CliniSys
MIPS

Release notes - Version 9.3.0

GLIMS

Content

Version 9.3.0

Important modifications

License check for LDAP authentication (MATE_LDAP-00001)

Beside the built-in authentication system, GLIMS also supports user authentication via LDAP (active directory).

> **Warning**: As of GLIMS 9.3, this module requires a separate license "LDAP Authentication".

Changes for batch users & LDAP authentication (MATE-02573)

Introduction

In previous versions, the configuration of users was not always intuitive - especially for batch process users, which had to be 'disabled' in order to do their work. This modification revises the rules for 'batch' user configuration and adds two new fields to the User table to streamline configuration.

Fields

User.SessionType

> This field determines the type of sessions for this user. There are two options: Interactive or Batch [default value: Interactive]
>
> - **Interactive** is meant for humans who work with the application through a user interface
> - **Batch** is meant for processes such as TranslatorServers and TaskSchedulers

User.PasswordVerification

> This field determines the password verification method for this user. There are two options: Internal or LDAP
>
> 1. **Internal** implies that the User password will be verified internally, even if LDAP connection settings were configured.
>
> > **Tip**: This is a good option for **Batch process users** as the system administrator will no longer have to create an LDAP user for these users

2. **LDAP** implies that the User password will be verified against LDAP, provided the LDAP connection settings were configured. If no server connection could be established, the specified password is compared to the password present in the Glims user record. If it matches, access is granted.

Batch user configuration rules

Previous versions	From this version onward
User.Enabled = NO	User.Enabled = YES
User.AutoLoginAllowed = YES	User.AutoLoginAllowed = YES
User is assigned a Role of type 'System manager'	User.SessionType = Batch
	User is assigned a Role of type 'System manager'

During the upgrade, all existing User records are converted appropriately.

> **Warning**: If User.Enabled = NO then the user will no longer be able to access the application (regardless of his/her session type or role assignments)

Order entry

Layout issue in screen to select optional panel members (GLIMS-05867)

When requesting a panel with optional panel members in order entry, a second window is shown that allows to select these optional panel members. In case of panel members with a large mnemonic, these were not completely visible in that selection screen. This has been corrected.
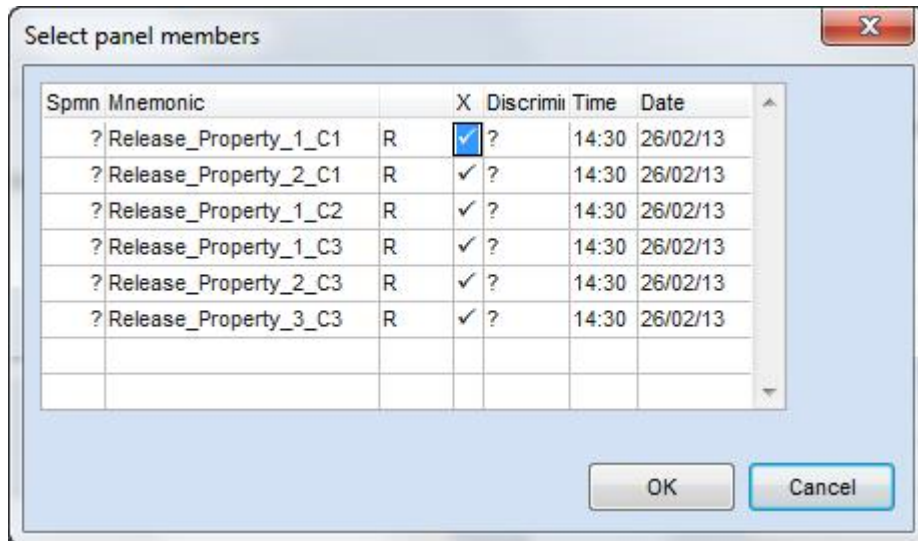
Issue with selection of request definition (GLIMS-05901)

When a request code is linked to several request definitions of type material, and some of these are issuer-specific, it could happen that GLIMS did not select the most appropriate request definition when entering the request code in order entry.

This has been corrected.

Wrong sampling time when explicitly adding a request on a root specimen (GLIMS-05911)

Problem description:

- Open the order entry screen.
- Add a material requestable with sampling time 14:00.
- Add a second material requestable with sampling time 16:00.
- Add a property requestable on the second material requestable.
- The property requestable is registered with sampling time 14:00 (lowest object time) instead of 16:00 (sampling time of the applicable material requestable).

This has been corrected.

Support for order's "entering device" (GLIMS-06158)

Introduction

Several changes have been implemented to register the device by which an order was entered (GLIMS-06158, GLIMS-06162, GLIMS-06226, GLIMS_POC-00046, GLIMS_OI-00500).

Tip

> **Tip**: Modification MATE-02664 introduces a new built-in MISPL function "CurrentDevice" in GLIMS 9.3.

New Order field "Entering device"

A new Order field named "Entering device" has been added. This field identifies the physical device (terminal, PC) used to enter the order. It is not visualized in the order entry screen but can be retrieved via MISPL in reports, statistics, ...

There are several mechanisms to register this information:

Manual order entry

Whenever an order is manually created in GLIMS, the entering device will be registered:

- Via the order entry screen
- When using the result import program
- When creating an order for blood bags to be verified
- ...

Electronic order entry

When processing electronic order import messages, GLIMS can also register the entering device.

> **Note**: in case of electronic order entry, GLIMS depends on the capability of the external system and the driver to transmit this information. The HL7 protocol explicitly supports this information in the field "ORC-18".

POC and instrument communication

In case of point-of-care and other instrument connections, GLIMS also supports the "entering device" when a new order is to be created.

A new Station field "Entering device" has been added.

When receiving a message from an instrument that leads to the creation of an order, the entering device will be determined as follows:

1. The entering device as specified in the communication message.
2. If not specified in the message, the "Entering device" as defined in the station configuration.
3. If both are unknown, the session's device is used.

> **Note**: to support this, the internal GLIMS ASTM protocol has been extended with a M-segment containing the entering device identifier in field M.4.1.1:
>
> - M.1: Fixed 'M'
> - M.2: Segment sequence number
> - M.3: Fixed: 'EnteringDeviceId'
> - M.4: the-entering-device-id
>
> The M-segment follows the message header record.

Specimen barcode scanning

If an order is to be created when scanning specimens (e.g. specimen reception scan, specimen archive scan), the entering device will be determined as follows:

1. The "Entering device" as defined in the related station configuration.
2. If unknown, the session's device is used.

Issue with "Confirm specimens" in Order series (GLIMS_CLTR-00039)

The **Confirm specimens** option of the Create order series program was no longer taken into account. This has been corrected.

New features for EOS and IHE communication (GLIMS_EOS-00080)

Case description

This modification was implemented to support the following cases:

EOS (Electronic Order Scheduler)

- In case of pending orders, GLIMS should offer the possibility to delay panel expansion until order activation. For orders in the future, it should be possible that all requests (panels, individual tests) are stored without any further interpretation until the order is actually activated.

> **Example**
>
> In case of a panel, its contents may change in the period between order entry and order activation. GLIMS should be able to use the most recent configuration when activating the order.

IHE Order communication

- In case of electronic order communication, GLIMS should be able to store all received information as such, without immediately translating it to GLIMS configuration.
- GLIMS should offer full support for "Order Placer ID" and "Order Filler ID".

Introduction of new table RequestedCode

The new database table **RequestedCode** is situated between the **Order** and **Request** table.

It will contain:

- All explicitly requested codes for an order.
- The code (as entered) and all additional information about that code (e.g. discriminator, variables, etc.).
- All information will be stored as received (manually or electronically), without any interpretation.
- Coding system to be used for interpretation

Main principles

- For each explicitly **requested code** in the order, a **RequestedCode** will exist.
- Each **request** will refer to the originating **RequestedCode**.

  - Also indirect requests (e.g. added via procedure configuration) refer to the **RequestedCode** that caused their creation.

    > **Note**
    >
    > Every request that is automatically added by GLIMS (lab initiated) has a reference to the (existing) RequestedCode that (directly or indirectly) lead to the creation of the new request.

  - Each action will also refer to the **RequestedCode** that caused its creation.
- A **RequestedCode** can be discontinued

Multiple requests for the same result

Important change: if a property is requested through more than 1 panel, a request is created for each panel. This implies that a single result can have multiple requests.
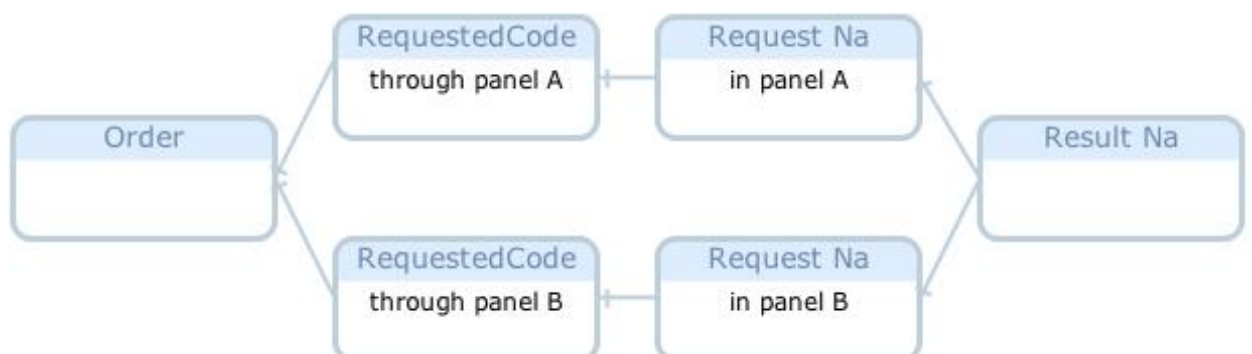
The same goes for microbiology actions, blood selections, pathology exams and specimens.

Order expansion and activation

The diagram below shows the different phases during which GLIMS creates Requested codes, Requests, Results, Specimens, etc.

1. Requests are entered (manually or electronically).
2. Expansion: GLIMS uses the entered codes to find a matching requestable (request definition) and creates requests.
3. Activation: the required Result, Specimen, … records are created.

> **Note**
>
> In case of pending orders (see below), the *Expansion* phase can be delayed until the order is activated.
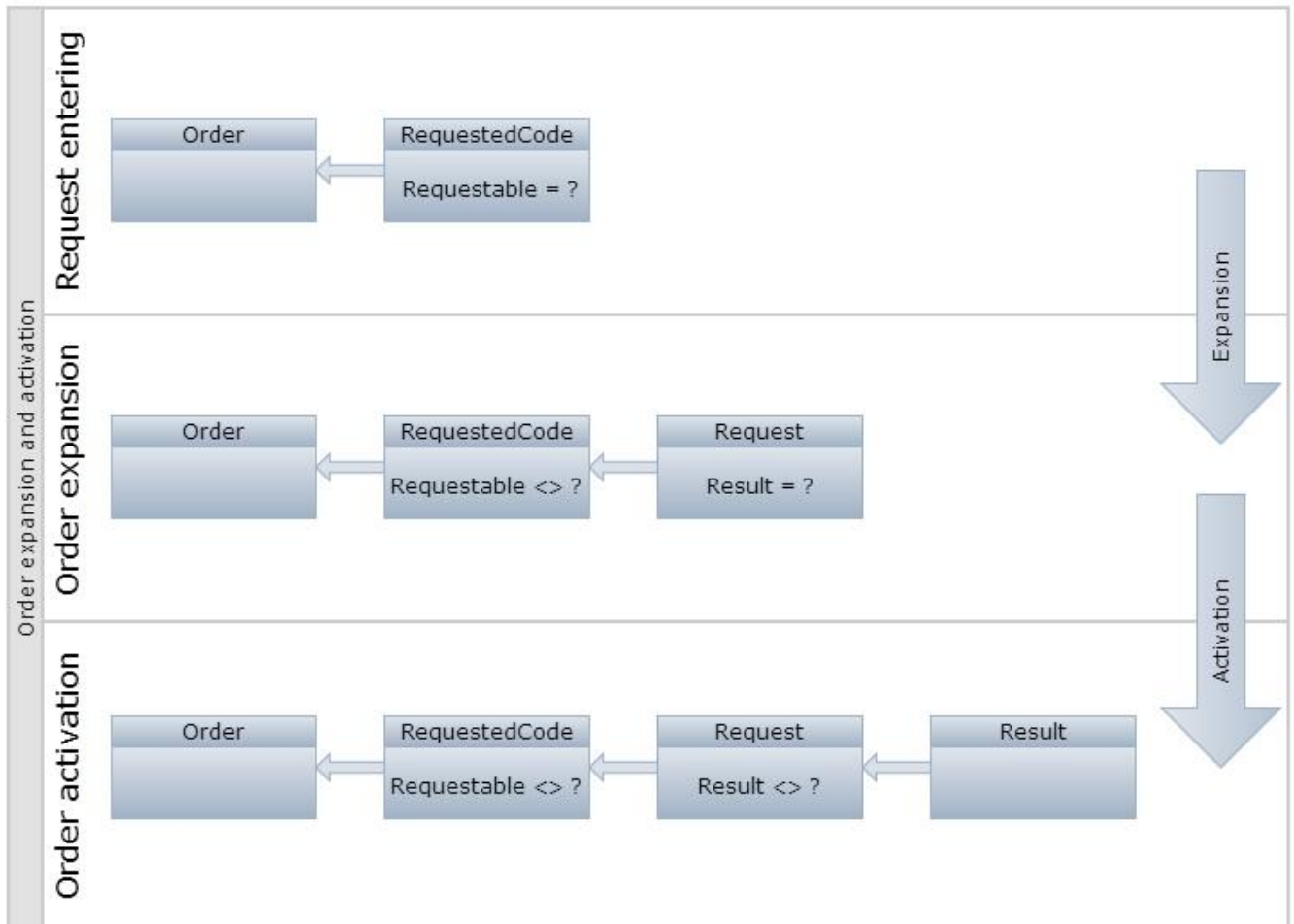
For regular orders

For regular orders, these phases will be executed immediately when saving the order.

