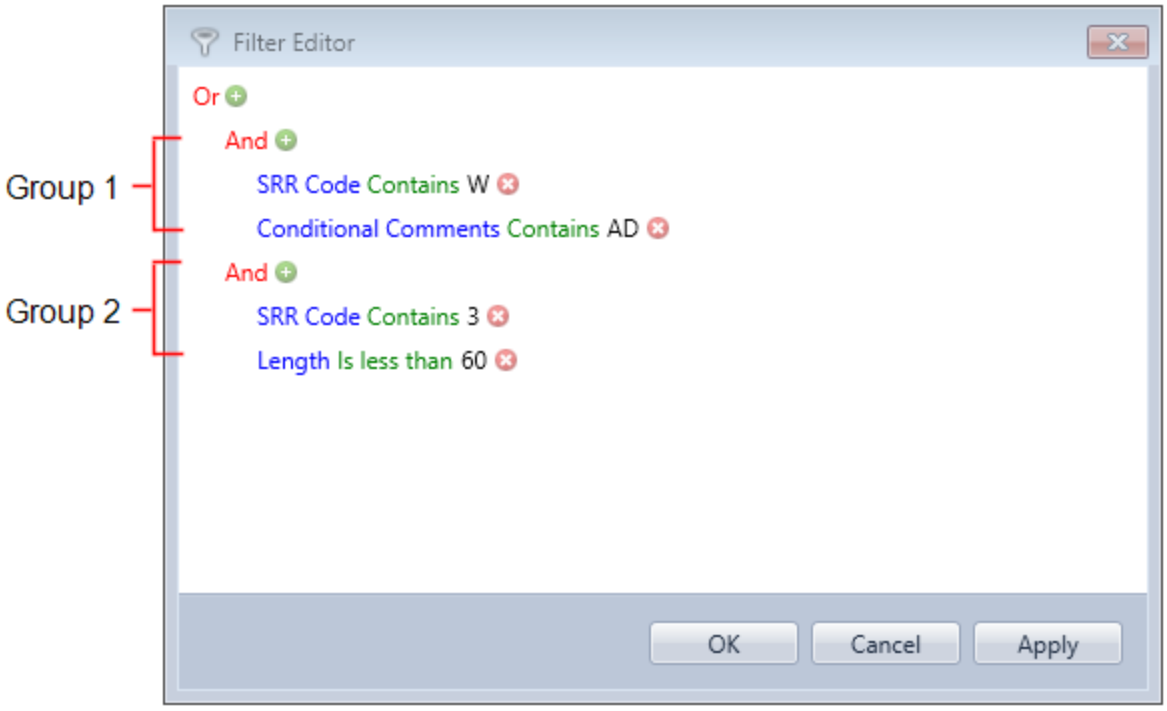
```
[Conditional Comments] contains 'AD'
AND
[SRR Code] contains 'W'
```



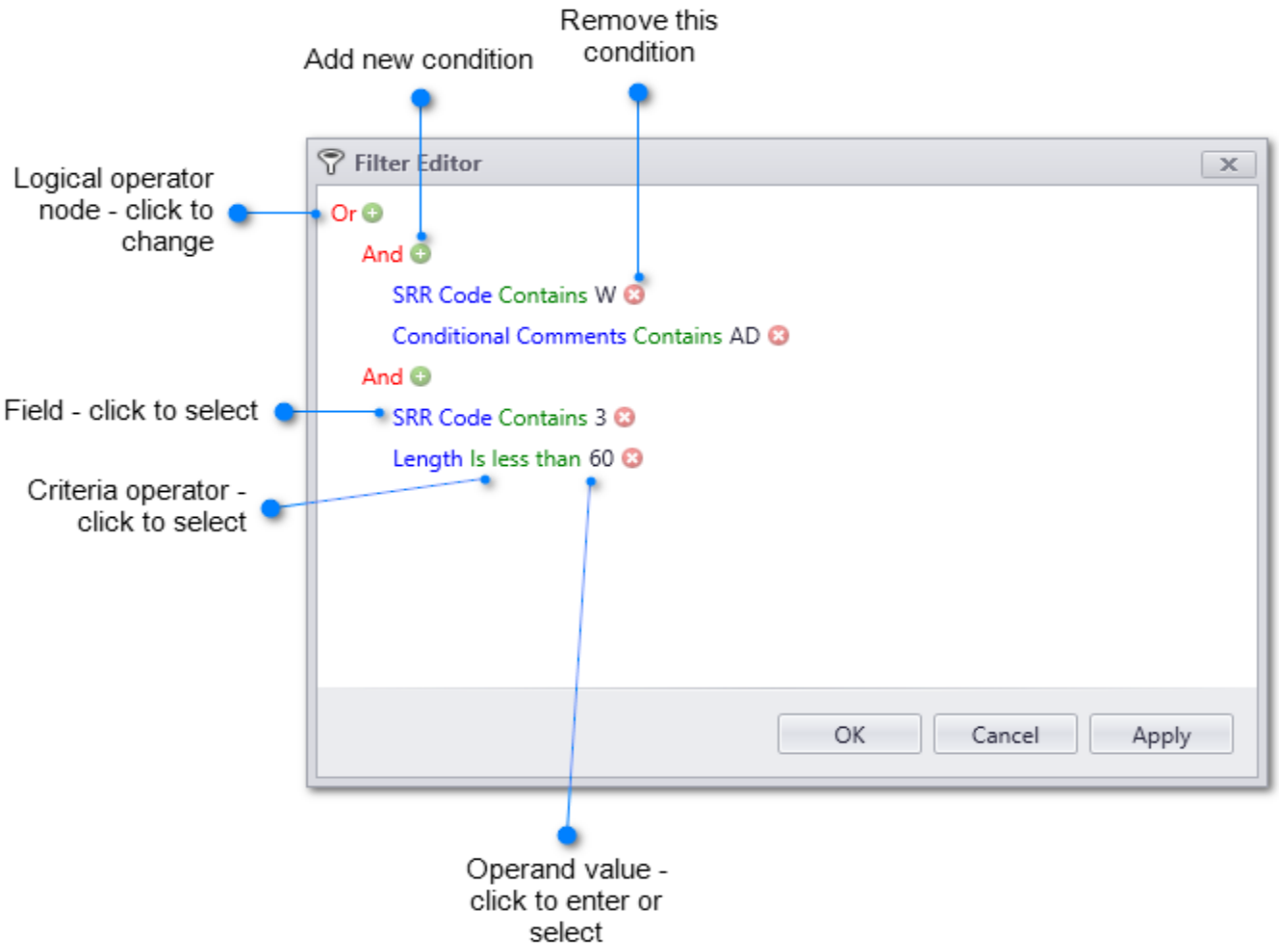
For more complex filtering criteria, there can be multiple groups of conditions, each with its own logical operator node. This filter criteria will return records that match the following expression:

```
([SRR Code] contains 'W' and [Conditional Comments] contains 'AD')
OR
```

```
([SRR Code] contains '3' and [Length] < 60)
```

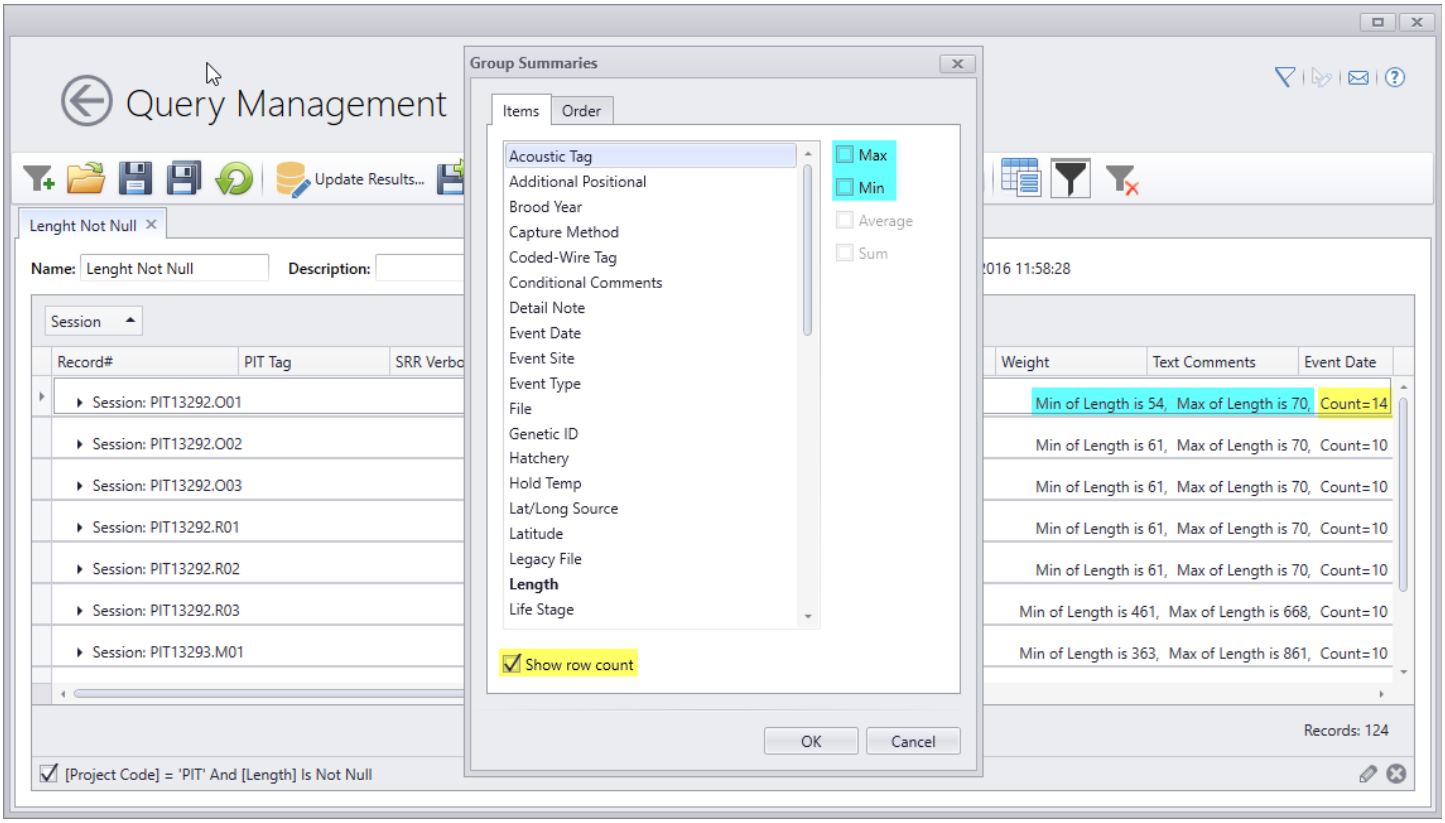


A context menu can be accessed by clicking on any of the logical operator nodes, which gives access to change the operator, remove the group, add a new group, or add a new condition. Other elements of the Filter Editor interface are labeled in the image below.



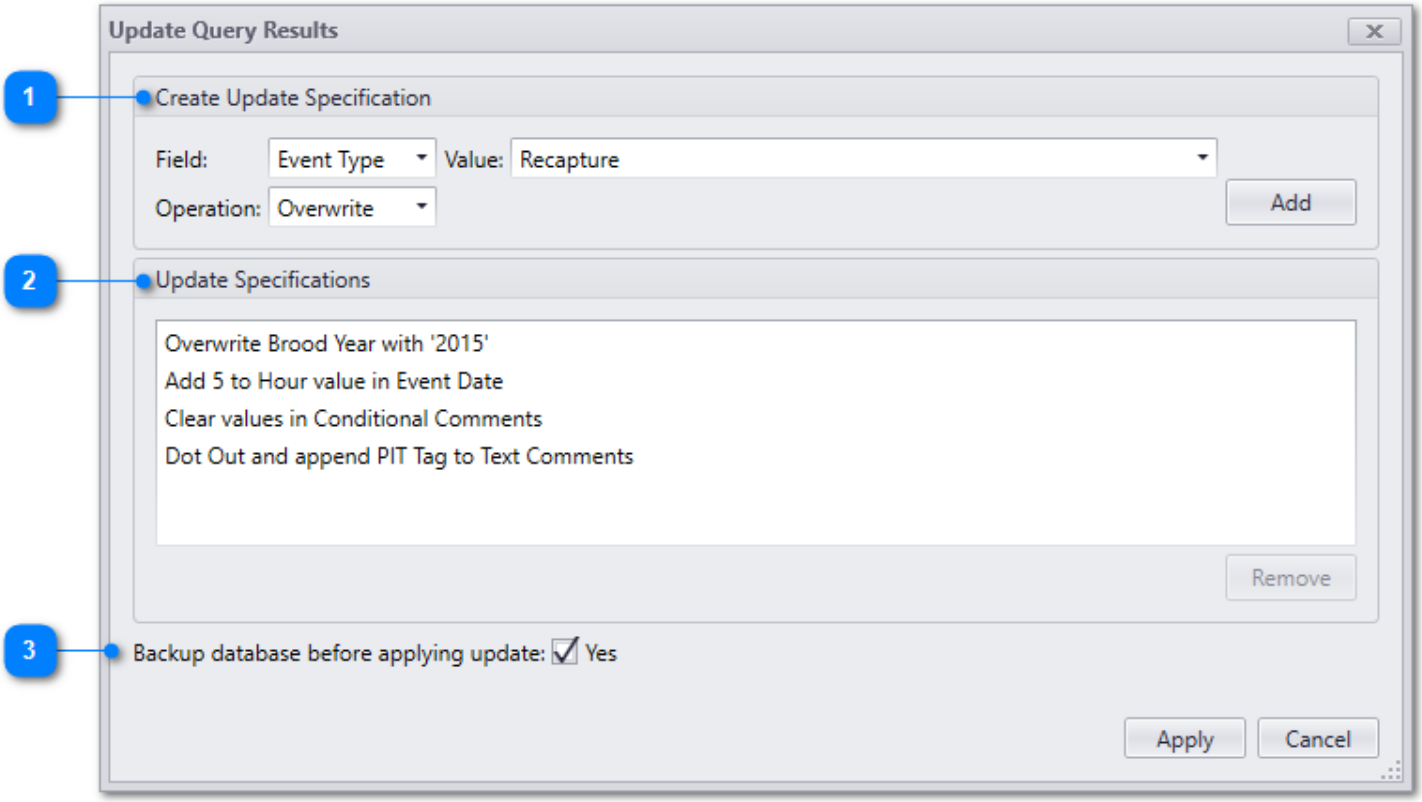
7.3.2. Group Summary Editor

The Group Summary Editor is used to display aggregate values (minimum, maximum, average, sum) and row counts in Query Management and Record Management. Queries are grouped by the Session field by default, as seen in the screenshot below. The Group Summary Editor can be opened from the context menu that is displayed when the group by field is right-clicked. It shows a list of the fields available. In the example below, minimum and maximum length values will be shown for each group, along with a row count. Since the group by field is Session, the group summaries show the minimum length, maximum length, and number of records per Session.