For pending orders

For pending orders, the execution of the different phases depends on the general option **Immediately expand panels on order creation** (**Start -> System management -> Customize -> GLIMS EOS**).

- If **Immediately expand panels on order creation** is enabled, the expansion phase will be executed immediately during order entry.
- If **Immediately expand panels on order creation** is disabled, the expansion phase will be delayed until order activation.

Schema

		Immediate expansion	Delayed expansion
1	Creation of Order record Creation of RequestCode records where RequestedCode.Requestable = ?	Order entry	Order entry
2	Expansion of RequestedCode into Requestable RequestedCode.Requestable <> ?	Order entry	Order activation
3	Expansion of panel requestables Creation of Request records where Request.Requestable <> ?	Order entry	Order activation

		Immediate expansion	Delayed expansion
4	Activation of the Requests: Creation of Result / MicrobiologyAction / Blood selection for all Request records	Order activation	Order activation
5	Post-processing of the order (action scheduling, label printing)	Order activation	Order activation

RequestedCode fields

To access a requested code:

- Select an order and choose the contextual function **Requested codes**.
- Select a request and choose the contextual function **Requested code**.

Prescription

Code

The code as manually entered during order entry or as received from an external ordering system.

> **Note**
>
> In case of electronic order entry: if the order import message mentions a coding system, the code in the message will immediately be translated using the corresponding coding system in GLIMS.

Reference time

Sampling time as specified during manual/electronic order entry.

Discriminator

Discriminator as specified during manual/electronic order entry.

Material variables

Material variables as specified during manual/electronic order entry.

Assessable material

If a test has been requested explicitly on a specific material, this field will refer to the material request.

Urgency

Urgency as specified during manual/electronic order entry.

Internal comment

Will appear on work lists. It is provided along with an individual request during order entry.

> **Example**
>
> *Result to be phoned asap to X on beeper no 999*

External comment

Will appear on reports. It is provided along with an individual request during order entry.

Origin

One of: **External system, Manually entered, Added by MISPL, Due to procedure configuration, Auto-prompt procedure output, Historic, Instrument, Conversion**

Panel originally entered but immediately expanded

Refers to the originally entered panel, which was modified after requesting it during order entry.

Examples

> **Example**
>
> 1. In **Order entry**, request a panel **Ions** with panel members **Na, K, Cl**.
>
> 2. In **Order entry**, check the **Detail** option to show the panel members.
>
> 3. Delete panel member **K**.
>
> 4. GLIMS will no longer assume that you requested a panel, but only some of its members. **Na** and **Cl** will be requested as individual tests.
>
> 5. However, GLIMS will still register that the tests were originally requested through a panel.
>
> 6. Save the order and use the contextual function **Requested codes**. GLIMS will have registered 3 requested codes: one for each remaining member (**Cl** and **Na**) and one for the originally requested panel **Ions** (which is auto-discontinued).
>
> 7. For tracing purposes, the requested code for the remaining panel members will refer to originally requested panel.

Discontinued

Will be checked if the entered code was deleted during order entry.

Billing

To charge

As specified during order entry.

Billing mark

As specified during order entry.

Flags

As specified during order entry.

Electronic communication

Inbound coding system

For future use.

External placer code

Placer code received from an external application during electronic order entry.

Department to execute

Executing department imposed by external application during electronic order entry.

Interpretation

Request definition

Will be empty until the order is expanded. After order expansion (see above), this will refer to the request definition linked to the matching requested code.

Requests

Requests created for the request definition.

Other

Order

Order to which this requested code belongs.

Internal filler code

Internal code assigned by GLIMS.

Discontinued by / time / reason

If the requested code was discontinued, these fields will show the discontinuation user, time and reason.

Order entry - visualization changes

Panel expansion

When requesting a panel and enabling the **Detail** option, the browser will show the panel and its content (slightly indented). If the requested code was not yet expanded (e.g. in case of a pending order), the panel members will be shown, but grayed out, indicating that this is a "preview".

Expanded:

Not yet expanded:

Requesting a property explicitly on a specimen

GLIMS allows to explicitly requesting a test on a specific specimen by first requesting the material and then the property. The browser will show the requested material and the property (slightly indented).

About panel tampering

With panel tampering, we mean "requesting a panel during order entry, expanding it (Detail option) and then deleting one or more members". In such a case, this will be considered as requesting the individual members. The Requested code for the panel will be discontinued and Requested codes will be created for the remaining members.

Notes

> **Note**
>
> - In case of a pending order which is already expanded, the Request codes will not be changed. Instead the Request records will be deleted.
> - Once an order has been activated, The Result record will be discontinued.

IHE communication

Placer and filler codes in GLIMS

A Requested code has an

External placer code

Code received from an external application during electronic order entry.

Internal filler code

Code assigned by GLIMS.

A Request has an

External filler code

Code received from an external system that executed this request (subcontracting).

Usage of placer/filler codes in IHE communication

Example of IHE LTW profile implementation with:

- LAB-1: Placer Order Management
- LAB-2: Filler Order Management
- LAB-3: Order Results Management

1. When CyberLab sends an order to GLIMS, GLIMS will store the placer code (as specified in the message) in the field RequestedCode.ExternalPlacerCode and will automatically assign a RequestedCode.InternalFillerCode.
2. When GLIMS reports results to CyberLab, GLIMS will send both the RequestedCode.ExternalPlacerCode as the RequestedCode.InternalFillerCode.

3. In some cases, tests are outsourced to an external LIS (subcontracting). In the example above, GLIMS would take up the role of order placer instead of order filler.
    1. GLIMS will export the RequestedCode.InternalFillerCode as placer code to the external LIS.
    2. The external LIS will reply with that same code and possibly its own internal filler code. The latter is then stored by GLIMS in the field Request.ExternalFillerCode.

Database conversions

What

- Creation of RequestedCode records that are already expanded
- Linking of Requests to RequestedCodes
- Creation of additional Requests, based on Request.PanelList
- Linking of Action to RequestedCode

When

- Open orders: during conversion ran when starting GLIMS 9.3 for the first time.
- Closed orders: automatically through nightly tasks.

EOS

Deleting a request in a pending order (GLIMS-05721)

It was not possible to delete a request in a pending order. This has been corrected.

Check issuer validity when activating pending order (GLIMS_EOS-00089)

When manually activating a pending order, GLIMS will now check if the order's issuer is still valid ("active until" date of the correspondent has not elapsed). If not, GLIMS will show a warning message and ask to specify an active issuer before activating the order.

Separate "order activation" from "order entry" options (GLIMS_EOS-00098)

When activating a pending order, some customers want to apply different default values/options than the ones used for regular order entry. To accomplish this, the existing order entry options are no longer used for activation of pending orders.

Instead, a new tab page "Order activation" has been added in the user preferences (Start -> Tools -> Set user preferences). These options are applied when activating a pending order.

When upgrading to GLIMS 9.3, the order entry options of existing users are copied to the new order activation options.

Set user preferences

Main | Microbiology | Pathology | CyberTrack | **Order activation**

Object time

Default value: `?` `?`   Max days in past: `10`

Rounding: `00:00`   Max days in future: `30`

Scheduler

☐ Automatic sample login

☐ Allow specimen re-use

☐ Allow result re-use

☐ Remote scheduling

Scheduler verbosity: `0`

Labels

☐ Check if printed
  ☐ Order label 1
  ☐ Order label 2

☐ Check if printed
  ☐ Root specimen labels
  ☐ Work specimen labels   ⦿ Always ○ When expected

Printer: `?`
  NotePad

☐ Carrier labels
  Printer: inbatch

Sampling location: `?`

Sampling address: `?` `?` `?`

Department: `?`

Encounter selection: `Automatic`

Evaluation before commit: `?`

Evaluation after commit: `BlokkeerPostcommit`

Evaluation after scheduling: `?`

OK | Cancel

Consultation

Do no store object pattern search in user preferences (GLIMS-05782)

The object pattern search that can be specified in the order consultation program is no longer stored in the user preferences.

Validation

Error when opening object history in specimen review (GLIMS-06213)

When opening the "Object history" screen starting from the "Specimen review" screen, the following error could occur:

> *'Value xxxx too large'*

This has been corrected.

Group results for export to Valab (GLIMS_VLB-00051)

Requirement

In some cases, Valab requires a group of results to perform a correct validation.

Solution

GLIMS now allows to group results before sending them to Valab. The Valab validation screen in GLIMS has a new option "Classification" which allows to select a property classification.

A "group" is defined as a property classification node with "Reportable" set to "When complete", having child nodes for properties. Of course, only properties available in the property code set of the Valab validation coding system are considered.

Results

Format of mean value in "Result.SelectValue" function (GLIMS-05885)

The "Select value" function for Results allows selecting several previous results in which case the mean value of these results will be stored as final result. However, the format of the mean value was not always the same as the format of the original results.
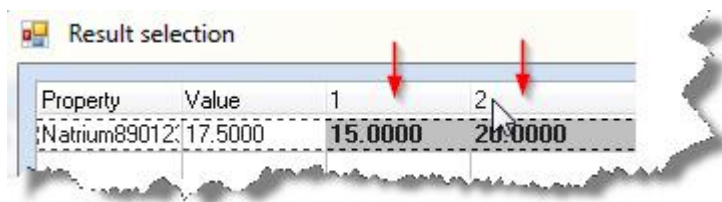
This has been corrected.

Correction for Result.SelectValue (GLIMS-06119)

In GLIMS, the Result-based function "Select value" allows selecting a final value for results which have been measured several times.

It also allows selecting several previous results in which case the mean value of these results will be stored as final result. This feature can be deactivated by disabling the field "**Allow selecting multiple results**" in the general options (Specific site). However, even if this option was disabled, users could still select multiple result values by clicking on the column headers (instead of the result cells).

This has been corrected.

Informational results should not influence action status (GLIMS-06142)

Problem description:

- The availability of an informational result could set the action status to "Partial".
- This could lead to an analyzer upload while the specimen was not yet available.

This has been corrected.

Quick access to "ClearDownloadStatus" function (GLIMS-06159)

In previous versions, when trying to rerun a test while positioned in a Result context, one had to:

1. Right-click and choose "Action outputs"
2. Right-click and choose "Action"
3. Right click and choose "Clear download status"

This has now been simplified. The Result table now has a new function "Clear download status" which does exactly the same as the Action-based function, but it is immediately accessible from the contextual menu/ribbon for results.

Discriminator prevents display of previous results (GLIMS-06187)

Problem description:

- In order entry, a user erroneously adds a discriminator to a request. E.g. "Na K" in which "K" is a string discriminator.
- GLIMS will automatically set the Result field "Dynamic type" to "Discriminator"
- Even when clearing the Discriminator field of the related specimen, the result's dynamic type will not be changed.
- As a consequence such results were not shown as previous results in result browsers, as GLIMS required an identical "Dynamic type" for both results.
- GLIMS is now less strict when considering a result as a "previous result". A Dynamic type "Discriminator" or "None" will no longer prevent a result from being considered as previous result.

Issue with MISPL functions that add result comment (GLIMS-06188)

The MISPL functions **Result.AddExternalComment** and **Result.AddInternalComment** could cause an error when the comment to be added contained more than 2968 characters.

This has been corrected.

Work lists

Default printer not used in work list generation (GLIMS-06266)

Problem description

1. Configure a work list template and specify a **Printer** .
2. Generate a work list for this work list template.
3. In the work list generation screen, the defined printer was not proposed as default.

This has been corrected.

Patients

Support for multiple birth order (GLIMS-06072)

Several changes have been implemented to introduce support for the "multiple birth order" concept (GLIMS-06072, GLIMS_PI-00312, GLIMS_PI-00315, GLIMS_PX-00021).

Registering the multiple birth order in GLIMS

A patient's birth order can be specified:

- Manually during order entry.

- Manually in the person editor.

- Automatically through patient import communication with external applications.

> **Note:** the multiple birth order field only accepts values between 1 - 9.

Exporting the multiple birth order

GLIMS can export the multiple birth order when exchanging information with external applications.

Auto-calculate patient's age when birth date is specified (GLIMS-06073)

When entering a patient's birth date in either the **Person** editor or the **Order entry** screen, the patient's age will now be immediately calculated.

Orders

Error when pressing CTRL-F in order browser (GLIMS-06197)

An error could occur when pressing CTRL-F to open the "Find" screen in the "Orders by internal Id" browsers. This has been corrected.

Issue with discontinued requests in order log (GLIMS-06231)

Problem description

1. An order is created with request X and Y.
2. The order log shows the creation of both requests.
3. Request X is discontinued.
4. The order log shows the discontinuation of request X, but the original creation of request X is no longer shown.

This has been corrected.

Phone list

Order internal ID and short ID displayed in phone list (GLIMS-05927)

The phone list (view type "Outline") now also displays the order internal ID and the order short ID.

Incomplete phone list for "combined" orders (GLIMS-05966)

Problem description:

- Two different issuers place the same order for the same patient on the exact same time.
- The order entry option "Allows result reuse" is activated.
- The result exceeds the phone list threshold.
- In this case, only the first result will appear on the phone list. The re-used result does not.
- Because of this issue, only one issuer was notified about the result while both issuers should have been.

This has been corrected.

Reports

Validity check for fax number (GLIMS-06236)

A new field **Fax number validity** is available in the general options (**Start -> System management -> Customize -> GLIMS general**). It allows to define a MISPL expression that checks the validity of fax numbers in GLIMS.
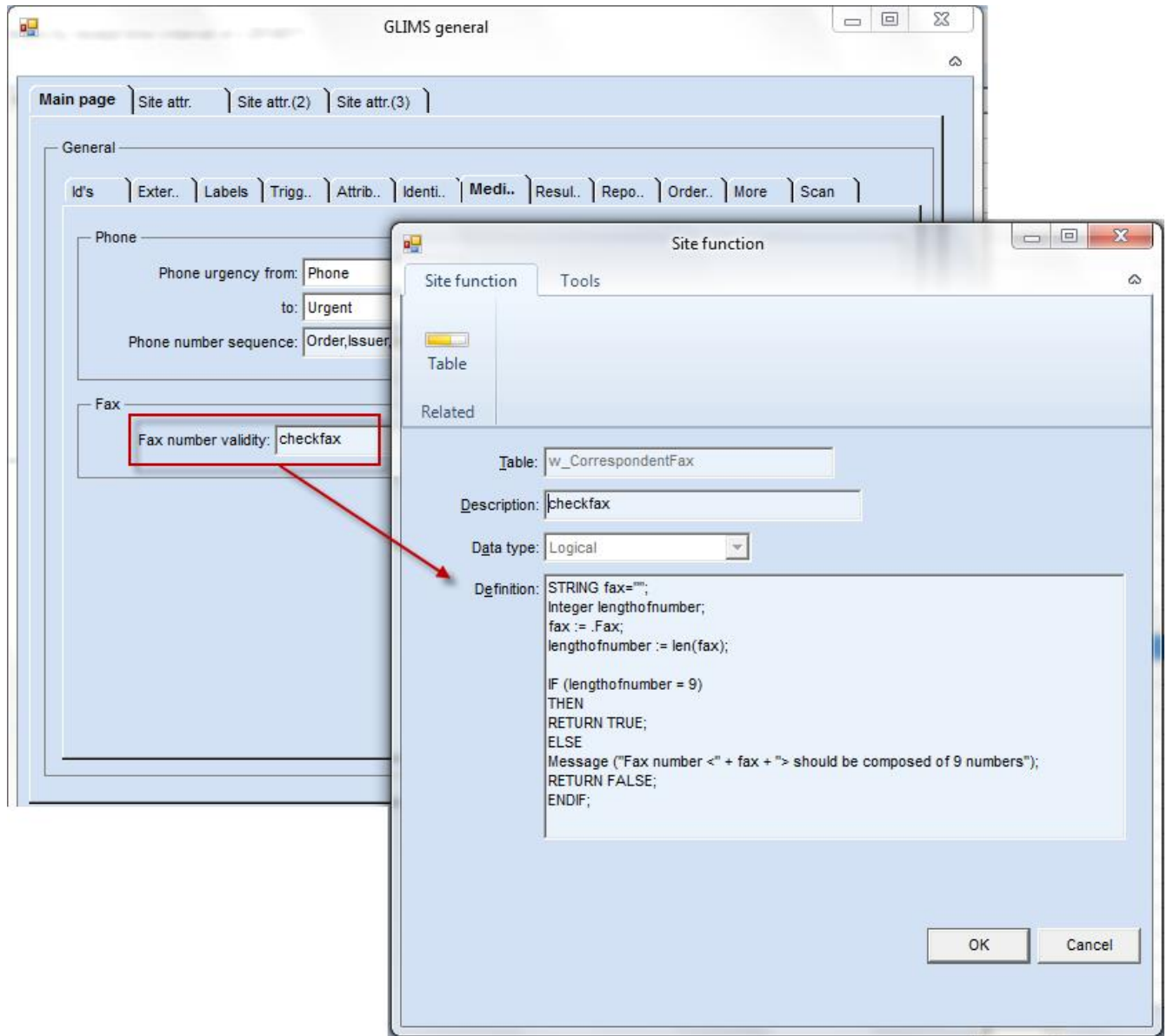
The validity check is executed when:

- Editing and saving Correspondent configuration

- Entering a fax number in the Add medium report screen
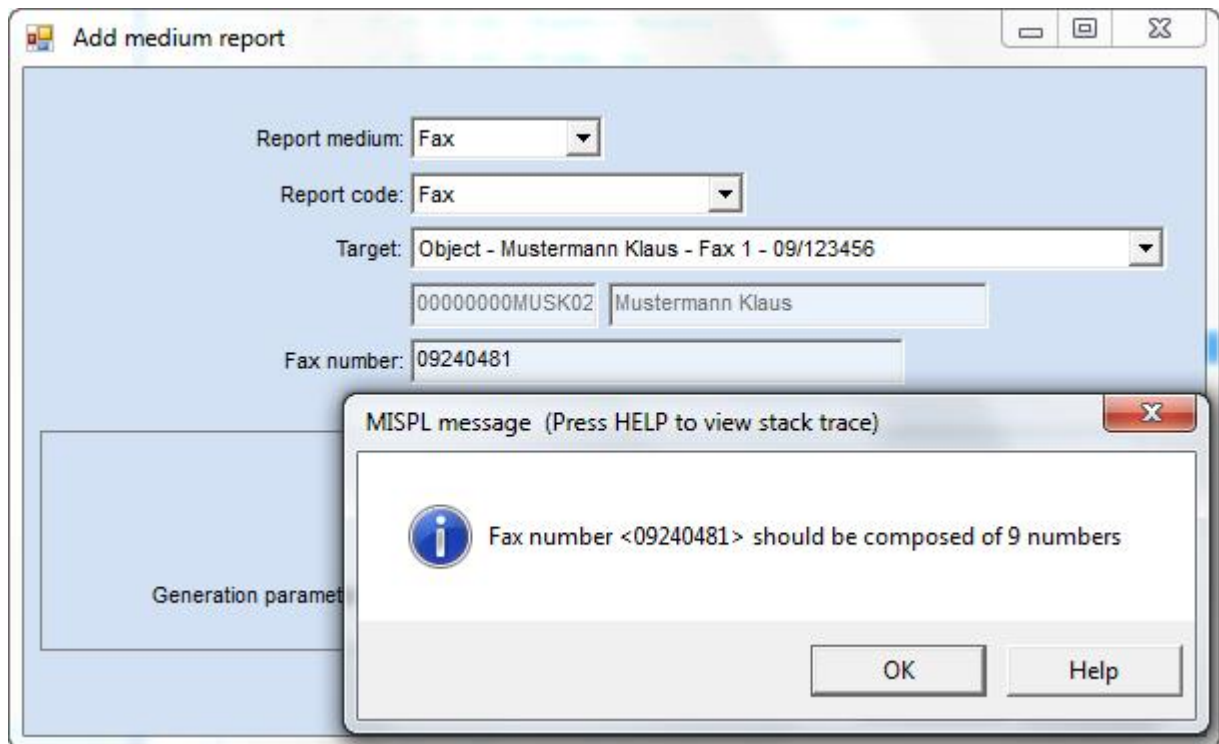
New MISPL function Order.CreateMediumReport (GLIMS-06237)

A new MISPL function Order.CreateMediumReport is now available. It allows to add via MISPL a report to an existing order for a specific medium (fax, e-mail, courier,...). In addition to the Code parameter (as used in the Order.CreateReport MISPL function), the parameters Medium, Target, Forced, GenerationParameterSet and MediumInfo can be optionally supplied.

Adding a report that is generated only once (GLIMS-06239)

Background information

A report can be generated several times in the life span of an order, i.e. each time the conditions to trigger the generation of the report are met (e.g. when new results are available).

New feature 'Generate only once'

It is now possible to request an ad-hoc report that is generated only once. This means any possible subsequent triggering of the report is blocked and does not retrigger a generation of the report.

By using the Order.AddMediumReport function

When requesting a new report by means of the Order.AddMediumReport function, an option is available to mark it as 'Generate only once'.

In the Report editor

In the report editor (from an Order, select Reports > Reports), it will be indicated whether or not the report was requested as 'Generate only once'. If the 'Generate only once' option is enabled and the report has been generated, the 'Needs checking' option of the report will be disabled and will remain disabled so that the report will not be generated again when the order changes.

Manually adding report is logged (GLIMS-06240)

When manually adding a report for an order, this will now be included in the order log.

New method Order.AddMediumReport (GLIMS-06241)

Introduction
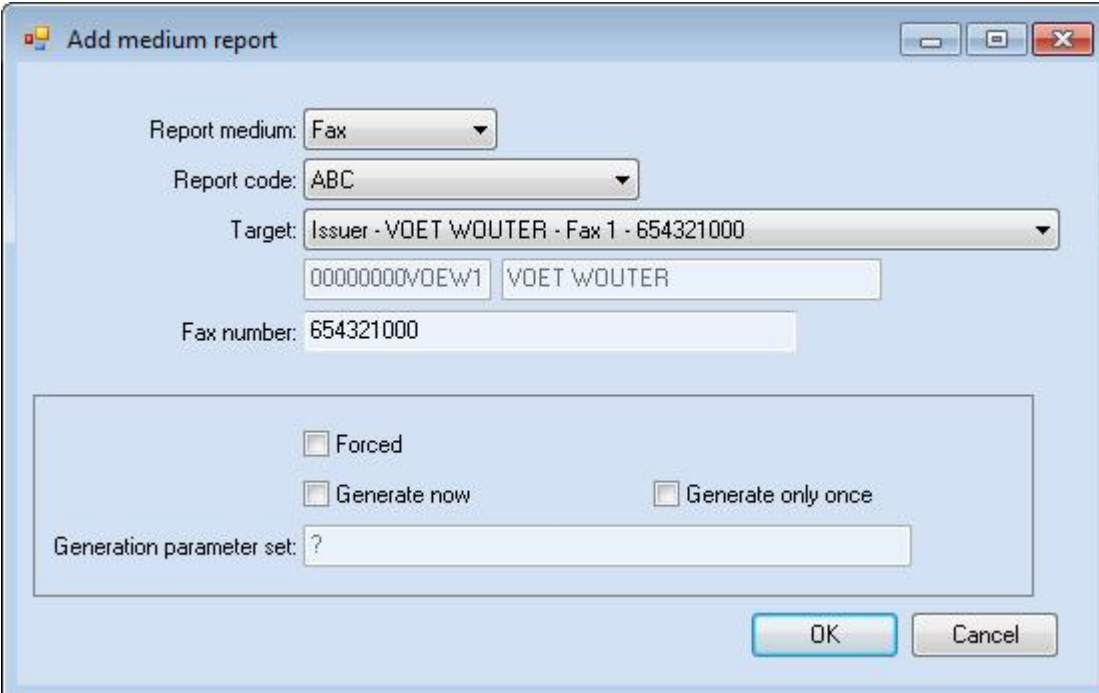
GLIMS offers several ways to add a report for an existing order in addition to the reports that were originally scheduled during order entry.