7.3.3. Update Query Results

The results set of a Query can be updated using this tool, allowing updates of records in multiple Sessions to be made in one step, rather than opening each individual Session in Record Management and updating records a Session at a time. This feature can be used to dot out records, replace a whole value with another value, replace part of comment with a new value, clear a field, append to a text field, or fill in empty values. Event and Release dates cannot be edited with this feature and must be edited in Record Management.



1 Create Update Specification

This is used to build the statements that will update the query results set. Follow these steps to add one or more update specifications:

1. Select the field to update.
2. Select the operation that will be applied to that field. The options available here depend on the field selected in step 1.
3. Complete the details as required for each operation. For example, if the selected operation is Overwrite, then specify the value that will replace (overwrite) the current value in that field.
4. Click the Add button to add the statement to the Update Specifications window.

2 Update Specifications

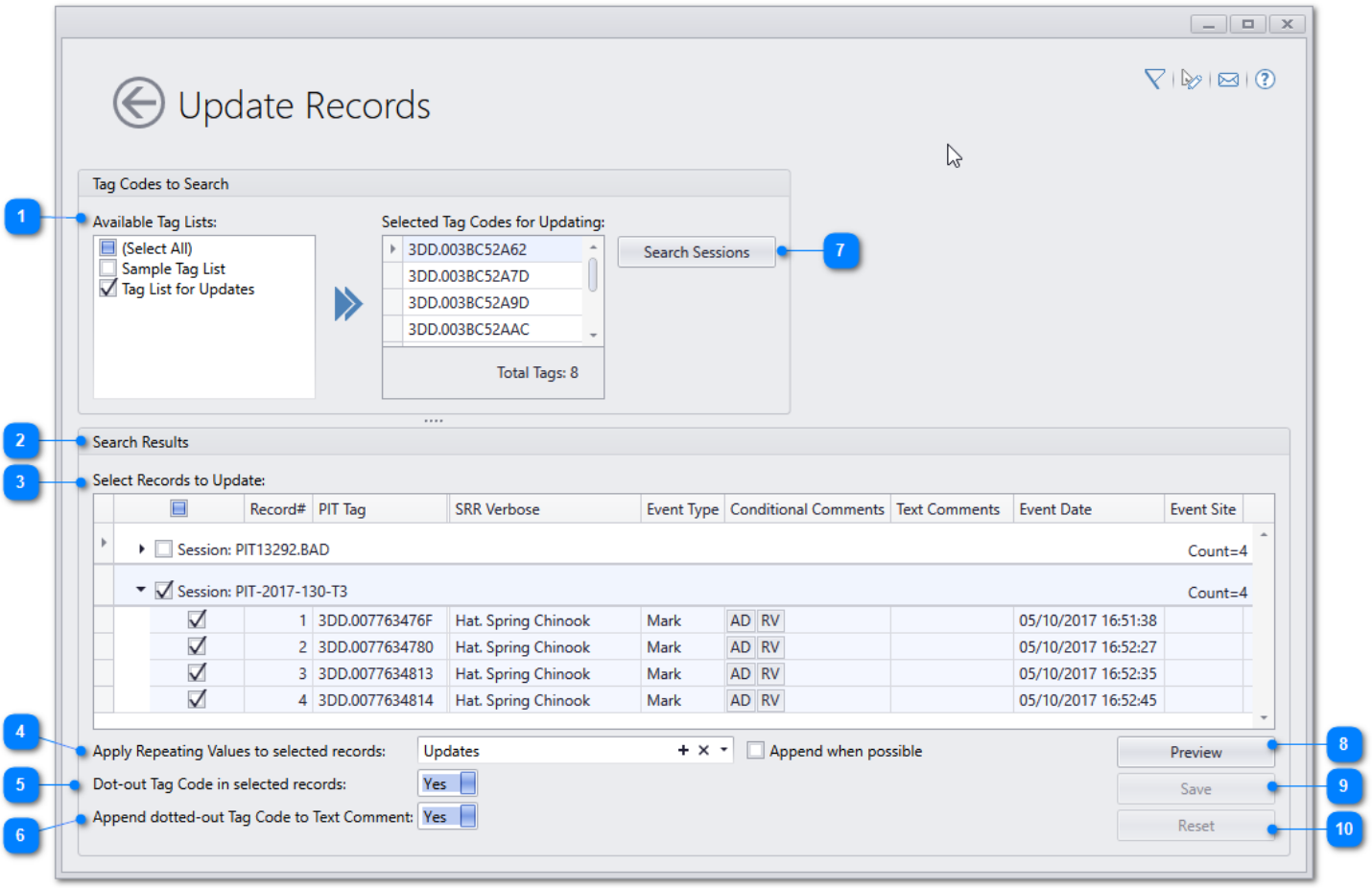
Displays the list of statements that will be used to update the Query results. To remove a statement, click to select it and then click the Remove button.

3 Backup Database

Check this box to make a backup of the P4 database before applying the update specifications to the Query results. Having a backup would allow for restoration of the original records in the event that an update specification is applied in error.

7.4. Update Records From Tag List

This tool was originally developed specifically to dot-out records based on a list of tags. In version 1.22 it was converted to a more general tool that allows records to be dotted out and/or updated based on a list of tags.



1 Available Tag Lists

Check one or more Tag Lists to use for the update process. The tag codes in the checked lists will be displayed to the right in the Selected Tag Codes for Updating table.

7 Search Sessions

Click this button to search all Sessions saved in the local P4 application for records containing the tag codes from the checked Tag Lists.

2 Search Results

Matching records will be displayed in the Search Results, grouped by Session name. When the dot outs are applied, the results will be displayed here as well.

3 Select Records to Update

Select the Sessions or individual records to update and/or dot-out be placing a check mark in the box to the left of the Session name or Record Number.

4 Apply Repeating Values

To update the selected recored, select or create a Repeating Value. Place a check mark in the box labeled **Append when possible** to append values to comment or free text fields. If this box is not checked, values in those fields will be overwritten with the values in the Repeating Value. Values in fields that can only contain one value will always be overwritten.

5 **Dot-out Tag Codes**

To dot-out the tag codes in the selected records, change this setting to **Yes.**

6 **Append Tag Code**

To append tag codes that are being dotted out to the Text Comment field, change this setting to **Yes.**

8 **Preview**

Click this button to apply Repeating Values and/or dot out the selected Sessions/records (also appending tag codes to Text Comments, as specified) and view a preview of the results.

9 **Save**

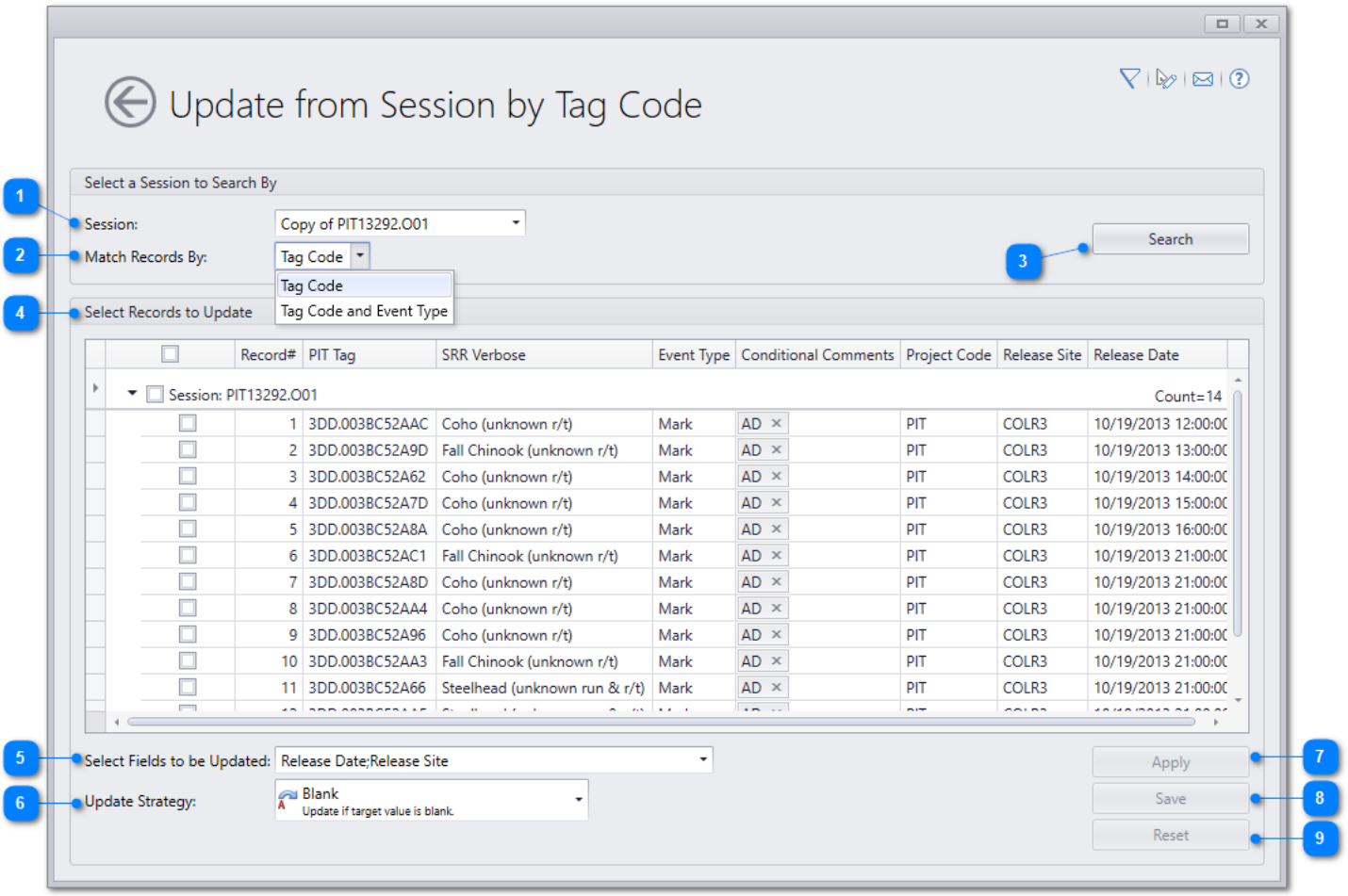
Click this button to save the updated values and dot outs permanently.

10 **Reset**

Click this button to roll back the updated values and dot outs.

7.5. Update From Session

Update from Session is used to update values in one session using value in another session. For example, if a reader was set up to capture the timestamp of fish exiting a facility during a volitional release, this feature could be used to update the original tagging file with those release times. To accomplish this, reader file from the release monitoring would be imported into P4 as a session containing only the tag code and Release Date. Then that session would be used to update all other sessions that contained those tag codes with the timestamp from the reader as the Release Date.



1 Session to Search By

Select the Session that contains the tag codes to search by and the values that will be used to update the resulting records.

2 Match Records By

Select to match records by Tag Code only or by Tag Code and Event Type.

3 Search

Click the Search button to find all matching records.

4 Select Records to Update

Records with tag codes that match those in the Session to Search By will be displayed here, grouped by Session. Check the Sessions and/or records to be updated.

5 Select Fields to be Updated

Put a check mark in the box next to the fields to be updated by the values from the Session to Search By

6

Update Strategy

Select the update strategy to use:

- *Append*: Append the update values, if possible, otherwise overwrite. Append only works on comment fields such as Text Comment and Conditional Comment; all other fields will be overwritten.
- *Blank*: Only update the target field if it is blank, if it is not blank ignore it.
- *Overwrite*: Always overwrite the target field with the update value.

7

Apply

Click this button to apply the update to the selected Sessions and/or records. Results of applying the update will be shown in the Select Records to Update grid.

8

Save

Click this button to permanently save the updated records.

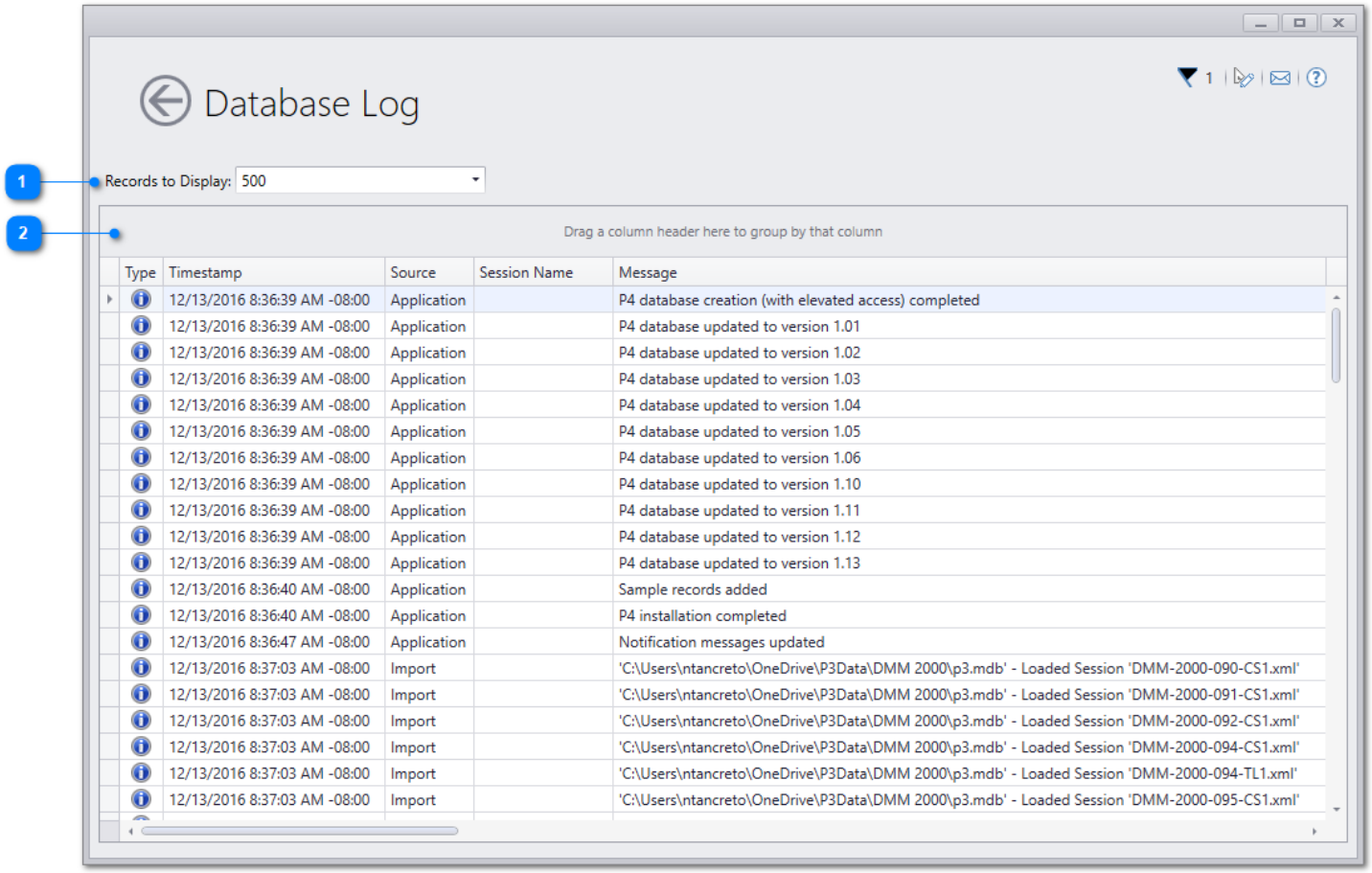
9

Reset

Click this button to undo the changes to the updated records.

7.6. Database Log

The database log contains a history of actions recorded by P4 during the lifetime of the database that is currently in use. Actions such as application install or upgrade, importing data, opening and collection data into a Session, and updating records in a Session are recorded into the log.



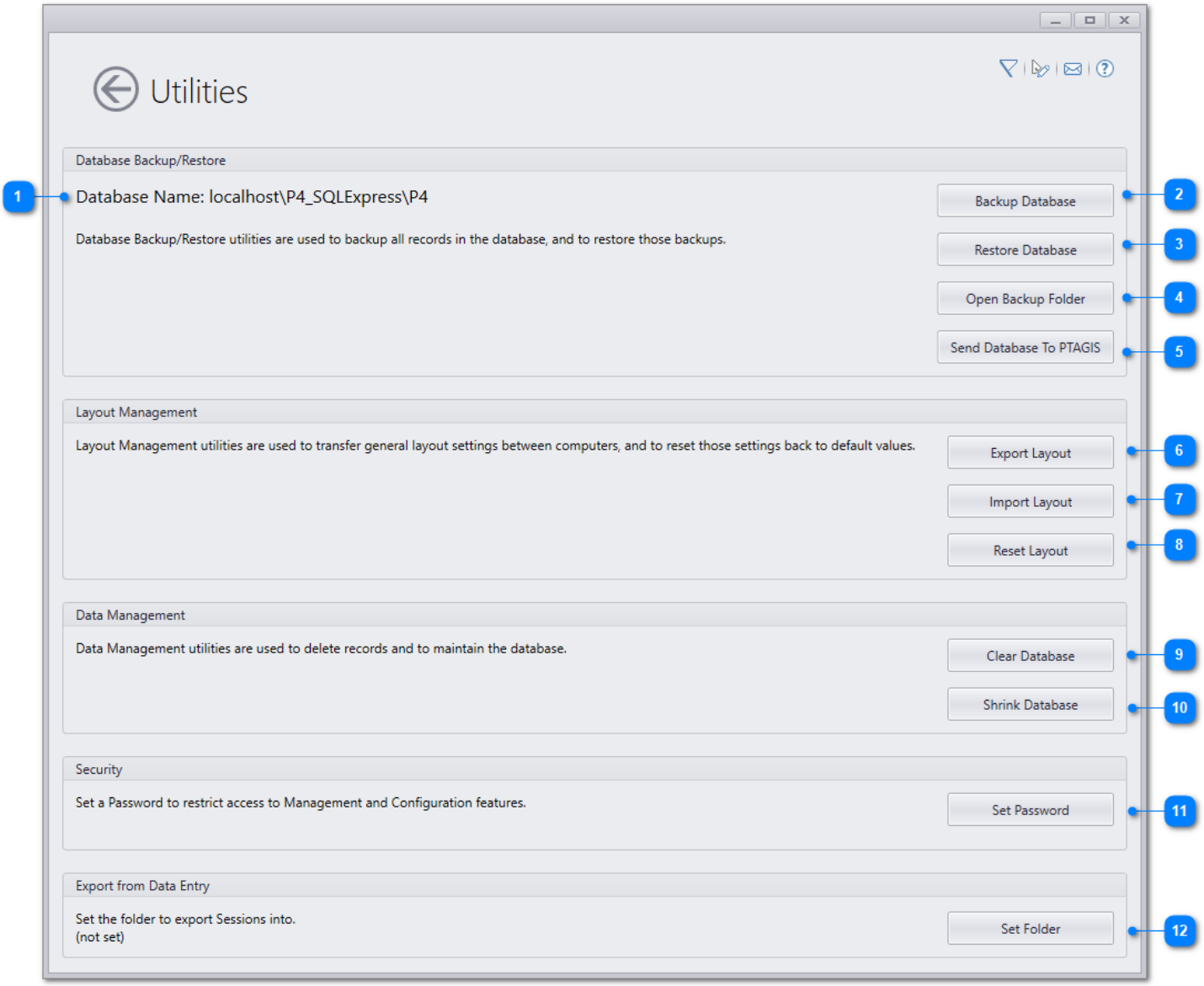
1 Records to Display

Select the number of records in the database log to display. Default value is 500.

2 Group Panel

Used to group by a column in the database log. This is particularly useful for viewing all the actions that have been performed on a Session. See the Group Panel right-click context menu for more information.

7.7. Utilities



1 Database Name

Displays the location and name of the P4 database.

2 Backup Database

Creates a backup of the P4 database.

3 Restore Database

Used to restore a previous P4 backup. The backup file must match the P4 version into which it is being restored or P4 may become inoperable. Each backup file has a default name format that includes the version of P4 it was backed up from and the date and time on which the backup occurred. For example, `P4 v1.06 Backup 2016-08-23-16-36-43.bak`, was backed up from version 1.06 on August 23, 2016, at 16:36:43.

4 Open Backup Folder

Opens the folder in which the P4 database backup files are stored.

5 **Send Database to PTAGIS**

Used to send a backup file of the P4 database to PTAGIS for troubleshooting.

6 **Export Layout**

Used to export layout settings, which include the theme, panel placement and column arrangement in Record Management, to a file for transfer to another computer.

7 **Import Layout**

Used to import layout settings from a file.

8 **Reset Layout**

Used to reset layout settings to default.

9 **Clear Database**

Used to delete all data and configuration tools in the P4 database. As a precaution, the database will be backed up before this command is run.

10 **Shrink Database**

Used to shrink the size of the database files.

11 **Set Password**

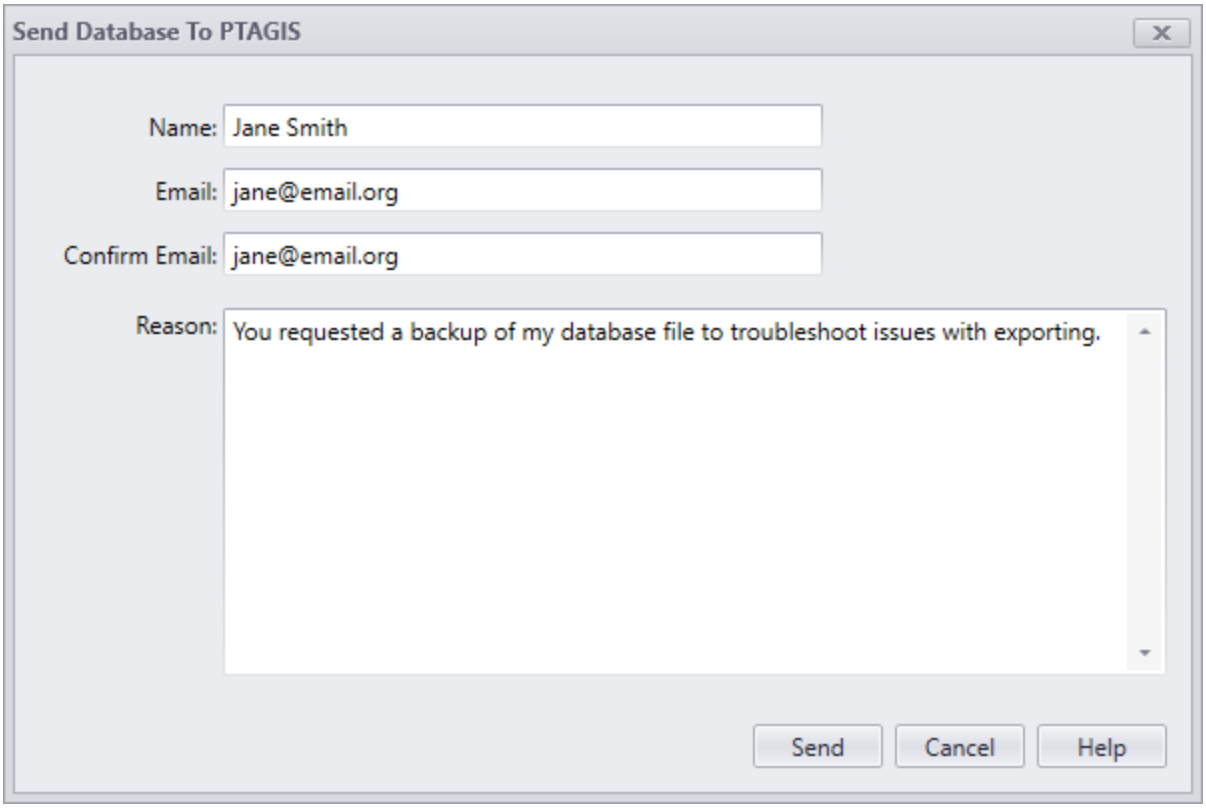
Used to set a password to restrict access to Management and Configuration features. In order for a user to enter any of the features in these categories the password will need to be entered. If a set password is forgotten, contact PTAGIS for help with resetting it.

12 **Set Folder**

Used to set a default folder to which Sessions can be exported during data entry.

7.7.1. Send Database to PTAGIS

If asked to send a backup of the P4 database to PTAGIS, complete this form and click Send. Once the operation has completed, inform PTAGIS that the database has been sent.


Send Database To PTAGIS
Name:
Jane Smith
Email:
jane@email.org
Confirm Email:
jane@email.org
Reason:
You requested a backup of my database file to troubleshoot issues with exporting.
Send
Cancel
Help

8. Validation

Two types of validation checks are performed in P4: real time and post-data collection. Real time validation occurs when values are entered while a Session is open for data entry. Post-data collection validation can be performed in both Record and Session Management by user request, and is always performed when a Session is submitted to PTAGIS.