New function Order.AddMediumReport

A new function Order.AddMediumReport is now available in GLIMS. It can be accessed from an order (browser) via **Reports > Add medium**. This function is similar to the existing Order.AddReport function but offers some additional functionality.

The Order.AddMediumReport function can be implemented as a pre-configured menu/ribbon item.

Parameters

Report medium

Allows to filter on report medium type. Possible values: Fax, Phone, Modem, E-mail, Courier, Communication, File. The value of the **Report medium** field determines which default report codes will be selectable in the **Report code** field.

Report code

Lists all default report codes with the same report medium type as the one selected in the **Report medium** field.

Target

Lists the most obvious targets of which the user can select one:

- Patient related to the order
- Issuer related to the order

- Agent related to the order
- "Explicit": allows to explicitly specify a target.

Notes

> **Note**: When multiple orders have been selected, only the targets that are shared by all orders will be displayed.

Medium info / Fax number / E-mail address

This field can have different labels depending on the report medium that has been chosen. It contains additional information (e.g. fax number, phone number, ...) that is linked to the report medium and that is displayed (if available) when the target is selected. The displayed information can always be overruled. The information will be used during report generation and is stored in the report.

Support for IHE LAB-3 Order-scoped reporting (GLIMS_RX-00517)

In previous versions, GLIMS supported IHE LAB-3 reporting through "Request group"-scoped reports. IHE LAB-3 reporting is now also supported for Order-scoped reports, which should improve performance.

In the future, GLIMS will no longer support "Request group"-scoped reports.

Attachment information in electronic reports (MATE_COMHL-00257)

Electronic reports can now also include attachment information.

1. In the **Report generation** screen, click the **Report items** button.

2. In the **Items to export** screen, you can select the **Attachment categories** for which attachment info should be exported. The attachments linked to the reported **Order** and its patient (**Person**) will be exported.

Report builder

Export attachment info for Report builder (GLIMS-06151)

For result reports generated with Report builder, the exported XML will now contain additional elements with information about any order attachments.

The "Order" element contains an "Attachments" element which in turn has a "Attachment" element for each order attachment.

Report Builder: support for 'Renumber isolations' (GLIMS_ARep-00106)

Report builder now fully supports the **Report template** option **Renumber isolations**.

If this option is enabled, the **<Isolation>** elements in the XML structure will contain a **<ReportSequencer>** child element which you can use to get the sequence number of that isolation within the report.

Notes

> **Note**
>
> If the report includes an antibiogram and
>
> 1. the **Report template** option Show single antibiogram per is set to **Report**
>
>   and
>
> 2. the antibiogram is exported before all cultures
>
> then the antibiogram will only contain the isolations exported so far.

> **Note**
>
> If the report includes an antibiogram and
>
> 1. the **Report template** option Show single antibiogram per is set to **Isolation** or **Specimen**
>
>   and
>
> 2. the antibiogram is exported before its corresponding culture
>
> then the **Renumber isolations** option is ignored.

Report Builder: support for job sheet configuration [UNIX only] (GLIMS_ARep-00134)

Introduction

When printing result reports with Report Builder, the printer settings "Preamble" and "Postamble" are ignored. This was often used in text-based reporting to turn on such printer features as job sheets.

Before this modification, the only option was to create a separate UNIX printer queue, preconfigured to print a job sheet or not. Now the system manager can configure this at the level of the GLIMS report template.

New feature

A new setting was added for report templates: **Job sheets**. **Note that this option only applies to UNIX systems !!**

The following values are available:

1. **Default** = do nothing special, merely apply the settings of the UNIX print queue configuration
2. **None** = do not print job sheets, even if the printer is set to print job sheets in the UNIX print queue configuration
3. **Standard** = print job sheets, if the printer is set to print job sheets in the UNIX print queue configuration

Report Builder: support compressed result reports (GLIMS_ARep-00143)

Support was added for generating result reports as fully compressed PDF documents when using GLIMS Report Builder. Previously, all generated PDF documents were not fully compressed.

The PDF compression can be activated in the report template configuration.

Note: turning on the 'Compress' option may have a performance impact on report generation.

Corrections for history charts generated with Report builder (MATE-02334)

The following issues were identified in the "HistoryChartCustomizer" implementation for Report builder:

- multiple Y-axes with same range should be collapsed
- 0-values in log scale have side effects
- MaxValue is not always respected (when combined with the MinMaxTweak option)
- reference interval support is too limited

These have been resolved.

Report builder checks required files (MATE-02487)

Some customers reported problems with Report builder that were a consequence of missing .jar files. Now we check if all the .jar files are actually present on the hard disk before loading the JavaVM.

Support page number placeholders in PDF metadata (MATE-02555)

In GLIMS v8.10 (GLIMS_ARep-00128), we added support for setting metadata in PDF/A documents generated with Report builder.

While the PdfAuthor, PdfKeywords, PdfSubject and PdfTitle can be set as dynamic texts, evaluated in the context of the GLIMS Report record, these metadata have no access to the information of the actual generated document, such as the page count. This modification adds support for the following two placeholders in these four metadata:

1. PAGECOUNT: the total number of pages of the generated report
2. PAGERANGE: either "1" if the number of pages is 1, or "1-N" where N is the number of pages of the generated report

Thus a PdfKeywords text definition of

Pages <PAGERANGE> ; nombre de pages <PAGECOUNT>

would be evaluated in ReportBuilder as follows

- for a single page report as: *Pages 1 ; nombre de pages 1*
- for a five page report as: *Pages 1-5 ; nombre de pages 5*

Report builder utility to convert string to HTML (MATE-02927)

A new helper function was added to Report builder to assist in the conversion of text strings to HTML for printing styled text on reports.

Some of our example templates already use the method *be.mips.util.StringUtilities.stringAsHtml (String content)* to convert the string to properly escaped HTML content. Unfortunately, this method also replaces spaces with non-breaking spaces and newlines with <br> tags, which may result in strange line breaks when used in combination with preformatted text.

For that reason, we added another method *be.mips.util.StringUtilities.stringAsHtml(String content, boolean preformatted)* where the second parameter can be either:

- *false* (same behaviour as before)
- *true* (do not replace spaces or newlines)

Given a String *theText* with content:

> This text contains
> HTML characters (<>&")

Calling *be.mips.util.StringUtilities.stringAsHtml(theText, false)* returns:

> This text contains HTML
characters (<>&")

Calling *be.mips.util.StringUtilities.stringAsHtml(theText, true)* returns:

> This text contains HTML
> characters (<>&")

New Printer options "Job sheets" and "Printer sides" (MATE-02973)

Background information

In the Report template configuration, the options "Job sheets" and "Printer sides" are available for result reports generated with Report builder.

New requirement

These options should also be available for other types of reports (complaints, work lists, etc) generated with Report builder.

Solution

The same options ("Job sheets" and "Printer sides") are now available in the "Printer" configuration:
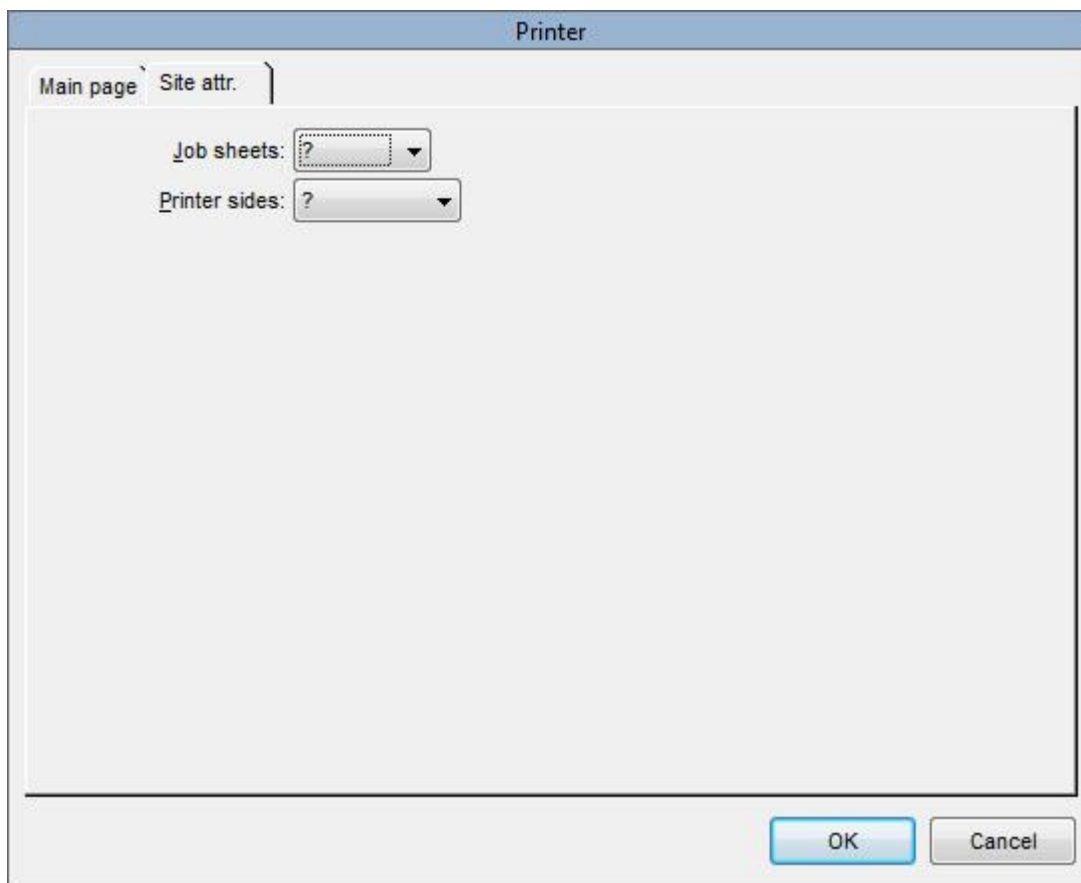
Printer sides

This option only applies to reports generated with Report Builder. It optionally allows to over-ride the default printer settings.

- **Default**: do nothing special, merely apply the settings of the Windows printer or UNIX print queue configuration.
- **Single-sided**: print one-sided, even if the printer is set to print two-sided in the Windows printer or UNIX print queue configuration.
- **Duplex**: print two-sided (long edge), even if the printer is set to print one-sided in the Win-dows printer or UNIX print queue configuration.
- **Tumble**: print two-sided (short edge), even if the printer is set to print one-sided in the Windows printer or UNIX print queue configuration

This setting is ignored if the printer can only print one-sided.

Job sheets

This option only applies to reports generated with Report Builder and it **only applies to UNIX systems !!**

- **Default** = do nothing special, merely apply the settings of the UNIX print queue configuration
- **None** = do not print job sheets, even if the printer is set to print job sheets in the UNIX print queue configuration
- **Standard** = print job sheets, if the printer is set to print job sheets in the UNIX print queue configuration

Remarks

- These new Printer options only apply to reports generated with Report Builder.
- If the equivalent options in the Report template are set to "Default", the Printer options are used. Else, the Report template options take precedence over the Printer options.

Support TIFF images on Report builder layouts (MATE_RB-00001)

In order to support the use of single- and multi-page TIFF images on Report builder layouts, two helper methods were added.

1. To determine the number of pages, use iReport to add a variable to your layout, with an expression of the form:

   be.mips.util.ImageUtilities.getTIFFPageCount(the_file_path)

   where the_file_path is a java.lang.String variable

2. To extract and use an individual page, use iReport to add an image to your layout, set its expression class to 'java.awt.Image', with an image expression of the form:

   be.mips.util.ImageUtilities.getTIFFPage(the_file_path, the_page_index)

   where the_file_path is a java.lang.String variable and the_page_index is a zero-based int value

Remove unused field definitions in Report builder templates (MATE_RB-00004)

Case description

MIPS currently delivers .jrxml files with a declaration from all possible fields. Users can drag/drop these fields into the design to make a report.

This is a user friendly way of working but it takes also lots of resources to fill the report.

New feature

To improve performance, GLIMS version 9.3 will automatically recompile the .jrxml files to remove the unused fields. The recompiled version will be stored in a cache directory (see MATE-RB-00005).

Use local cache for Report builder templates (MATE_RB-00005)

To improve performance, the compiled version of Report builder templates will be now stored in a local cache directory.