Real-time Validation

By default P4 performs the following real-time validation checks during data entry:

- Before a record can be Accepted, there must be a value in the PIT Tag, SRR Code, and Event Type fields.
- Duplicate records within the open Session based on PIT Tag and Event Type.
- PIT Tags are checked against the PTAGIS tag mask validation codes

Some real-time validation settings can be changed by the user in the Profile.

- Tag Mask Validation controls whether tag codes scanned or entered during data entry are checked against the PTAGIS tag mask validation codes.
- Handle Duplicates controls what P4 will do when duplicate records are encountered.
- Validation Constraints can be added to ensure that the Length and/or Weight values and/or Condition Factor are within specified bounds.

Post-data Collection Validation

Validation of a Session can be initiated manually in both Record Management and Session Management, and it runs automatically whenever a Session is submitted to PTAGIS. If any validation errors exist, the Session cannot be uploaded to PTAGIS until they are corrected. Post-data collection validation checks that all required fields have been completed, that date values are within expected ranges, warns if any records exist that fail Validation Constraints, and runs any Custom Validation routines that are enabled.

9. Troubleshooting

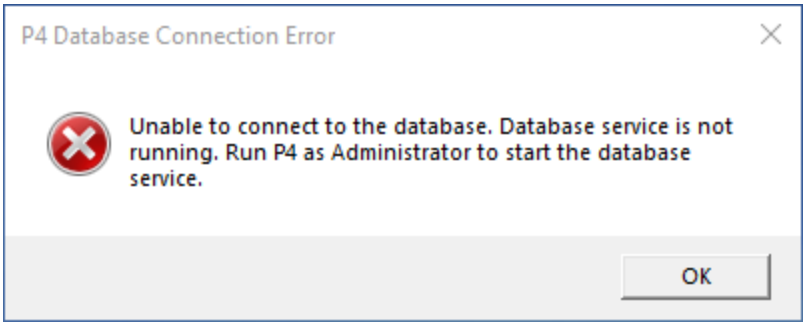
These pages collect information on common issues in P4 and how to troubleshoot them.

Unable to Connect to Database: If you see an error message when installing or starting P4 that indicates it cannot connect to the database, check this page.

Troubleshooting Device Connections: If you hare having problems getting a PIT tag reader or other device connected to P4, see this page.

9.1. Unable to Connect to Database

When starting up P4, if you receive an error that says **Unable to connect to the database. Database service is not running** it means that the SQL Server database service either did not start up or has stopped running.

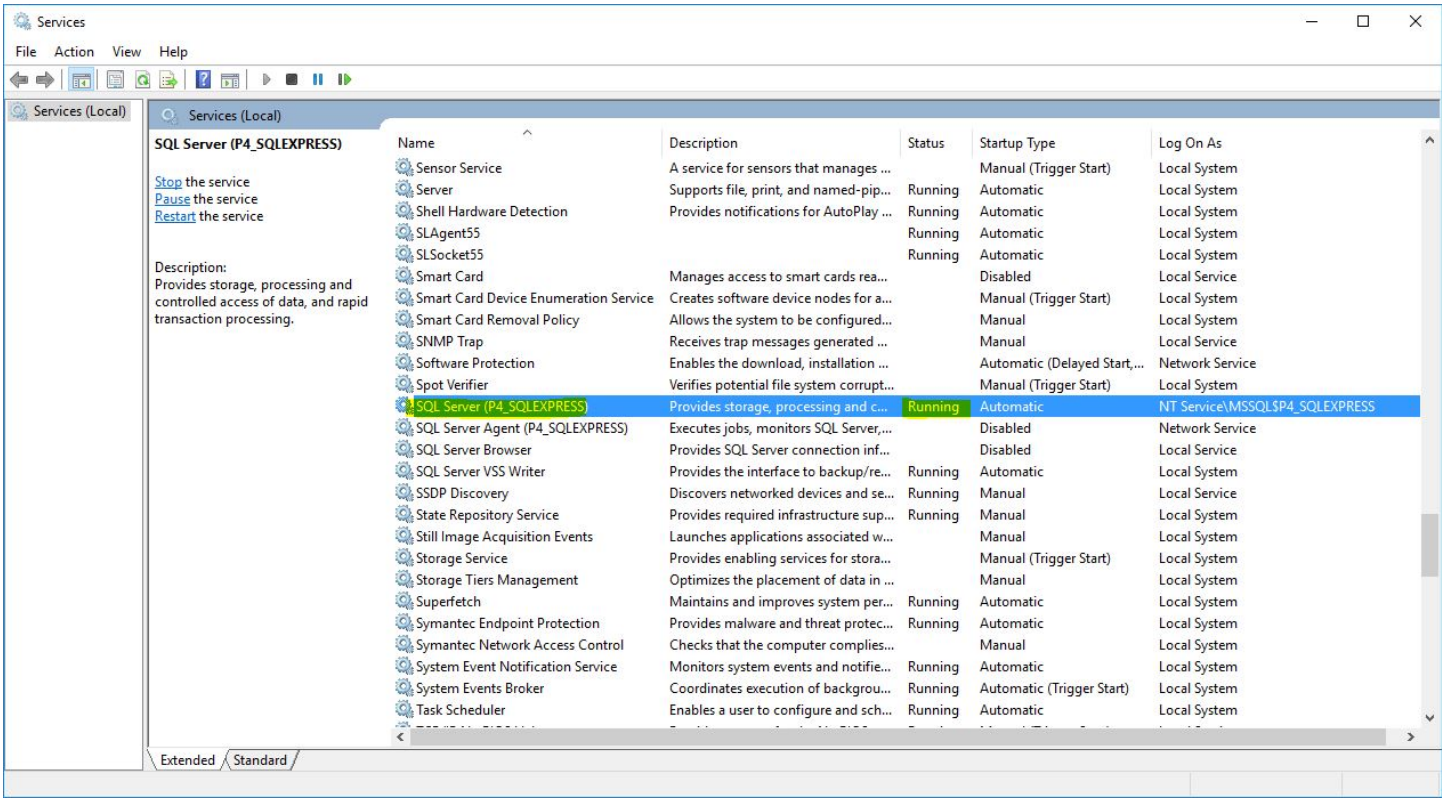


If you are able to run P4 as an Administrator, P4 will attempt to start the service for you.

If you are unable to run P4 as an Administrator, or it fails to start the service, please try the following:

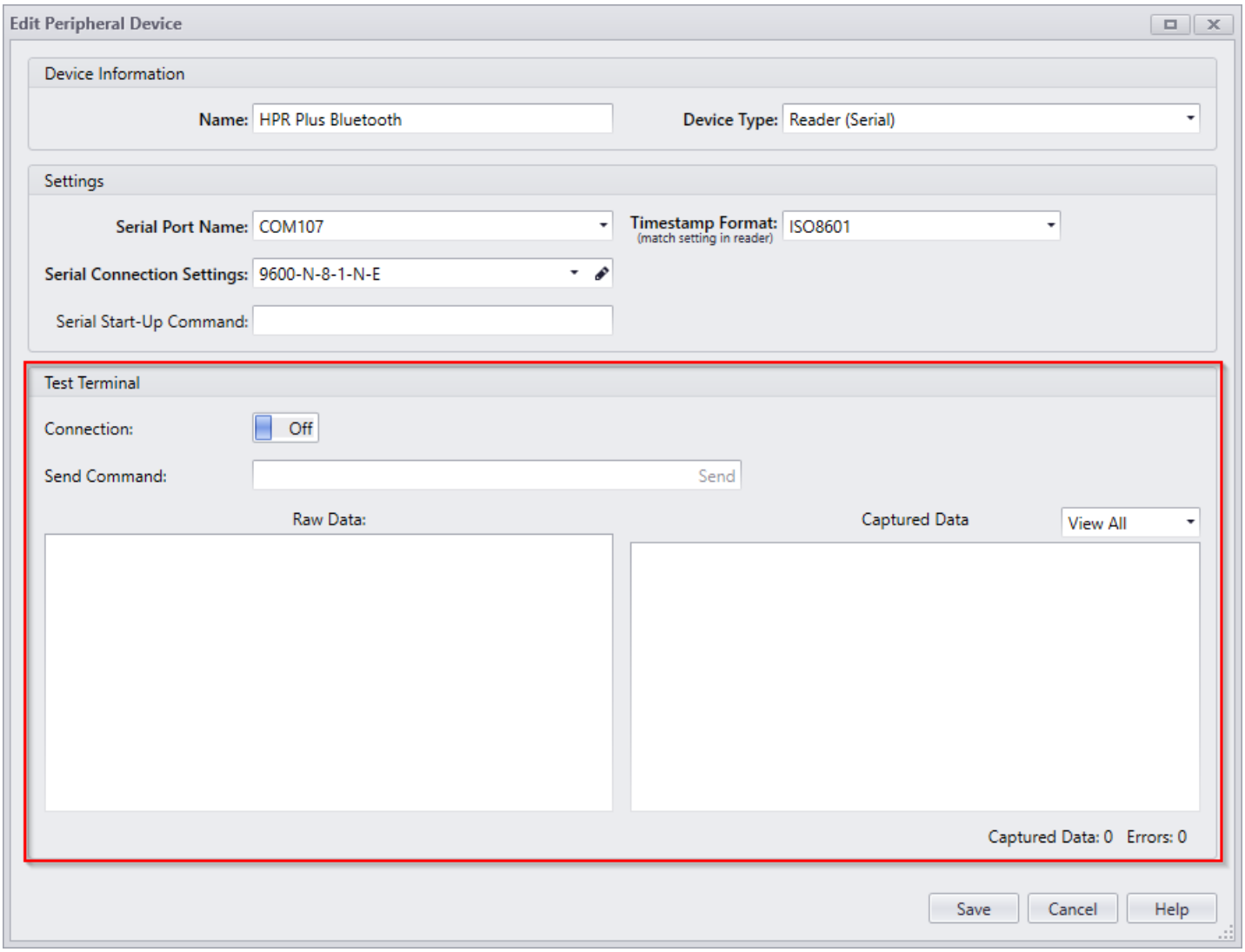
1. Type **Services** in the Windows search panel to open Services
2. Look for the service called **SQL Server (P4_SQLEXPRESS)**
3. If the **Status** does not say **Running**, then right-click the service and select **Start**
4. If **Startup Type** is not set to **Automatic**, right-click the service and select **Properties**, then change the **Startup type** to **Automatic**

If you do not have the necessary computer account permissions to start the service or change the Startup Type, please consult with your IT department for assistance.



9.2. Troubleshooting Device Connections

The best way to troubleshoot peripheral device connection issues is from within Configuration Tools. The Peripheral Device dialog window includes a test terminal that allows you to connect to the device, send data from the device to P4, and review both the raw data sent by the device and the captured data P4 parsed out of the raw data.

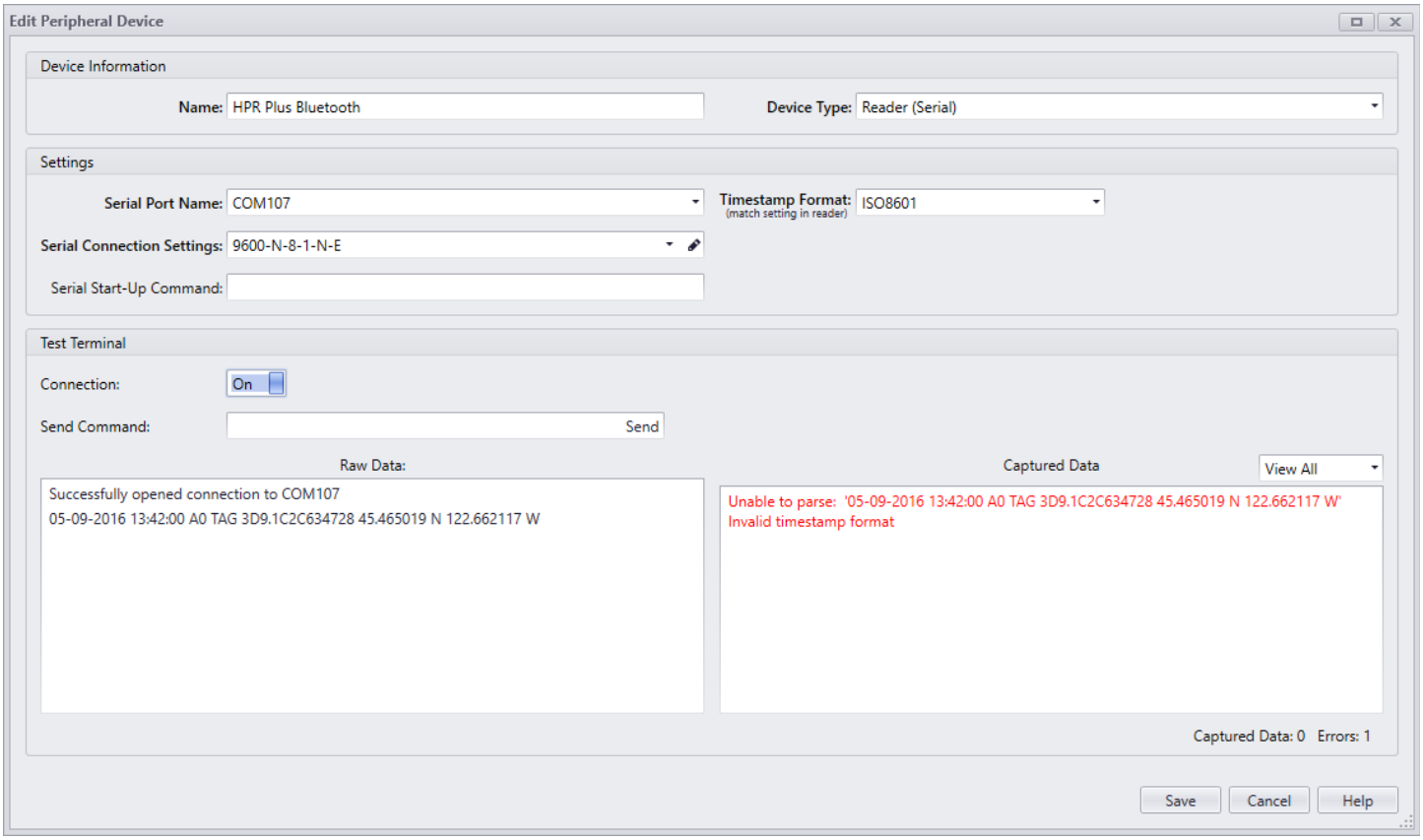


To Use the Test Terminal

1. Connect the device to the computer and turn it on.
2. Make sure you have selected the **Serial Port** to which the device is connected. If connecting the device via Bluetooth, see the Bluetooth virtual serial ports section below.
3. Click the **Connection** slider to On.
4. If the Serial Port you have selected is a valid COM port, you should see this message in the Raw Data side of the window: *Successfully opened connection to COMXX.* This does not necessarily mean that you have connected to the device, just that a valid COM port of that number exists on the computer, and it is not already in use.
5. Send data from the device to P4. For example, if you are troubleshooting a reader, scan a tag.
6. If you see data in the **Raw Data** side of the terminal, then you are connected to the device.
7. If you see that data parsed correctly in the **Captured Data** side of the terminal , then all is configured correctly, and you can try the device in Data Entry.
8. If you see an error in **Captured Data**, or the parsed data is incorrect, then you might need to adjust

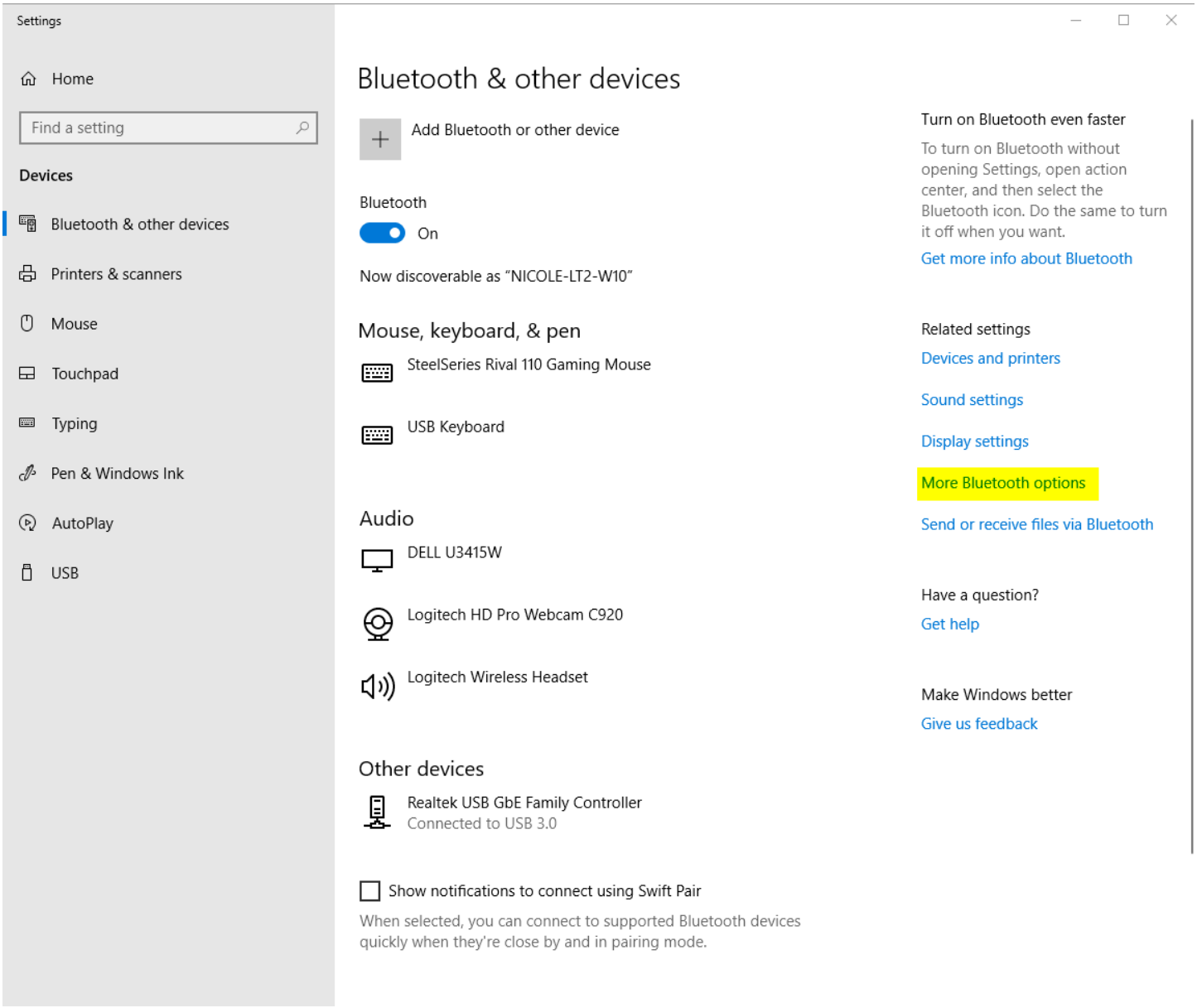
settings on the device or the **Serial Connection Settings**

One of the most common issues with configuring PIT tag readers is the **Timestamp Format**. The format that the device is sending must match the **Timestamp Format** setting in P4. If it does not match, you will see an error in the **Captured Data** window such as is displayed below. In this case the Timestamp Format in P4 is set to ISO8601, but the reader is sending the timestamp in Month Day Year. You'll either need to change the format in P4 or on the device.



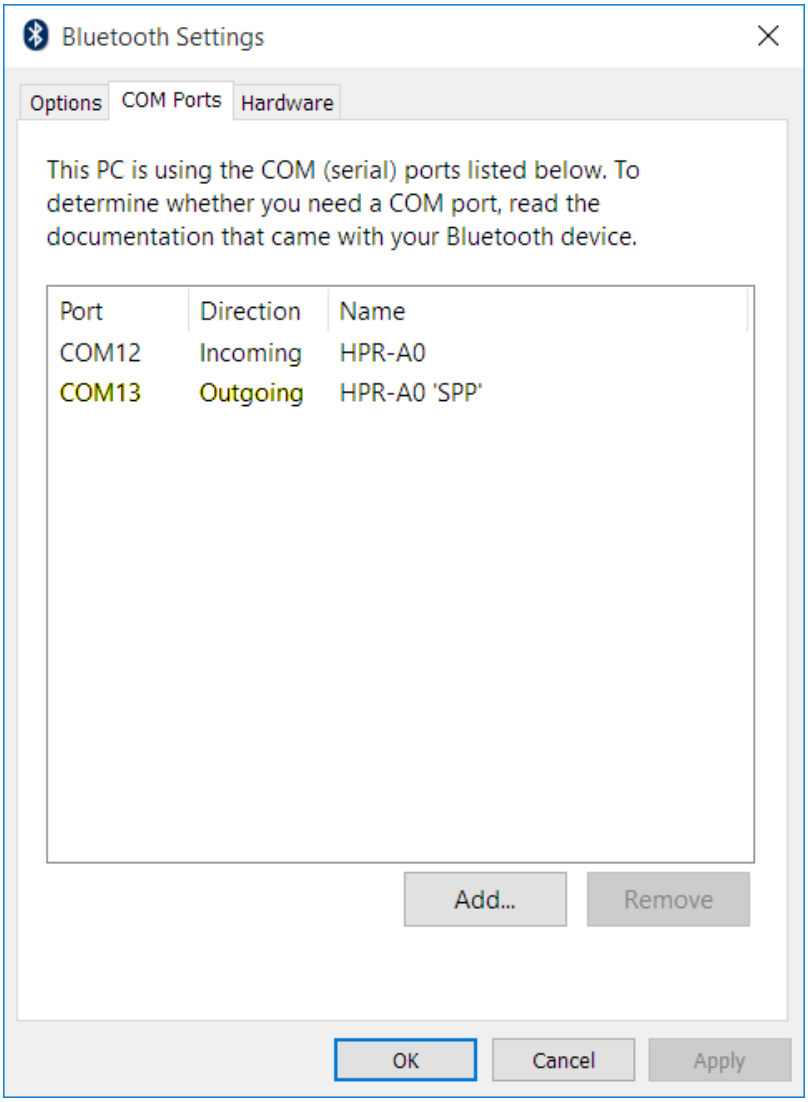
Bluetooth Virtual Serial Ports

Devices with Bluetooth connections can be used with P4 as long as they create a virtual serial port through which P4 can communicate. To use a Bluetooth device, you would select **Reader (Serial)** or I**nput Device (Serial)** as the Device Type. To view the virtual serial port(s) created when connected to the PC, you'll need to open the Windows *Bluetooth & other devices* settings.



.

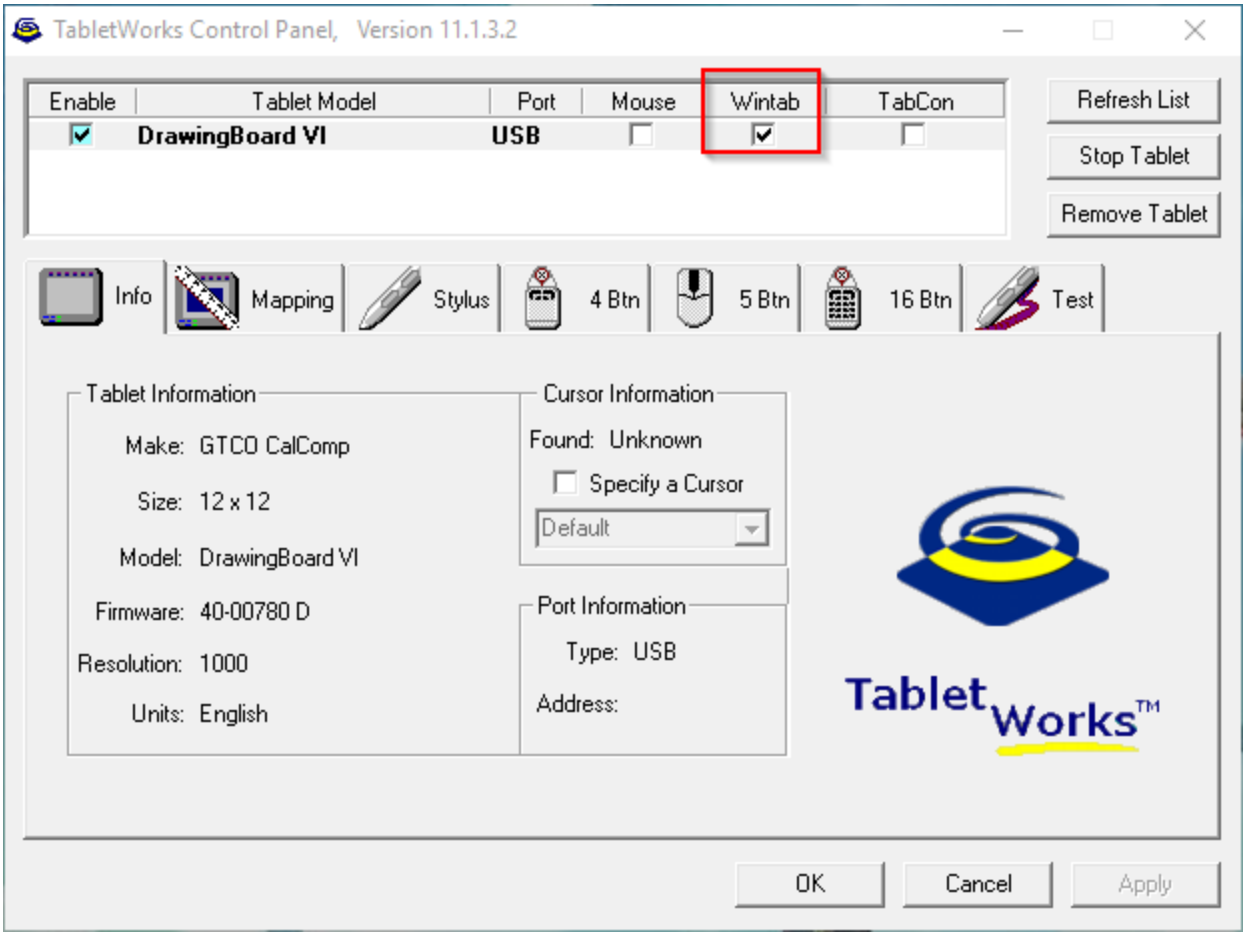
Once your device is paired and connected, click the More Bluetooth options link on the right-hand side of the screen (highlighted in yellow above). This will open a smaller dialog window with a COM Ports tab. Switch to that tab to see the COM port or ports that have been created by connecting the device through Bluetooth. The HPR Plus creates two COM ports, but only one will send data to the computer.