User interface

Position of "Flag" icon in browser column (GLIMS-06147)

Some browsers have a "Flags" column with a "Flag" icon that was not always correctly positioned. This has been solved.
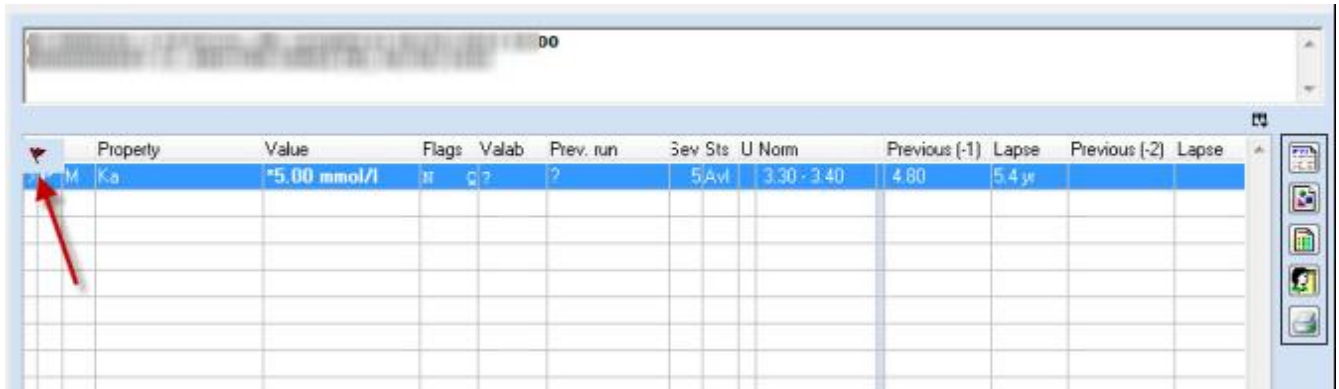
Position of "Cycle" icon in browser column (GLIMS-06192)

Some browser columns offer a "Cycle" icon that allows to switch between different columns. In some screens, this icon was not correctly positioned. This has been solved.
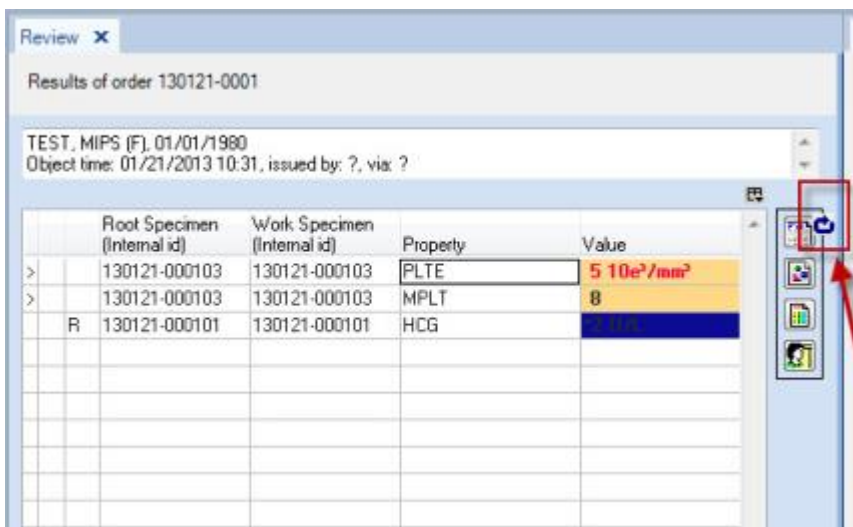
Show recently used tools in application menu (MATE-02337)

For each user, the application menu now contains the 15 most recently used application-wide tools.

Only allow application-wide tools on home page (MATE-02425)

An issue was identified where users could add shortcuts to their home page linked to contextual tools rather than application-wide tools.

This has been corrected.

Adding menu items to quick access toolbar (MATE-02467)

An issue was identified where users could accidentally add items from the application menu to the quick access toolbar even though there was no associated 'tool' for the menu item (e.g. a menu group such as "Configuration").

This has been corrected, and during the upgrade, any such existing items will be removed.
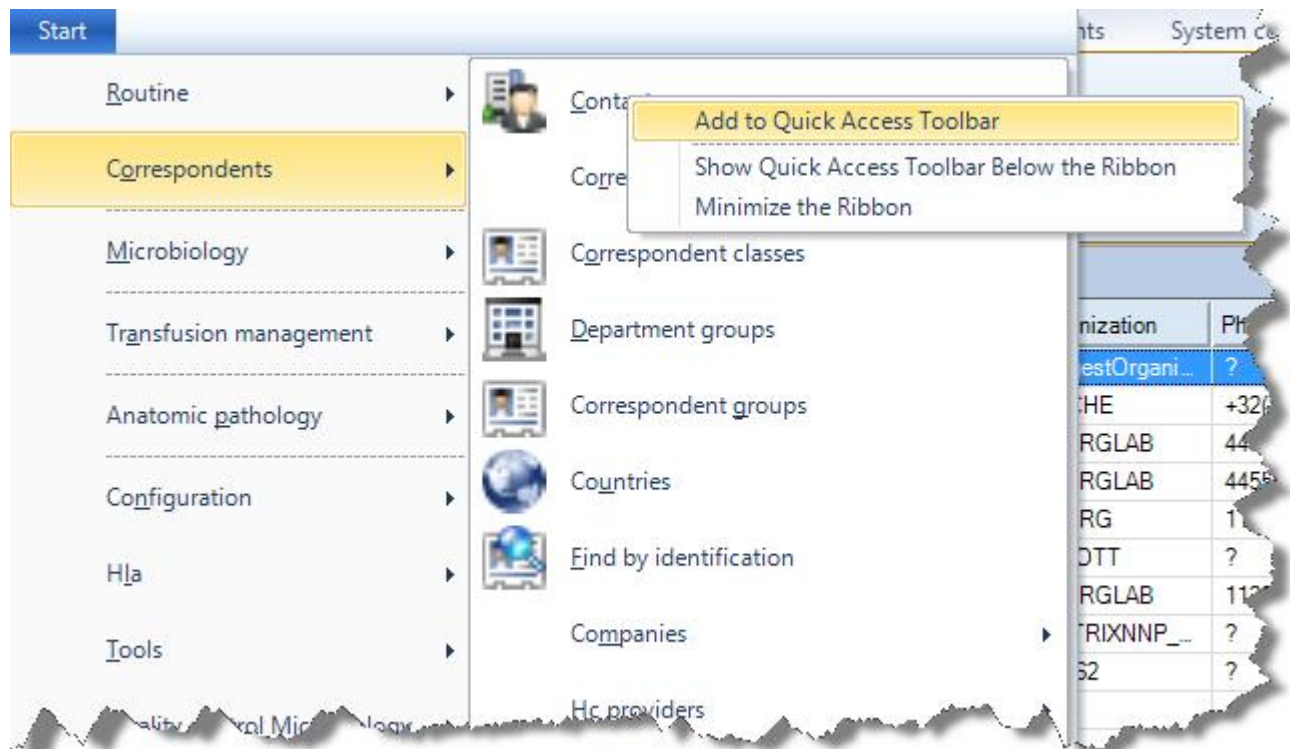
Visual indication for active filter (MATE-02470)

When applying a filter to a browser, a visual indication now shows the active filter.
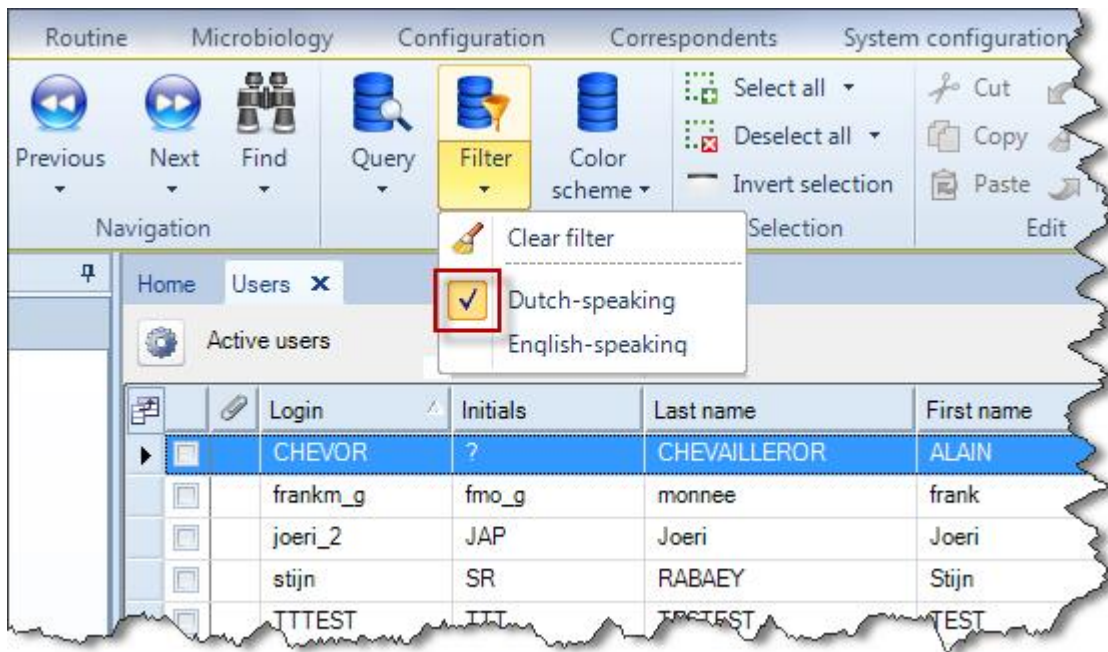
Closed log window reappears (MATE-02522)

An issue was identified where a previously closed log window would reappear when switching between main tabs.

This has been corrected.

Display of "terminal name" in status bar (MATE-02551)

The status bar in GLIMS no longer displayed the "terminal name" of the client computer. This has been corrected.

Improvement for "Tool" option "Skip setup"(MATE-02899)

Changes in behavior

The following improvements have been implemented for the "Tool" option "Skip setup":

- The option "Skip setup" will only be visible when the chosen function actually supports this feature.
- For functions that change data in the database (as opposed to functions that simply open a browser), the "Skip setup" option will only be visible when a parameter set is defined.

These changes should guarantee that the option "Skip setup" always works as intended.
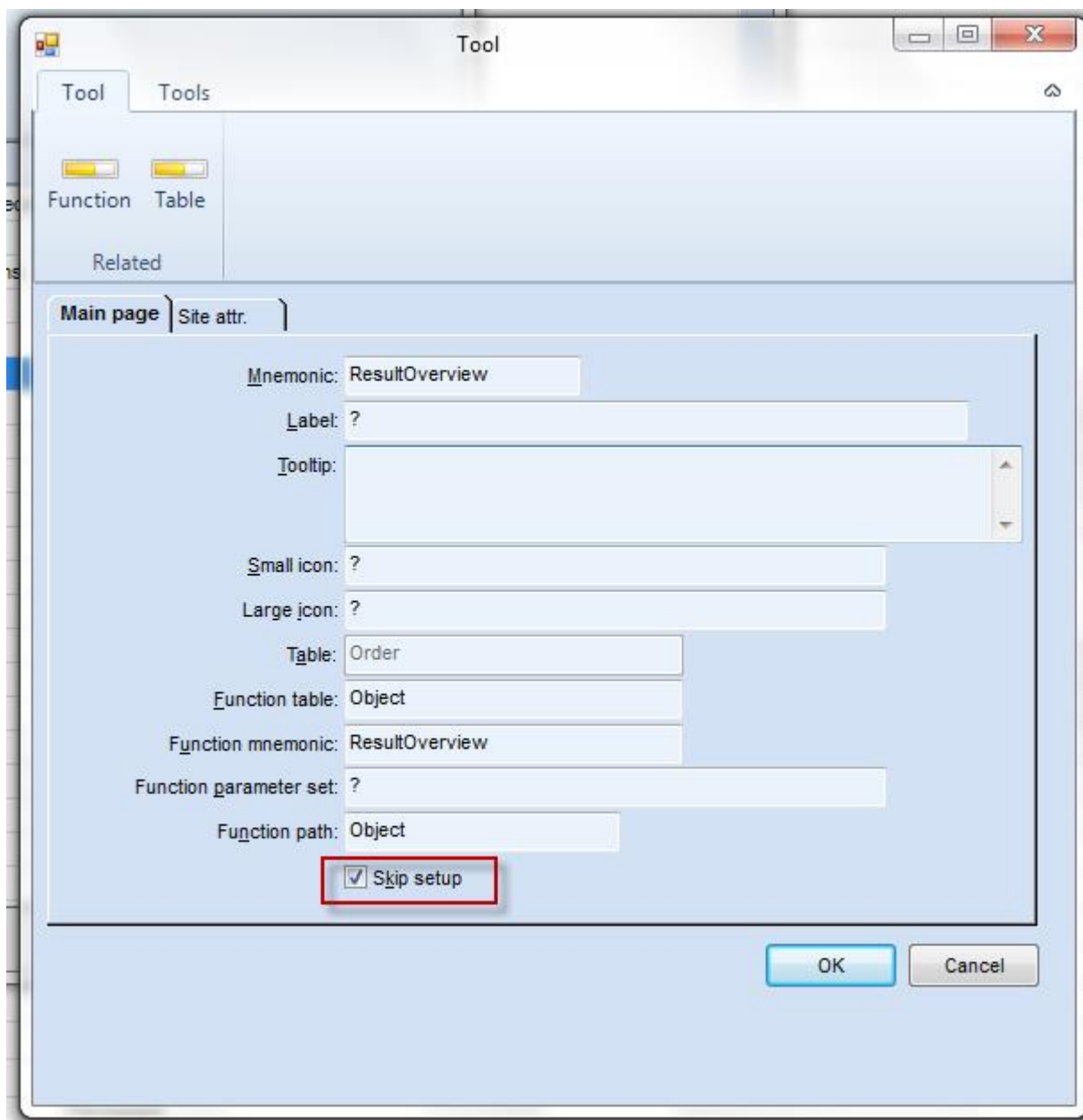
Upgrade from GLIMS v8 to GLIMS v9.3

During the conversion from GLIMS v8 to 9.3, the site attributes um_Option.SkipSetup and um_Tool-barButton.SkipSetup are converted to um_Tool.SkipSetup.