Digitizer Tablet Communication Settings

There are two type of digitizer devices available Serial and USB. If your digitizer tablet has a serial connection, then you don't need to use a WinTAB driver like TabletWorks. You can configure your tablet with a Device Type of **Digitizer (Serial)** and set the Coordinate Transmit Mode to **Point**. If you do have a WinTAB driver installed and running when your device is connected via serial port, you will need to configure it in P4 with a Device Type of **Digitizer (USB)** and set the Coordinate Transmit Mode to **Continuous**.

When using TabletWorks, you may need to open up the TabletWorks control panel and make sure that the digitizer is configured only to use WinTAB, as displayed in the screenshot below.


TabletWorks Control Panel, Version 11.1.3.2
Enable
Tablet Model
Port
Mouse
Wintab
TabCon
DrawingBoard VI
USB
Refresh List
Stop Tablet
Remove Tablet
Info
Mapping
Stylus
4 Btn
5 Btn
16 Btn
Test
Tablet Information
Make: GTCO CalComp
Size: 12 x 12
Model: DrawingBoard VI
Firmware: 40-00780 D
Resolution: 1000
Units: English
Cursor Information
Found: Unknown
Specify a Cursor
Default
Port Information
Type: USB
Address:
TabletWorks™
OK
Cancel
Apply

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Appendix A - MRR Field Definitions and Requirements

This table lists the fields available in P4 along with their definitions and expected domain values. Different Event Types may require different fields be completed before the data can be submitted to PTAGIS. If a field is listed as Required than it must have a value. An Optional field can have a value, but does not need one. Both required and optional fields will be validated against the domain listed in this table. If a field is listed as Ignored, it may still contain a value, but it will not be validated against the domain and it will not be loaded into PTAGIS if the record is submitted. All ignored fields will have a null value in PTAGIS for that event type.

Session fields, for which values will be the same for all records in a file, are listed on this page.
Event fields, which can have different values for each record in a file, are listed on the following pages.

P4 Display Name	Definition	Domain	Mark	Recapture	Recovery	Passive Recapture	*Notes*
File	Name of the file submitted to PTAGIS for loading. It is generated automatically by tagging software based on the first Event Date (P4) or the Tag Date (P3). Each distinct set of data must be in a file with a unique name.	P4: PID-YYYY-DOY-UDF.xml PID = Project Code YYYY = 4-digit year of first Event Date in file DOY = Day of year of first Event Date in file UDF = 1-3 alphanumeric characters; defaults to incremental numbers but user can specify different values	Required	Required	Required	Required	*If PID <> Project Code, the file will be loaded with Provisional status. If Year does not match the year of the earliest Event Date in the file, the file will be rejected. If the Day of Year does not match the earliest Event Date in the file, the file will be loaded with Provisional status.*
Legacy File	Name of the P3 file that was imported into P4 to create the current session, if applicable. Generated automatically by P4 upon import of a P3 file.	P3 file name format	Required if correcting P3 file with P4 file	Required if correcting P3 file with P4 file	Required if correcting P3 file with P4 file	Required if correcting P3 file with P4 file	*Generated automatically when P3 file imported into P4. Cannot be changed.* *Once a P3 file is corrected by a P4 file, the P3 file cannot be loaded again. Any additional corrections must be by P4 file.*
Project Code	Identifies the individual or long term research program responsible for the data collection event.	MRR Project Validation Codes	Required	Required	Required	Required	
Session	Name of the session in P4.	Free text up to 50 characters	Required	Required	Required	Required	*Session name is required to create a session in P4. If XML file is created outside P4, use the File name as the Session name.*
Session Message	Brief description or summary of the purpose and/or scope of the MRR project.	Free text up to 200 characters	Required	Required	Required	Required	
Session Note	Ad hoc annotations pertaining to the session as a whole.	Free text up to 4000 characters	Optional	Optional	Optional	Optional	

P4 Display Name	Definition	Domain	Mark	Recapture	Recovery	Passive Recapture	Notes
Acoustic Tag	Acoustic tag code, if applicable.	Free text up to 50 characters	Optional	Optional	Optional	Ignored	
Brood Year	Calendar year when tagged fish were spawned, if known.	4-digit valid year between (Event Year - 3) and Event Year	Optional	Ignored	Ignored	Ignored	*Ignored indicates that if data exists in that field in a record with that event type, it will be ignored when validating and loading the data into PTAGIS.*
Capture Method	Method used to capture or collect fish.	Capture Method Validation Codes	Required	Required	Required	Required	
Coded-Wire Tag	Coded Wire Tag code, if applicable.	Free text up to 50 characters	Optional	Optional	Optional	Ignored	
Conditional Comments	Flag codes to record fish condition, morphological and environmental factors, and other situational conditions.	Flag Validation Codes, space separated, max character limit is 50, which allows 15-20 codes depending on use of single-character codes	Optional	Optional	Optional	Optional	
Detail Note	Ad hoc annotations pertaining to the current record.	Free text up to 200 characters	Optional	Optional	Optional	Optional	
Event Date	Local date and time the data collection event occurred.	Date Time Offset between 1/1/1986 and current date	Required	Required	Required	Required	
Event Site	Site identifier where the data collection event occurred.	MRR Site Codes	Required	Required	Required	Required	
Event Type	The data collection event type represented by the record.	Mark Recapture Recovery Passive Recapture Tally	Required	Required	Required	Required	
Genetic ID	Unique identifier for genetic material taken from this fish.	Free text up to 50 characters	Optional	Optional	Optional	Ignored	
Hatchery	Hatchery where fish was reared.	Hatchery Validation Codes	Optional	Ignored	Ignored	Ignored	*Ignored indicates that if data exists in that field in a record with that event type, it will be ignored when validating and loading the data into PTAGIS.*
Hold Temp	Temperature (C°) of water in the post-tagging holding facilities.	Degrees Celsius with range -2.0 - 25.0, with 25.0 indicating that no temperature was taken.	Optional	Optional	Ignored	Optional	*Ignored indicates that if data exists in that field in a record with that event type, it will be ignored when validating and loading the data into PTAGIS.*
Lat/Long Source	Source for latitude and longitude coordinates:	GPS - collected with GPS DIG - derived using digital map source UNK - unknown	Required if Latitude/ Longitude completed	Required if Latitude/ Longitude completed	Required if Latitude/ Longitude completed	Required if Latitude/ Longitude completed	
Latitude	If EventType is Mark or Recapture, this is the latitude of the release location. If Event Type is Recovery or PassiveRecapture, this is the latitude of the recovery or detection location.	Decimal degrees between 40 and 50	Required if Longitude completed	Required if Longitude completed	Required if Longitude completed	Required if Longitude completed	
Length	Fork length of fish in millimeters. Precise to 1 millimeter.	> 0	Optional	Optional	Optional	Optional	*Made optional for Passive Recaptures with P4 v1.24*
Life Stage	The general life stage of the fish at the time of the event. Use Conditional Comments to indicate more specific stages.	Adult Juvenile Unknown	Required	Required	Required	Required	*Use Unknown for events where the fish is not handled or observed.*
Longitude	If Event Type is Mark or Recapture, this is the longitude of the release location. If EventType is Recovery or PassiveRecapture, this is the longitude of the recovery or detection location.	Decimal degrees between -125 and -110	Required if Latitude completed	Required if Latitude completed	Required if Latitude completed	Required if Latitude completed	
Mark Method	Method by which PIT tag was inserted into the fish.	Tag Method Validation Codes	Required	Ignored	Ignored	Ignored	*Ignored indicates that if data exists in that field in a record with that event type, it will be ignored when validating and loading the data into PTAGIS.*
Mark Temp	Temperature (C°) of tagging bath during marking operation.	Degrees Celsius with range -2.0 - 25.0, with 25.0 indicating that no temperature was taken.	Required	Required	Ignored	Ignored	*Ignored indicates that if data exists in that field in a record with that event type, it will be ignored when validating and loading the data into PTAGIS.*
Migration Year	Earliest possible calendar year when juvenile anadromous fish will out-migrate. If tagging adult fish, this is the current calendar year.	4-digit year between (Event Date year) and (Event Date year + 1)	Required	Required	Ignored	Required	*Ignored indicates that if data exists in that field in a record with that event type, it will be ignored when validating and loading the data into PTAGIS.*
Organization	Agency or entity responsible for the data collection event.	Organization Validation Codes	Required	Required	Required	Required	
Other Tag	Identifier for any other tag or mark on this fish not captured elsewhere.	Free text up to 50 characters	Optional	Optional	Optional	Ignored	
PIT Tag	Unique 10 or 14-character code of the embedded PIT tag in hexadecimal format or dot-out (10 periods).	First 7 characters must match Tag Mask Validation Codes. Dot-outs are ignored when the file is loaded into the database.	Required	Required	Required	Required	*Records with Tally event type can only have dot-out as PIT tag code*

P4 Display Name	Definition	Domain	Mark	Recapture	Recovery	Passive Recapture	*Notes*
Raceway/Transect/Tank	Abbreviated description of the sampling location.	Free text up to 30 characters	Optional	Optional	Optional	Optional	
Radio Tag	Radio tag code, if present.	Free text up to 50 characters	Optional	Optional	Optional	Ignored	
Record #	Number of the record in the session, generated automatically by tagging software.	Integer > 0, unique within session	Required	Required	Required	Required	*Generated automatically in P4 and cannot be changed.*
Release Date	Local date and time of release of marked or recaptured fish.	Date Time Offset between Event Date and current date	Required if Release Fields completed	Required if Release Fields completed	Ignored	Required if Release Fields completed	*Release fields may be left blank if fish have not been released, but must be completed once release occurs.*
Release Site	Site identifier for release location of marked or recaptured fish.	MRR Site Codes not mark site only	Required if Release Fields completed	Required if Release Fields completed	Optional	Required if Release Fields completed	*Release fields may be left blank if fish have not been released, but must be completed once release occurs.* *For Recovery events, specify Release Site only if an RKM Ext. value needs to be specified.*
Release Temp	Temperature (C°) of water the tagged fish were released into.	Degrees Celsius with range -2.0 - 25.0, with 25.0 indicating that no temperature was taken.	Required if Release Fields completed	Required if Release Fields completed	Ignored	Required if Release Fields completed	*Release fields may be left blank if fish have not been released, but must be completed once release occurs.*
RKM Ext	The distance in kilometers from the mouth of the stream location to the release or recovery location.	Integer,1-4 digits, left-padded with zeros	Optional only if Release Site is selected and it is a stream location.	Optional only if Release Site is selected and it is a stream location.	Optional only if Release Site is selected and it is a stream location.	Optional only if Release Site is selected and it is a stream location.	*Must select Release Site in order to enter an RKM Ext. value.*
RKM Mask	The RKM address from the mouth of the Columbia River to the mouth of the stream location.	RKM Mask of MRR Site Code in Release Site	Display/Lookup field only	Display/Lookup field only	Display/Lookup field only	Display/Lookup field only	*Display only, cannot be changed.*
Scale ID	Unique identifier for scale sample taken from this fish.	Free text up to 50 characters	Optional	Optional	Optional	Ignored	
Second PIT Tag	Second PIT tag code if fish is double-tagged.	Valid 10 or 14 character tag code in hexadecimal format	Optional	Optional	Optional	Optional	
Spawn Year	Use only when marking adult fish. Calendar year when fish is expected to spawn.	4-digit valid year between Event Year and Event Year +1	Optional	Optional	Optional	Optional	
SRR Code	Three-character code that identifies the species, run, and rear type of fish.	SRR Verbose Validation Codes	Required	Required	Required	Required	
Stock	Brief descriptor of the brood stock of the fish.	Free text up to 15 characters	Optional	Optional	Optional	Optional	
Tagger	Person responsible for marking operation.	LASTNAME I in all capital letters (e.g. SMITH J) with maximum of 30 characters	Required	Required	Ignored	Ignored	*Ignored indicates that if data exists in that field in a record with that event type, it will be ignored when validating and loading the data into PTAGIS.*
Text Comments	Free text field for ad hoc comments unique to this fish.	Free text up to 100 characters	Optional	Optional	Optional	Optional	
Weight	Weight to the nearest tenth of a gram.	> 0	Optional	Optional	Optional	Ignored	

Mark Event: The event during which a fish is initially marked with a PIT tag and released (or planned to be released). Only one mark event is allowed for each PIT tag code. If additional mark events are submitted for the same PIT tag code, they will be categorized as Mark Duplicates during the loading process.

Required Fields

All of these fields must be completed before the data can be submitted to PTAGIS.