Based on the "Function" of the "Tool", an appropriate value will be set for "Skip setup".

Upgrade from GLIMS v9.1 to GLIMS v9.3

In rare occasions, this modification may cause a change in behavior where the setup screen is now shown/hidden while it used to be hidden/shown. In such cases, you can manually reset the "Tool" con-figuration.

Look-and-feel of array editors (MATE-02926)

A cosmetic issue was identified where the look of the array editor (as used in result entry) did not match the rest of the application.

This has been corrected.

Ribbon for grid screens (MATE-03076)

The ribbon for grids (work list editing, result entry, etc) now supports the special items that were also available in GLIMS version 8.

Refresh

Refreshes the screen once.

Edit by row

If enabled, the cells will be visited by row instead of by column during navigation (tab, arrow down/up).

Prefix/Suffix

Allows to define a textual prefix/suffix that will be automatically added to the value specified in the cells.

Skip disabled fields

If enabled, disabled (grayed out) cells will be skipped when navigating through the grid (tab, arrow down/up).

Skip non-empty fields

If enabled, cells with a value will be skipped when navigating through the grid (tab, arrow down/up).

Error when resizing "Order review" (MATE-03086)

When resizing the "Order review" screen, the following error could occur:
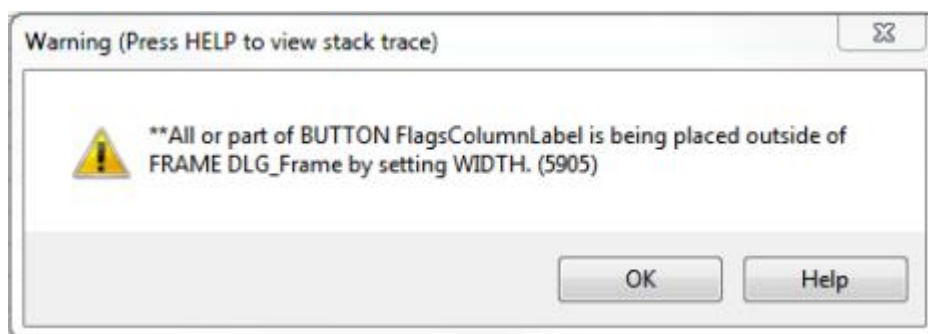
This has been corrected.

Login screen title cut off (MATE-03094)

A cosmetic issue was identified where the login screen title was cut off (e.g. the user would see "Select dep" instead of "Select department").

This has been corrected.

Error when closing log screen (MATE-03138)

After performing a certain task (e.g. report generation, invoicing), GLIMS can produce an overview/log of the executed actions. An error could occur when closing this log window.

This has been corrected.
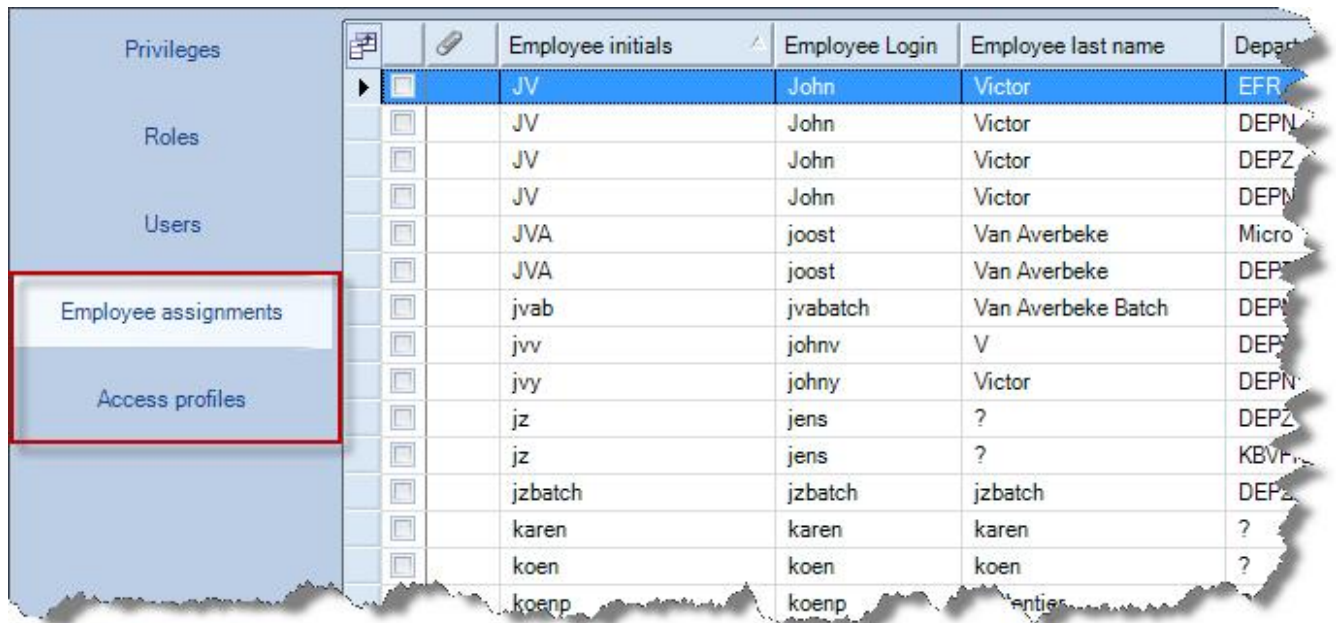
Sorting in "Code" column of browsers (MATE-03171)

In GLIMS version 9, browsers can show "Code" columns containing data from selected coding systems. When a record has several codes for a particular coding system, the codes will now be sorted by their sequence number.

Security

Security Center shows employee assignments and access profiles (GLIMS-05847)

The Security Center has two new tab pages "Employee assignments" and "Access profiles".

Audit logging for viewing results (GLIMS-06293)

Background information

In previous versions, audit logging in GLIMS only registered the creation / modification of a record, not the fact that a record was "viewed".

Creation of "Read audit" logging

A fixed number of programs in GLIMS will now also provide audit logging when a user viewed patient information or patient results. Below the list of functions that will create such "read" audit logging.

Order.QuickReport: read audit record for Order and Object:

- Log of type "Read audit order" with description "Order quick report"
- Log of type "Read audit object" with description "Order quick report"

Order.Results: read audit record for Order and Object:

- Log of type "Read audit order" with description "Review order results"
- Log of type "Read audit object" with description "Review order results"

Order.OutLine: read audit record for Order and Object:

- Log of type "Read audit order" with description "Order outline"
- Log of type "Read audit object" with description "Order outline"

Object.ResultOverview: read audit record for Object:

- Log of type "Read audit object" with description "Object result overview"

Object.BrowseResults: read audit record for Object:

- Log of type "Read audit object" with description "Browse object results"

Object.DataSheet: read audit record for Object:

- Log of type "Read audit object" with description "Object data sheet"

Specimen.Results: read audit record for Object:

- Log of type "Read audit object" with description "Browse specimen results"

Specimen.QuickReport: read audit record for Object:

- Log of type "Read audit object" with description "Specimen quick report"

Specimen.OutLine: read audit record for object:

- Log of type "Read audit object" with description "Specimen outline"

Person.ResultOverview: read audit record for object:

- Log of type "Read audit object" with description "Person result overview"

Person.QuickReport: read audit record for object:

- Log of type "Read audit object" with description "Person quick report"

Consultation of "read audit" logging

The "Read audit" logging is accessible from the Order/Object record itself. To view the logging, you can also open the "Log type" browser and search for the log types named "Read audit Object" and "Read audit Order".
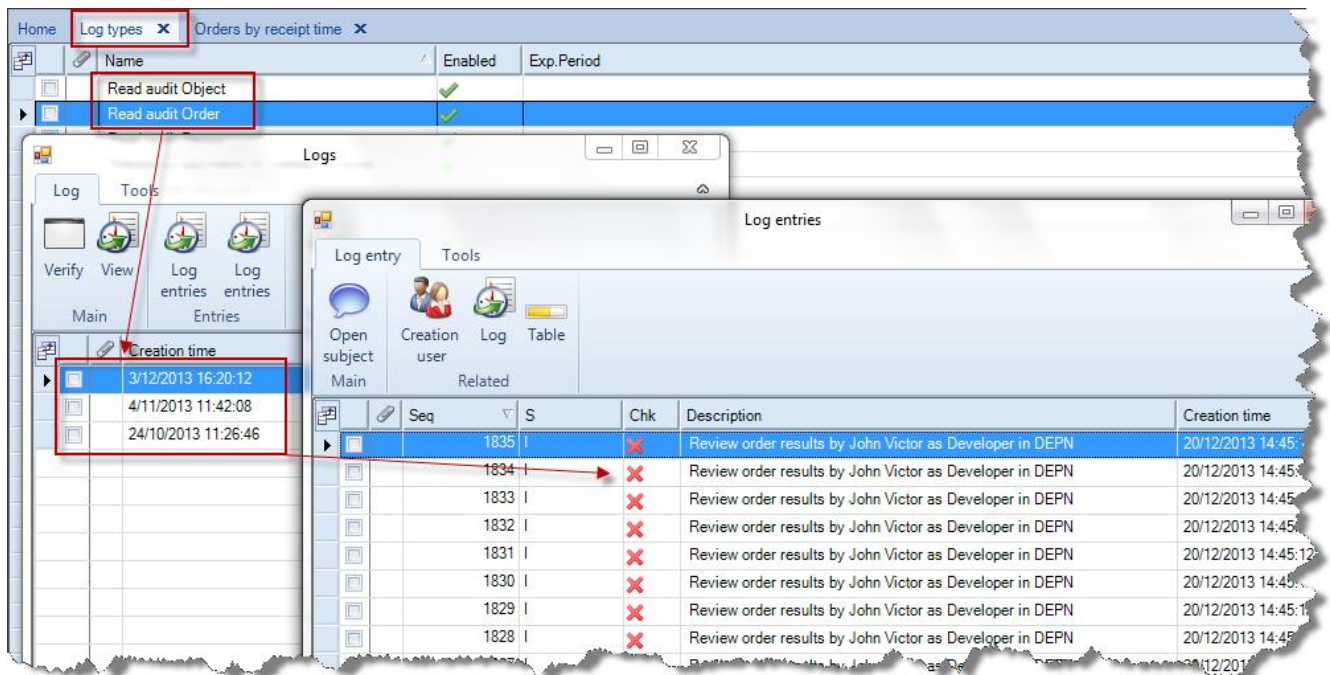
> **Tip**: to view details of the consulted object/order, select the log entry and right-click "Open subject".

Improvement for audit logging (MATE-02388)

Introduction

Audit logging for a particular table record can be consulted via the contextual Tools ribbon item "Audit".

Problem description:

1. Audit logging stores different data depending on the database table being audited.
2. Example: audit logging for the "User" table contains other data than audit logging for the "Work list" table.
3. However, the Audit log screen always showed all fields even if the data was not applicable. The value was in that case always "?".
4. This could give the impression that not all data was correctly logged.

Solution

The Audit log screen will now only show fields for the data that is actually logged. Additionally, the "Recid" field will now only be shown when logged in with a "Developer" role.