Display Name	Definition	Domain
Event Type*	The data collection event type represented by the record.	Mark
PIT Tag*	Unique 10 or 14-character code of the embedded PIT tag in hexadecimal format or dot-out (10 periods).	First 7 characters must match Tag Mask Validation Codes. Dot-outs are ignored when the file is loaded into the database.
SRR Code*	Three-character code that identifies the species, run, and rear type of fish.	SRR Verbose Validation Codes
Capture Method	Method used to capture or collect fish.	Capture Method Validation Codes
Event Date	Local date and time the data collection event occurred.	Date Time Offset between 1/1/1986 and current date
Event Site	Site identifier where the data collection event occurred.	MRR Site Codes
Life Stage	The general life stage of the fish at the time of the event. Use Conditional Comments to indicate more specific stages.	Adult Juvenile Unknown
Mark Method	Method by which PIT tag was inserted into the fish.	Tag Method Validation Codes
Mark Temp	Temperature (Cº) of tagging bath during marking operation.	Degrees Celsius with range -2.0 - 25.0, with 25.0 indicating that no temperature was taken.
Migration Year	Earliest possible calendar year when juvenile anadromous fish will out-migrate. If tagging adult fish, this is the current calendar year.	4-digit year between (Event Date year) and (Event Date year + 1)
Organization	Agency or entity responsible for the data collection event.	Organization Validation Codes
Record #	Number of the record in the session, generated automatically by tagging software.	Integer > 0, unique within session
Tagger	Person responsible for marking operation.	LASTNAME I in all capital letters (e.g. SMITH J) with maximum of 30 characters

* Minimum required fields to save a record during data entry.

Conditionally Required Fields

If the fish will be held for a time before release, data can be submitted to PTAGIS without release information. When the fish have been released, an updated file with complete release information should be submitted. All release fields must be completed at that time.

Display Name	Definition	Domain
Release Date	Local date and time of release of marked or recaptured fish.	Date Time Offset between Event Date and current date
Release Site	Site identifier for release location of marked or recaptured fish.	MRR Site Codes not mark site only
Release Temp	Temperature (Cº) of water the tagged fish were released into.	Degrees Celsius with range -2.0 - 25.0, with 25.0 indicating that no temperature was taken.

Optional Fields

Data can optionally be recorded in these fields.

Display Name	Definition	Domain
Acoustic Tag	Acoustic tag code, if applicable.	Free text up to 50 characters
Brood Year	Calendar year when hatchery stock were spawned.	4-digit valid year between (Event Year - 3) and Event Year
Coded-Wire Tag	Coded Wire Tag code, if applicable.	Free text up to 50 characters
Conditional Comments	Flag codes to record fish condition, morphological and environmental factors, and other situational conditions.	Flag Validation Codes, space separated, max character limit is 50, which allows 15-20 codes depending on use of single-character codes
Detail Note	Ad hoc annotations pertaining to the current record.	Free text up to 200 characters
Genetic ID	Unique identifier for genetic material taken from this fish.	Free text up to 50 characters
Hatchery	Hatchery where fish was reared.	Hatchery Validation Codes
Hold Temp	Temperature (Cº) of water in the post-tagging holding facilities.	Degrees Celsius with range -2.0 - 25.0, with 25.0 indicating that no temperature was taken.
Latitude^	Latitude coordinate of the Release Site	Decimal degrees between 40 and 50
Longitude^	Longitude coordinate of the Release Site	Decimal degrees between -125 and -110
Lat/Long Source^	Source for latitude and longitude coordinates:	GPS - collected with GPS DIG - derived using digital map source UNK - unknown
Length	Fork length of fish in millimeters. Precise to 1 millimeter.	> 0
Other Tag	Identifier for any other tag or mark on this fish not captured elsewhere.	Free text up to 50 characters
Raceway/Transect/Tank	Abbreviated description of the sampling location.	Free text up to 30 characters
Radio Tag	Radio tag code, if present.	Free text up to 50 characters

Display Name	Definition	Domain
RKM Ext	The distance in kilometers from the mouth of the stream location to the release or recovery location.	nteger,1-4 digits, left-padded with zeros
Scale ID	Unique identifier for scale sample taken from this fish.	Free text up to 50 characters
Second PIT Tag	Second PIT tag code if fish is double-tagged.	Valid 10 or 14 character tag code in hexadecimal format
Spawn Year	Use only when marking adult fish. Calendar year when fish is expected to spawn.	4-digit valid year between Event Year and Event Year +1
Stock	Brief descriptor of the brood stock of the fish.	Free text up to 15 characters
Text Comments	Free text field for ad hoc comments unique to this fish.	Free text up to 100 characters
Weight	Weight to the nearest tenth of a gram.	> 0

^ If any of these fields are completed, all must be completed

Recapture Event: The event during which a previously PIT-tagged fish is recaptured, scanned by hand, handled and released (or planned to be released). Multiple recapture events are allowed for each PIT tag code as long as the Event Dates are different. If an additional recapture is reported with the same Event Date of a previously reported recapture for the same tag, it will be categorized as a Recapture Duplicate during the loading process.

Required Fields

All of these fields must be completed before the data can be submitted to PTAGIS.

Display Name	Definition	Domain
Event Type*	The data collection event type represented by the record.	Recapture
PIT Tag*	Unique 10 or 14-character code of the embedded PIT tag in hexadecimal format.	Tag Mask validation
SRR Code*	Three-character code that identifies the species, run, and rear type of fish.	SRR Verbose Validation Codes
Capture Method	Method used to capture or collect fish.	Capture Method Validation Codes
Event Date	Local date and time the data collection event occurred.	Date Time Offset between 1/1/1986 and current date
Event Site	Site identifier where the data collection event occurred.	MRR Site Codes
Life Stage	The general life stage of the fish at the time of the event. Use Conditional Comments to indicate more specific stages.	Adult Juvenile Unknown
Mark Temp	Temperature (Cº) of tagging bath during marking operation.	Degrees Celsius with range -2.0 - 25.0, with 25.0 indicating that no temperature was taken.
Migration Year	Earliest possible calendar year when juvenile anadromous fish will out-migrate. If tagging adult fish, this is the current calendar year.	4-digit year between (Event Date year) and (Event Date year + 1)
Organization	Agency or entity responsible for the data collection event.	Organization Validation Codes
Record #	Number of the record in the session, generated automatically by tagging software.	Integer > 0, unique within session
Tagger	Person responsible for marking operation.	LASTNAME I in all capital letters (e.g. SMITH J) with maximum of 30 characters

* Minimum required fields to save a record during data entry.

Conditionally Required Fields

If the fish will be held for a time before release, data can be submitted to PTAGIS without release information. When the fish have been released, an updated file with complete release information should be submitted. All release fields must be completed at that time.

Display Name	Definition	Domain

Release Date	Local date and time of release of marked or recaptured fish.	Date Time Offset between Event Date and current date
Release Site	Site identifier for release location of marked or recaptured fish.	MRR Site Codes not mark site only
Release Temp	Temperature (Cº) of water the tagged fish were released into.	Degrees Celsius with range -2.0 - 25.0, with 25.0 indicating that no temperature was taken.

Optional Fields

Data can optionally be recorded in these fields.

Display Name	Definition	Domain
Acoustic Tag	Acoustic tag code, if applicable.	Free text up to 50 characters
Coded-Wire Tag	Coded Wire Tag code, if applicable.	Free text up to 50 characters
Conditional Comments	Flag codes to record fish condition, morphological and environmental factors, and other situational conditions.	Flag Validation Codes, space separated, max character limit is 50, which allows 15-20 codes depending on use of single-character codes
Detail Note	Ad hoc annotations pertaining to the current record.	Free text up to 200 characters
Genetic ID	Unique identifier for genetic material taken from this fish.	Free text up to 50 characters
Hold Temp	Temperature (Cº) of water in the post-tagging holding facilities.	Degrees Celsius with range -2.0 - 25.0, with 25.0 indicating that no temperature was taken.
Latitude^	Latitude coordinate of the Release Site	Decimal degrees between 40 and 50
Longitude^	Longitude coordinate of the Release Site	Decimal degrees between -125 and -110
Lat/Long Source^	Source for latitude and longitude coordinates:	GPS - collected with GPS DIG - derived using digital map source UNK - unknown
Length	Fork length of fish in millimeters. Precise to 1 millimeter.	> 0
Other Tag	Identifier for any other tag or mark on this fish not captured elsewhere.	Free text up to 50 characters
Raceway/Transect/Tank	Abbreviated description of the sampling location.	Free text up to 30 characters
Radio Tag	Radio tag code, if present.	Free text up to 50 characters
RKM Ext	The distance in kilometers from the mouth of the stream location to the release or recovery location.	nteger,1-4 digits, left-padded with zeros
Scale ID	Unique identifier for scale sample taken from this fish.	Free text up to 50 characters
Second PIT Tag	Second PIT tag code if fish is double-tagged.	Valid 10 or 14 character tag code in hexadecimal format

Spawn Year	Use only when marking adult fish. Calendar year when fish is expected to spawn.	4-digit valid year between Event Year and Event Year +1
Stock	Brief descriptor of the brood stock of the fish.	Free text up to 15 characters
Text Comments	Free text field for ad hoc comments unique to this fish.	Free text up to 100 characters
Weight	Weight to the nearest tenth of a gram.	> 0

^ If any of these fields are completed, all must be completed

Ignored Fields

Data in these fields will be ignored for Recapture events. No validation checks will be performed on these fields and if data exists

Display Name	Definition	Domain
Brood Year	Calendar year when hatchery stock were spawned.	4-digit valid year between (Event Year - 3) and Event Year
Hatchery	Hatchery where fish was reared.	Hatchery Validation Codes
Mark Method	Method by which PIT tag was inserted into the fish.	Tag Method Validation Codes

Recovery Event: The event during which a previously released PIT tag is recovered from or detected in a dead fish, or is recovered or detected as a bare tag, or is removed from the possibility of being recaptured or detected in the future. Multiple recovery events are allowed for each PIT tag code as some PIT tags, while obviously no longer in a living fish, may be detected multiple times without a physical recovery (e.g. carcass surveys, avian nesting sites). A recovery event that is reported for the same PIT tag with the same Event Date as a previously reported recovery event will be classified as a Recovery Duplicate during the loading process.

Required Fields

All of these fields must be completed before the data can be submitted to PTAGIS.

Display Name	Definition	Domain
Event Type*	The data collection event type represented by the record.	Recovery
PIT Tag*	Unique 10 or 14-character code of the embedded PIT tag in hexadecimal format.	Tag Mask validation
SRR Code*	Three-character code that identifies the species, run, and rear type of fish.	SRR Verbose Validation Codes
Capture Method	Method used to capture or collect fish.	Capture Method Validation Codes
Event Date	Local date and time the data collection event occurred.	Date Time Offset between 1/1/1986 and current date
Event Site	Site identifier where the data collection event occurred.	MRR Site Codes
Life Stage	The general life stage of the fish at the time of the event. Use Conditional Comments to indicate more specific stages.	Adult Juvenile Unknown
Organization	Agency or entity responsible for the data collection event.	Organization Validation Codes
Record #	Number of the record in the session, generated automatically by tagging software.	Integer > 0, unique within session

* Minimum required fields to save a record during data entry.

Optional Fields

Data can optionally be recorded in these fields.

Display Name	Definition	Domain
Acoustic Tag	Acoustic tag code, if applicable.	Free text up to 50 characters
Coded-Wire Tag	Coded Wire Tag code, if applicable.	Free text up to 50 characters
Conditional Comments	Flag codes to record fish condition, morphological and environmental factors, and other situational conditions.	Flag Validation Codes, space separated, max character limit is 50, which allows 15-20 codes depending on use of single-character codes

Detail Note	Ad hoc annotations pertaining to the current record.	Free text up to 200 characters
Genetic ID	Unique identifier for genetic material taken from this fish.	Free text up to 50 characters
Latitude^	Latitude coordinate of the Release Site	Decimal degrees between 40 and 50
Longitude^	Longitude coordinate of the Release Site	Decimal degrees between -125 and -110
Lat/Long Source^	Source for latitude and longitude coordinates:	GPS - collected with GPS DIG - derived using digital map source UNK - unknown
Length	Fork length of fish in millimeters. Precise to 1 millimeter.	> 0
Other Tag	Identifier for any other tag or mark on this fish not captured elsewhere.	Free text up to 50 characters
Raceway/Transect/Tank	Abbreviated description of the sampling location.	Free text up to 30 characters
Radio Tag	Radio tag code, if present.	Free text up to 50 characters
Release Site	Site identifier for recovery location of fish or tag. Only use this if an RKM extension needs to be specified for the recovery location.	MRR Site Codes not mark site only
RKM Ext	The distance in kilometers from the mouth of the stream location to the recovery location.	nteger,1-4 digits, left-padded with zeros
Scale ID	Unique identifier for scale sample taken from this fish.	Free text up to 50 characters
Second PIT Tag	Second PIT tag code if fish is double-tagged.	Valid 10 or 14 character tag code in hexadecimal format
Spawn Year	Use only when marking adult fish. Calendar year when fish is expected to spawn.	4-digit valid year between Event Year and Event Year +1
Stock	Brief descriptor of the brood stock of the fish.	Free text up to 15 characters
Text Comments	Free text field for ad hoc comments unique to this fish.	Free text up to 100 characters
Weight	Weight to the nearest tenth of a gram.	> 0

^ If any of these fields are completed, all must be completed

Ignored Fields

Data in these fields will be ignored for Recapture events. No validation checks will be performed on these fields and if data exists

Display Name	Definition	Domain
Brood Year	Calendar year when hatchery stock were spawned.	4-digit valid year between (Event Year - 3) and Event Year
Hatchery	Hatchery where fish was reared.	Hatchery Validation Codes

Hold Temp	Temperature (Cº) of water in the post-tagging holding facilities.	Degrees Celsius with range -2.0 - 25.0, with 25.0 indicating that no temperature was taken.
Mark Method	Method by which PIT tag was inserted into the fish.	Tag Method Validation Codes
Mark Temp	Temperature (Cº) of tagging bath during marking operation.	Degrees Celsius with range -2.0 - 25.0, with 25.0 indicating that no temperature was taken.
Migration Year	Earliest possible calendar year when juvenile anadromous fish will out-migrate. If tagging adult fish, this is the current calendar year.	4-digit year between (Event Date year) and (Event Date year + 1)
Release Date	Local date and time of release of marked or recaptured fish.	Date Time Offset between Event Date and current date
Release Temp	Temperature (Cº) of water the tagged fish were released into.	Degrees Celsius with range -2.0 - 25.0, with 25.0 indicating that no temperature was taken.
Tagger	Person responsible for marking operation.	LASTNAME I in all capital letters (e.g. SMITH J) with maximum of 30 characters

Passive Recapture: The event during which a previously PIT-tagged fish is detected by unattended or remotely operated detection equipment at a location other than an interrogation site and is not handled. It differs from a Recapture event in that the fish is not handled, only detected. It differs from an interrogation record in that the detection occurs opportunistically in a location that is not a registered interrogation site or cannot be considered production interrogation data. Multiple passive recapture events are allowed for each PIT tag code as long as the Event Dates are not the same.

Required Fields

All of these fields must be completed before the data can be submitted to PTAGIS.

Display Name	Definition	Domain
Event Type*	The data collection event type represented by the record.	Passive Recapture
PIT Tag*	Unique 10 or 14-character code of the embedded PIT tag in hexadecimal format.	Tag Mask validation
SRR Code*	Three-character code that identifies the species, run, and rear type of fish.	SRR Verbose Validation Codes Use 00U for Unknown (fish not observed)
Capture Method	Method used to capture or collect fish.	Capture Method Validation Codes
Event Date	Local date and time the data collection event occurred.	Date Time Offset between 1/1/1986 and current date
Event Site	Site identifier where the data collection event occurred.	MRR Site Codes
Life Stage	The general life stage of the fish at the time of the event. Use Conditional Comments to indicate more specific stages.	Adult Juvenile Unknown
Migration Year	Earliest possible calendar year when juvenile anadromous fish will out-migrate. If tagging adult fish, this is the current calendar year.	4-digit year between (Event Date year) and (Event Date year + 1)
Organization	Agency or entity responsible for the data collection event.	Organization Validation Codes
Record #	Number of the record in the session, generated automatically by tagging software.	Integer > 0, unique within session

* Minimum required fields to save a record during data entry.

Conditionally Required Fields

If the fish will be held for a time before release, data can be submitted to PTAGIS without release information. When the fish have been released, an updated file with complete release information should be submitted. All release fields must be completed at that time.

Display Name	Definition	Domain
Release Date	Local date and time of release of marked or recaptured fish.	Date Time Offset between Event Date and current date
Release Site	Site identifier for release location of marked or recaptured fish.	MRR Site Codes not mark site only

Release Temp	Temperature (Cº) of water the tagged fish were released into.	Degrees Celsius with range -2.0 - 25.0, with 25.0 indicating that no temperature was taken.

Optional Fields

Data can optionally be recorded in these fields.

Display Name	Definition	Domain
Conditional Comments	Flag codes to record fish condition, morphological and environmental factors, and other situational conditions.	Flag Validation Codes, space separated, max character limit is 50, which allows 15-20 codes depending on use of single-character codes
Detail Note	Ad hoc annotations pertaining to the current record.	Free text up to 200 characters
Latitude^	Latitude coordinate of the Release Site	Decimal degrees between 40 and 50
Longitude^	Longitude coordinate of the Release Site	Decimal degrees between -125 and -110
Lat/Long Source^	Source for latitude and longitude coordinates:	GPS - collected with GPS DIG - derived using digital map source UNK - unknown
Raceway/Transect/Tank	Abbreviated description of the sampling location.	Free text up to 30 characters
Radio Tag	Radio tag code, if present.	Free text up to 50 characters
RKM Ext	The distance in kilometers from the mouth of the stream location to the recovery location.	nteger,1-4 digits, left-padded with zeros
Second PIT Tag	Second PIT tag code if fish is double-tagged.	Valid 10 or 14 character tag code in hexadecimal format
Spawn Year	Use only when marking adult fish. Calendar year when fish is expected to spawn.	4-digit valid year between Event Year and Event Year +1
Stock	Brief descriptor of the brood stock of the fish.	Free text up to 15 characters
Text Comments	Free text field for ad hoc comments unique to this fish.	Free text up to 100 characters

^ If any of these fields are completed, all must be completed

Ignored Fields

Data in these fields will be ignored for Recapture events. No validation checks will be performed on these fields and if data exists

Display Name	Definition	Domain
Acoustic Tag	Acoustic tag code, if applicable.	Free text up to 50 characters
Brood Year	Calendar year when hatchery stock were spawned.	4-digit valid year between (Event Year - 3) and Event Year
Coded-Wire Tag	Coded Wire Tag code, if applicable.	Free text up to 50 characters

Genetic ID	Unique identifier for genetic material taken from this fish.	Free text up to 50 characters
Hatchery	Hatchery where fish was reared.	Hatchery Validation Codes
Hold Temp	Temperature (Cº) of water in the post-tagging holding facilities.	Degrees Celsius with range -2.0 - 25.0, with 25.0 indicating that no temperature was taken.
Length	Fork length of fish in millimeters. Precise to 1 millimeter.	> 0
Mark Method	Method by which PIT tag was inserted into the fish.	Tag Method Validation Codes
Mark Temp	Temperature (Cº) of tagging bath during marking operation.	Degrees Celsius with range -2.0 - 25.0, with 25.0 indicating that no temperature was taken.
Other Tag	Identifier for any other tag or mark on this fish not captured elsewhere.	Free text up to 50 characters
Scale ID	Unique identifier for scale sample taken from this fish.	Free text up to 50 characters
Tagger	Person responsible for marking operation.	LASTNAME I in all capital letters (e.g. SMITH J) with maximum of 30 characters
Weight	Weight to the nearest tenth of a gram.	> 0

Tally Event: The event during which an un-tagged fish is sampled or counted without being marked with a PIT tag. Tally events must have 10 dots as the PIT tag code and will be ignored when submitted to PTAGIS for loading.

User defined validation codes can be used in Tally event records. Tally events can be included in files with data that will be submitted to PTAGIS. The records will be exported along with regular PIT tag data, but will be ignored when the file is loaded. The only exception if if a Tally record contains a valid PIT tag code, the file will be rejected. Any records with valid PIT tag codes must be one of the other four Event Types.

Appendix B – Generic Device Commands

Commands accepted by P4 from the Generic Device peripheral.

Command	Parameter	Description	Example
AcceptRecord	None	Validates and accepts the current record	AcceptRecord
ApplyRepeatingValue	None	Applies the active Repeating Value to the current record	ApplyRepeatingValue
ClearBufferedTags	None	Empties the tag buffer	ClearBufferedTags
ClearFieldValue	Field to clear	Clears a field value in the current record	ClearFieldValue:Weight
ClearTemporaryRepeatingValue	None	Clears the temporary Repeating Value	ClearTemporaryRepeatingValue
DotPITTag	None	Dots out the PIT Tag in the current record	DotPITTag
ExportSession	None	Exports the current Session to the folder specified in Utilities	ExportSession
NextBufferedTag	None	Applies the next buffered PIT Tag to a new record	NextBufferedTag
NoCancel	None	No/Cancel dialog response	NoCancel
PITTag	ISO hex tag	Behaves the same as scanning a tag with a reader	PITTag:384.3B23984CF9
RejectRecord	None	Rejects the current record	RejectRecord
ReplaceDuplicateTag	None	Replaces the previous record with the current record's values when a duplicate PIT Tag is encountered	ReplaceDuplicateTag
ScrollFirst	None	Scrolls to the first record	ScrollFirst
ScrollLast	None	Scrolls to the last record	ScrollLast
ScrollNew	None	Scrolls to the new record	ScrollNew
ScrollNext	None	Scrolls to the next record	ScrollNext
ScrollPrevious	None	Scrolls to the previous record	ScrollPrevious
SetFieldValue	Field and value to set	Set a field value in the current record	SetFieldValue:LifeStage=Adult
Tally	None	Dots out the PIT Tag and setsEvent Type field to Tally in the current record	Tally
TogglePanel	Panel to toggle	Shows/hides a panel in the data entry screen. See table of Panel values for more information.	TogglePanel:Statistics
ToggleSelectedRepeatingValue	None	Temporarily disables or enables the selected Repeating Value	ToggleSelectedRepeatingValue
UndoDotPITTag	None	Restores a dotted-out PIT Tag if the current record has not been Accepted	UndoDotPITTag
UseCurrentAsRepeatingValue	None	Uses values in the current record as a temporary Repeating Value	UseCurrentAsRepeatingValue
YesOK	None	Yes/OK dialog response	YesOK

List of acceptable field names to use as parameters for the ClearFieldValue and SetFieldValue commands, along with the type of value and an expected range. Check Appendix A for additional field definitions and requirements.

Field	Value Type	Expected Range	Result
AcousticTag	String	1-50 characters	Replaces current value
BroodYear	Integer	4-digit year from 1986 to 10 years in the future	Replaces current value
CaptureMethod	String	A valid "CAPTURE METHOD" Validation Code	Replaces current value
ConditionalComments	String	One or more space-separated, valid "FLAG" Validation Codes	Appends unique, valid Comment Codes to the field
CWTag	String	1-50 characters	Replaces current value
DetailNote	String	1- 200 characters	Replaces current value
EventDate	DateTime	A valid date time string (e.g. "2017-05-22 13:37:14")	Replaces current value
EventSite	String	A valid MRR Site Code	Replaces current value
EventType	String	Mark, Recapture, Recovery, Passive Recapture, Tally	Replaces current value
GeneticID	String	1-50 characters	Replaces current value
Hatchery	String	A valid "HATCHERY" Validation Code	Replaces current value
HoldingTemperature	Decimal	-2.0 to 25.0 C	Replaces current value
Length	Integer	> 0 mm	Replaces current value
LifeStage	String	Adult, Juvenile, Unknown	Replaces current value
LocationLatitude	Decimal	40.0 to 50.0 degrees	Replaces current value
LocationLongitude	Decimal	-125.0 to -110.0 degrees	Replaces current value
LocationRKMExt	Integer	1-3 digits	Replaces current value
LocationSource	String	GPS, DIG ,UNK	Replaces current value
MarkMethod	String	A valid "TAGGING METHOD" Validation Code	Replaces current value
MarkTemperature	Decimal	-2.0 - 25.0 C	Replaces current value
MigrationYear	Integer	4-digit year from 1986 to 1 year in the future	Replaces current value
Organization	String	A valid "ORGANIZATION" Validation Code	Replaces current value
OtherTag	String	1-50 characters	Replaces current value
PDV1	String	1-50 characters	Replaces current value
PDV2	String	1-50 characters	Replaces current value
PDV3	String	1-50 characters	Replaces current value
PDV4	String	1-50 characters	Replaces current value
PDV5	String	1-50 characters	Replaces current value

Fields

Field	Value Type	Expected Range	Result
PDV6	String	1-50 characters	Replaces current value
PDV7	String	1-50 characters	Replaces current value
PDV8	String	1-50 characters	Replaces current value
PDV9	String	1-50 characters	Replaces current value
PDV10	String	1-50 characters	Replaces current value
Raceway	String	1-30 characters	Replaces current value
RadioTag	String	1-50 characters	Replaces current value
ReleaseDate	DateTime	A valid date time string (e.g. "2017-05-22 13:37:14")	Replaces current value
ReleaseSite	String	A valid MRR Site Code	Replaces current value
ReleaseTemperature	Decimal	-2.0 - 25.0 C	Replaces current value
ScaleID	String	1-50 characters	Replaces current value
SpawnYear	Integer	4-digit year from 1986 to 1 year in the future	Replaces current value
SpeciesRunRearType	String	A valid "SRR VERBOSE" Validation Code	Replaces current value
Stock	String	1-15 characters	Replaces current value
Tagger	String	1-30 characters	Replaces current value
TextComments	String	1-100 characters	Replaces current value
Weight	Decimal	> 0.0 grams	Replaces current value

Panels

List of acceptable panel names that can be used as parameters for the TogglePanel command, which toggles the visibility of a panel if it is docked as a single panel or free floating. If the panel is part of a tab group, the command will activate the tab if it is inactive, but does nothing if it is already active/

Panel	TogglePanel Result	Notes
DataEntryForm	Toggles the panel's visibility	If the panel is tabbed, toggling will activate the tab if it is inactive but does nothing if it is already active
SessionProperties	Toggles the panel's visibility	If the panel is tabbed, toggling will activate the tab if it is inactive but does nothing if it is already active
TagCodeBuffer	Toggles the panel's visibility	If the panel is tabbed, toggling will activate the tab if it is inactive but does nothing if it is already active
Statistics	Toggles the panel's visibility	If the panel is tabbed, toggling will activate the tab if it is inactive but does nothing if it is already active
CurrentRecordValues	Toggles the panel's visibility	If the panel is tabbed, toggling will activate the tab if it is inactive but does nothing if it is already active
Output	Toggles the panel's visibility	If the panel is tabbed, toggling will activate the tab if it is inactive but does nothing if it is already active
MainToolBar	Shows the panel if hidden	If the panel is visible, toggling does nothing