Audit log screen for a Worklist record

Audit log screen for a User record
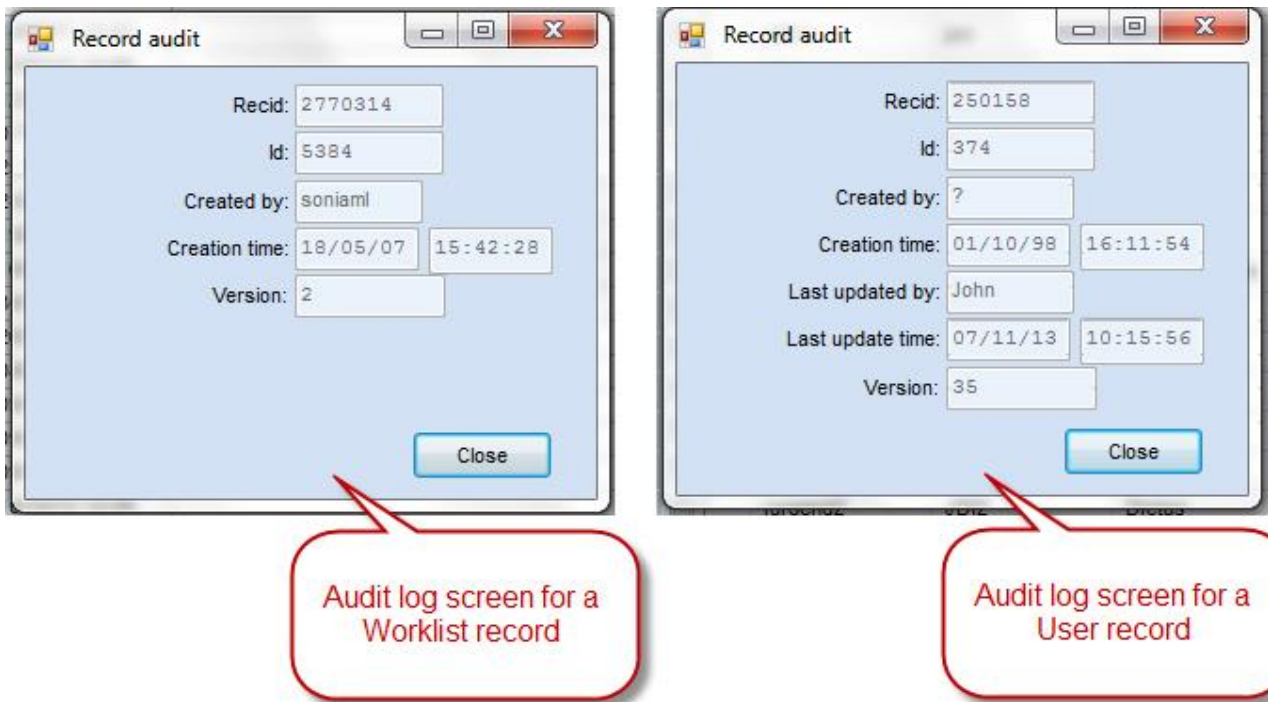
Selection indication in security center (MATE-02511)

Problem description:

1. Open the Security center.
2. Go to the "Privileges" tab.
3. Select a table in the Table browser.
4. Select a function or field for the selected table.
5. The selected table is no longer highlighted in the table browser. This might be confusing as you cannot immediately see which table you had selected.

The selected table will now remain highlighted when selecting one of its functions/fields.

Improve audit log when clearing multilingual field (MATE-02546)

When clearing a multilingual field (setting it to "?"), the audit log now also contains the role of the user who cleared the field.

Improvements for "Switch department" (MATE-02961)

Background information

GLIMS offers a tool "Switch department" which allows the same user to re-login with a different department. However, this tool had some drawbacks:

1. A full log out was required and the user needed to re-enter his/her password.

2. It was not possible to switch roles.

New features

The tool has been renamed to "Switch department or role".

New features:

1. The user and password will now be remembered.

2. By default, another department than your current department is selected.

3. Another role can now be selected.

Notes

> **Note**: if the user is only linked to a single department, but has multiple roles, the login screen will immediately jump to the role selection window.

> **Note**: when the user has no other department nor role, an appropriate message will be displayed.

Introduction of password strength levels (MATE-03012)

In the general options (**System management -> Customize -> MATE**), you can now set the password strength to be applied when choosing a password.
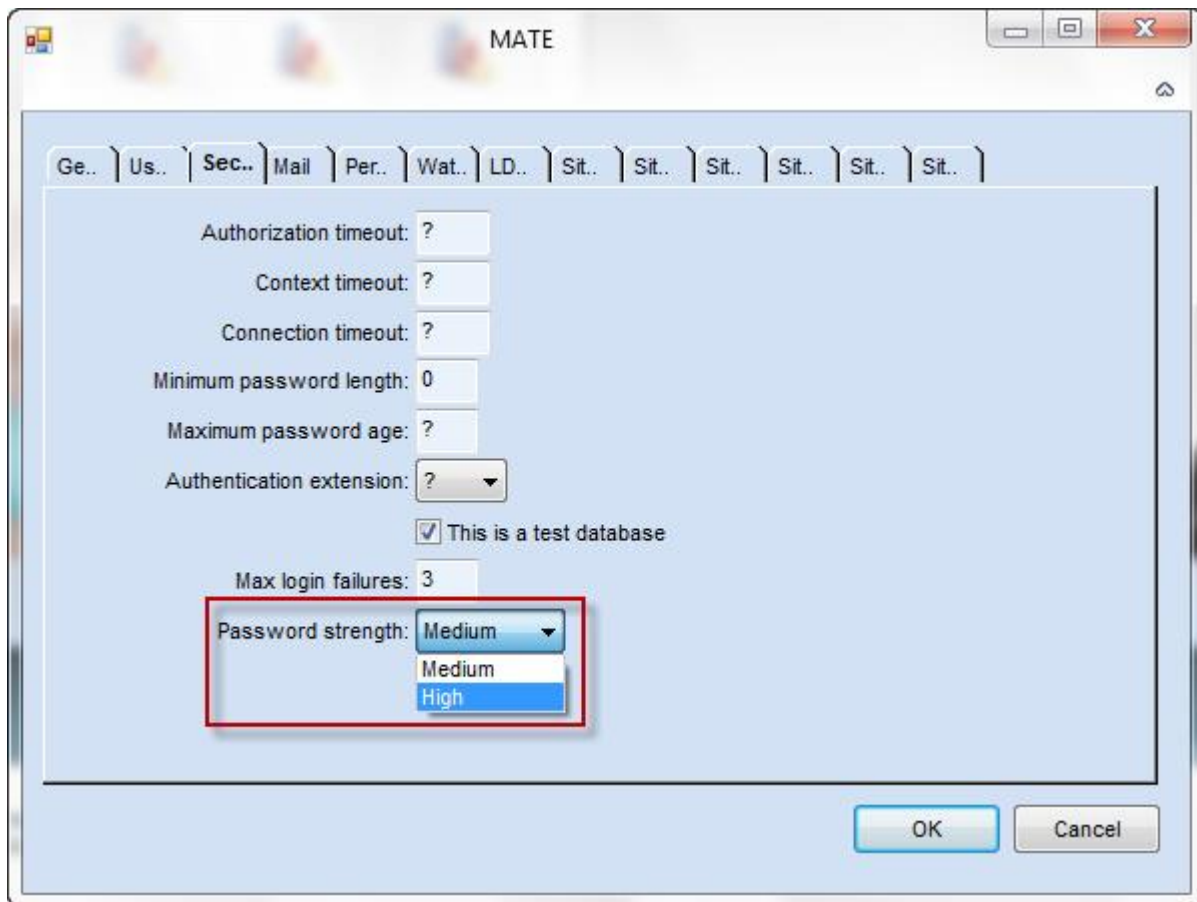
Medium

Existing behavior, very few restrictions.

High

The following rules will be applied:

- The password must have at least 9 characters.
- The password must contain characters from three of the four following categories
    1. Uppercase letters of European languages (A through Z, without diacritic marks, Greek and Cyrillic characters) A, B, C, ... Z
    2. Lowercase letters of European languages (a through z, sharp-s, without diacritic marks, Greek and Cyrillic characters) a, b, c, ... z
    3. Base 10 digits (0 through 9) 0, 1, 2, ... 9
    4. Non-alphanumeric characters (special characters) $,!,%,^,(){}[];:<>?

Currently Diacritic marks, Greek and Cyrillic characters are NOT taken into account, neither are Unicode characters from Asian languages.

Login with card reader (MATE-03106)

The feature to login with a card reader (e.g. CPS card) was no longer available in GLIMS version 9 but has now been restored.

Conversion of site attributes for LDAP authentication (MATE_LDAP-00002)

The site attributes used for LDAP authentication have been converted to real database fields in the general options (**Start -> System management -> Customize -> MATE**).

Other changes

- The possible values "Default, Internal, LDAP" for the **User** field **Password verification** have been changed to "Internal, LDAP"
- Automatic conversions when upgrading to version 9.3

    - For users with **Session type** set to **Batch**, the field **Password verification** will be set to **Internal**.

    - If LDAP is configured: for users with **Session type** set to **Interactive**, the field **Password verification** will be set to **LDAP**.

    - If LDAP is not configured: for users with **Session type** set to **Interactive**, the field **Password verification** will be set to **Internal**.

Coding systems

Support for LOINC coding system (GLIMS-05863)

Introduction - What is supported - Configuration - Lookup of LOINC code - MISPL access - Variable text reporting

Introduction

LOINC is a universal code system for identifying laboratory and clinical observations.

The coding system concept in GLIMS offers specific support for LOINC codes. This document describes the LOINC-specific features in GLIMS, the general coding system features are described in the chapter "Coding systems".

The main difference with a "regular" coding system is that a single property can have different LOINC codes based on a number of variables such as material, assessment method, ...

What is supported

Configuration

GLIMS supports the definition of LOINC codes for the following tables:

- Property (for tests)
- Property classification node (for titles)

LOINC codes have to be configured manually and cannot be imported.

Usage

GLIMS only uses the LOINC codes when sending result reports, not for order/result import.

Configuration

Coding system

1. Set the **Type** field to "**LOINC**"
2. The **OID** for the LOINC coding system is "**2.16.840.1.113883.6.1**".

Code set

Starting from the LOINC coding system, use the contextual ribbon/menu item "**Code sets**".

1. **Table**: GLIMS only supports LOINC code sets for the tables "**Property**" and "**PropertyClassificationNode**".
2. **Unique value**: should be checked, as LOINC codes should be unique.
3. **Unique record**: should be unchecked, as a single property can have several LOINC codes.

Code

Once the LOINC coding system and code set(s) are defined, GLIMS offers different ways to define the actual LOINC codes.

Starting from the code set

1. Starting from the LOINC code set, use the contextual ribbon/menu item "**Codes**".
2. Click **Insert** to define the actual LOINC codes.

Starting from the property (classification node) browser

1. Starting from the Property browser, use the **ribbon item "Codes"** in the **contextual ribbon "Tools"**.

2. GLIMS will show all codes (possibly from different coding systems) for the selected property.
3. Click **Insert**.
4. In the **Coding system** field, **select the LOINC coding system** and all applicable fields (see below) will be shown.

Code fields

1. **Record**: reference to the property (classification node)
2. **Seq no**: this is a very important field, as it determines the sequence in which GLIMS evaluates the codes during lookup of the appropriate LOINC code for a result. So when a property has several LOINC codes, make sure that the most specific code (e.g. with a material, material variable, station, discriminator) has the lowest sequence number and that the more general code has the highest sequence number..
3. **Value**: the actual LOINC code.
4. **Discriminator**: if specified, the code is only valid for results with this discriminator.
5. **Material**: if specified, the code is only valid for results derived from this material.
6. **Variables**: if specified, the code is only valid for results with this variable. Multiple variable can be specified.
    1. Click the **"..."** button.
    2. For each of the available material variables, a choice can be selected.
    3. The selected choices will be shown in the Variables field.

7. **Station**: if specified, the code is only valid for results measured on this station.
8. **Eligible**: logical-valued MISPL function that can be used to set even more specific criteria for the code.

Lookup of LOINC code for result reports

When sending out result reports for which the LOINC code must be exported, GLIMS uses the mechanism below to determine the appropriate LOINC code for the result.

1. GLIMS first makes a list of all LOINC codes for which

   1. the property matched the result's property
   2. the material matches the result's specimen (or for which the material is not specified)

2. This list of LOINC codes is ordered ascending by the code's sequence number: this implies that the sequence number of the defined LOINC codes is very important. GLIMS will first check the code with the lowest sequence number. So when a property has several LOINC codes, make sure that the most specific code (e.g. with a material, material variable, station, discriminator) has the lowest sequence number, else GLIMS will always select the more general LOINC code.

3. From this list, GLIMS selects the most appropriate LOINC code as described in the decision chart below.

MISPL access

GLIMS offers a Result-based MISPL function "GetCode" which uses the same lookup logic as described above.

Synopsis:

> *String* **GetCode** (*Mnemonic* CodingSystemMnemonic)

Variable text reporting

For variable text reports (configured with dynamic text modules), the content can be based on the w_ Result table. If a coding system is defined in the report template, the w_Result field "Mnemonic" will contain the code from the specified coding system. This is also supported for the LOINC coding system.

Animals

Rescheduling of old reports when changing animal's birth date (GLIMS-05811)

Problem description:

1. In GLIMS you have an animal with old orders. These orders contain properties with norms.
2. These orders have reports that have been sent out.
3. When changing the birth date or sex of that animal, GLIMS will re-evaluate the norms for all previous orders.
4. When a norm change is detected, the old reports are re-sent ("Needs checking" flag is enabled).

Solution

1. In the case above, only orders of the last 15 days will be re-evaluated for norm changes.

Quality control

Protect QC lot and QC population from being deleted (GLIMS_QC-00562)

Introduction

In the context of the ISO 15189 norm, a check has been implemented that prevents QC lots and QC populations from being deleted too soon.

New feature

A new option "**QC lot validity in years**" has been added to the QC setup (Start -> Quality control -> Configuration -> QC setup).

It will not be possible to delete QC lots (and their QC populations) if the QC lot is still valid according to this new setting.

Import of QC configuration from Sysmex (GLIMS_QC-00590)

Introduction

GLIMS now allows to import QC data provided by Sysmex through an Excel file. The program is available from the main menu via Start -> System management -> Database -> Specific import -> QC configuration Sysmex.

Parameters

GLIMS will create QC populations based on the following options:

General

Import file

> Allows to select the Sysmex QC configuration file to be imported in GLIMS.

Coding system

> Coding system that will be used for QC tests and units. A code set can be defined for tables "Property" and "Unit". If no coding system is specified, the QC tests in the import file must match with property mnemonics in GLIMS.

> Available Sysmex property and units codes:

Property code	Unit code
RBC	10^6/ul
HGB	g/dl or mmol/l
HCT	%
MCV	fl
MCH	Pg or fmol
MCHC	g/dl or mmol/l

RDW-SD	fl
RDW-CV	%
PLT	10^3/ul
PDW	fl
MPV	fl
P-LCR	%
PCT	%
WBC	10^3/ul
NEUT#	10^3/ul
LYMPH#	10^3/ul
MONO#	10^3/ul
EO#	10^3/ul
BASO#	10^3/ul
WBC-D	10^3/ul
NRBC#	10^3/ul
IMI#	
PLT-O	10^3/ul
DIFF-X	ch
DIFF-Y	ch
BASO-X	ch
BASO-Y	ch
NRBC-X	ch
NRBC-Y	ch
IMI-DC	fl
IMI-RF	fl
HCP	10^3/ul
RET%	%
RET#	10^6/ul
RBC-O	10^6/ul
RBC-X	ch
RBC-Y	ch
IRF	%
LFR	%
MFR	%
HFR	%
IG#	10^3/ul
RET-He	pg or fmol
IPF	%

Material

Reference to the material for the QC lot.

Station

Reference to the station for the QC populations.

QC lot

Site function based on QCLot that can be used to retrieve the following data from the Excel sheet:

1. Level
2. Mode ("Open" or "Closed")
3. StationCode
4. StationMnemonic
5. StationRemoteId

The site function should return a tagged value list with the tags "LotNumber" and "LotCode". Example:

```
String LotNumber;
String Level;
String Mode;
String ModeSuffix;
String StationCode;
String StationMnemonic;
String StationRemoteId;
STRING NewLotNumber;
STRING NewLotCode;
STRING TaggedValueList;
/*Extract tags */
LotNumber := .LotNumber;
Level := ExtractTag("Level", .Externalization,"\");
Mode := ExtractTag("Mode", .Externalization,"\");
StationCode := ExtractTag("StationCode", .Externalization,"\");
StationMnemonic := ExtractTag("StationMnemonic", .Ex-
ternalization,"\");
StationRemoteId := ExtractTag("StationRemoteId",
.Externalization,"\");
/* Compose new values */
IF (Mode  = "Open") THEN ModeSuffix := "M"; ELSE ModeSuffix :=
"C"; ENDIF;
NewLotNumber := LotNumber + " " + StationCode + "_" +
ModeSuffix;
NewLotCode := StationRemoteId + ModeSuffix + "_" + LotNumber;
/* Return tagged valueSysmex_MISPL list */
TaggedValueList := PutTag("LotNumber",NewLotNumber,
TaggedValueList,"\");
TaggedValueList := PutTag("LotCode",NewLotCode,
TaggedValueList,"\");
RETURN TaggedValueList;
Target mean and Target deviation
```

QC population

Target mean, target deviation, target value, accuracy limit

Allows to define the field values for the created QC populations in GLIMS:

1.   Import: take the value from the import file

2.   Copy: take the value from a previous QC population (with same assessment method, same lot and -if specified- same level).

3.   Ignore: leave the field empty

Origin and Origin info, Accuracy severity, Severity 2S/3S, Limit 1/2 and Severities, Delta SD Limit and Severity, CV Max (%), Ignored deviation count

Allows to define the field values for the QC population fields:

1.   Ignore: leave the field empty (default)

2.   Set: take the value specified in this screen

3.   Copy: take the value from a previous QC population (with same assessment method, same lot and -if specified- same level).

You cannot combine 2SD and 3SD severities with the custom limit severities (severities for Limit 1 and Limit 2). Custom limit severities take priority over 2SD and 3SD severities.

Import of QC configuration from Sapphire / Ruby (GLIMS_QC-00605)

Introduction

GLIMS now allows to import QC data provided through a text file provided by the Sapphire or Ruby analyzer. The program is available from the main menu via Start -> System management -> Database -> Specific import -> QC Configuration Sapphire.

Parameters

GLIMS will create QC populations based on the following options:

General

Import file

Allows to select the Sapphire/Ruby QC configuration file to be imported in GLIMS.

Coding system

Coding system that will be used for QC tests. A code set can be defined for table "Property". If no coding system is specified, the QC tests in the import file must match with property mnemonics in GLIMS.

Material

Reference to the material for the QC lot.

Station

Reference to the station for the QC populations.

QC lot solver

This optional site function allows to customize the fields of a QC lot being imported. By default, the import program takes over the QC lot number and expiration date of the import file. With this user defined function, one can override the default field values.

The following fields in the MISPL on QCLot are prefilled with the data from the import file:

- .LotNumber
- .ExpirationDate

The field .Externalization is filled with data which might be useful for manipulating QCLot fields. The data is provided as a tagged list with values. The available tags are:

- StationMnemonic: contains the mnemonic of the station on which the import is done
- StationCode: contains the code of the station on which the import is done

- StationRemoteId: contains the remote Id of the station on which the import is done

One can retrieve these values as illustrated here with StationCode:

StationCode := ExtractTag("StationCode", .Externalization, "\");

The function is based on the table QCLot and returns a value of data type string. If the function is to override field values, then the return value should contain a tagged list with new values.

The GLIMS QCLot fields one can set or override are:

- LotNumber
- Code
- StartDate (format DD/MM/YYYY)
- EndDate (format DD/MM/YYYY)
- ProductionDate (format DD/MM/YYYY)
- Active (format YES | NO)

A field value is added to a tagged list as illustrated here with LotNumber:

```
STRING ReturnValue;
STRING MyLotNumber;

/* Enter code here for composing 'MyLotNumber'
…
*/

ReturnValue := PutTag("LotNumber",  MyLotNumber, ReturnValue,
"\");
RETURN ReturnValue;
```

QC population

Target mean, target deviation, target value, accuracy limit

Allows to define the field values for the created QC populations in GLIMS:

1. Import: take the value from the import file
2. Copy: take the value from a previous QC population (with same assessment method, same lot and -if specified- same level).
3. Ignore: leave the field empty

Origin and Origin info, Accuracy severity, Severity 2S/3S, Limit 1/2 and Severities, Delta SD Limit and Severity, CV Max (%), Ignored deviation count

Allows to define the field values for the QC population fields:

1. Ignore: leave the field empty (default)
2. Set: take the value specified in this screen
3. Copy: take the value from a previous QC population (with same assessment method, same lot and -if specified- same level).

You cannot combine 2SD and 3SD severities with the custom limit severities (severities for Limit 1 and Limit 2). Custom limit severities take priority over 2SD and 3SD severities.

Import of QC configuration from Advia (GLIMS_QC-00606)

Introduction

The program in GLIMS to import QC data provided by the Advia 120 analyzer has been extended. More detailed information can be specified for the QC populations that will be created. The program is available from the main menu via Start -> System management -> Database -> Specific import -> QC Configuration Advia 120.

For a full description, please check the documentation.

External comment for rejected QC results (GLIMS_QC-00619)

Problem description

When an "invalid" QC result is entered yielding a QC severity, GLIMS shows the result QC warning screen if the Result.QCSeverity >= AssessmentMethod.QCWarningSeverity.

This screen allows to enter an external comment and accept/discontinue the result. When no external comment was entered and "accept" was chosen, the value of Result.ExternalComment was set to the empty string (''), while it should have been set to the unknown value.

This caused some programs to react differently for these QC results. For instance, when such a QC result was being confirmed, GLIMS no longer asked the user to enter an external comment for the rejected result. Since the result external comment was an empty string and not unknown, GLIMS assumed no external comment was to be entered. The external comment screen no longer appeared.

Solution

The result QC warning screen has been adapted. From now on, an unspecified external comment (or just blank characters) will be treated as an unknown value.

Convert "Median" site attributes (GLIMS_QC-00627)

The following **Assessment method** based site attributes have been converted to real database fields:

- Day median low limit
- Day median high limit
- Day median alarm severity
- Day median limit severity

These fields are used for quality monitoring via patient median calculation.

Introduce dedicated fields for Biorad export (G_BIORAD-00033)

Introduction

Several changes have been implemented to improve the export of quality control data to Biorad.

New database fields

The following site attributes have been converted to real database fields:

Table	Site attribute	Database field
QCLot	IsNonBioradCode	Biorad level included
AssessmentMethod	BioradInstrument	BioradInstrumentCode
AssessmentMethod	_AlternateMethod	Biorad method code BioradInstrumentCode BioradTemperatureCode

The **Coding system** specified for the **Correspondent** selected in the QC export screen is no longer used and replaced by:

Old	New
Station code set	Station.BioradInstrumentCode
Property code set	Property.BioradCode
Unit code set	Unit.BioradCode

Export details for Unity format

Biorad field	Syntax	GLIMS field	Used when
Level	1, 2 or 3	Last digit of QCLot.LnuotNumber	QCLot.NumberHasBioradLevel = Yes and QCLot.LotNumber length = 5 and last digit of QCLotNumber = 1, 2 or 3
		QCPopulation.Level	Level could not be derived from QCLot.LotNumber
Lab	6 digits	QCPopulation.BioradLabCode	Always
Lot	5 digits, ending with 0, 1, 2 or 3	QCLot.LotNumber If QCLot.NumberHasBioradLevel = Yes and last digit of QCLotNumber = 1, 2 or 3, then last digit in exported LotNumber is replaced with 0	Always
Analyte	3 digits	Property.BioradCode	Always
Method	3 digits	AssessmentMethod.BioradMethodCode	Always
Instrument	4 digits	AssessmentMethod.BioradInstrumentCode	Always
		Station.BioradInstrumentCode	AssessmentMethod.BioradInstrumentCode unknown
		Station.Code	Station.BioradInstrumentCode unknown
Reagent	4 digits	Reagent.Code	Export option "Use reagent code" is enabled.
		ReagentLot.LotNumber	Export option "Use reagent code" is disabled.
Unit	2 digits	Unit.BioradCode	Always
Temperature	1 digit	AssessmentMethod.BioradTemperatureCode	Always

Export details for Flex format

Biorad field	Syntax	GLIMS field	Used when
Level	Not verified	Last digit of QCLot.LotNumber	QCLot.NumberHasBioradLevel = Yes and QCLot.LotNumber length = 5 and last digit of QCLotNumber = 1, 2 or 3
		QCPopulation.Level	Level could not be derived from QCLot.LotNumber
Lab	Not verified	QCPopulation.BioradLabCode	Always
Lot	Not verified	QCLot.LotNumber If QCLot.NumberHasBioradLevel = Yes and last digit of QCLotNumber = 1, 2 or 3, then last digit in exported LotNumber is replaced with 0	Always

Biorad field	Syntax	GLIMS field	Used when
Analyte	Not verified	Property.BioradCode	Always
		Property.Mnemonic	Property.BioradCode unknown
Method	Not verified	AssessmentMethod.BioradMethodCode	Always
Instrument	Not verified	AssessmentMethod.BioradInstrumentCode	Always
		Station.BioradInstrumentCode	AssessmentMethod.BioradInstrumentCode unknown
		Station.Mnemonic	Station.BioradInstrumentCode unknown
Reagent	Not verified	Reagent.Code	Export option "Use reagent code" is enabled.
		ReagentLot.LotNumber	Export option "Use reagent code" is disabled.
Unit	Not verified	Unit.BioradCode	Always
		Unit.Name	Unit.BioradCode unknown
Temperature	Not verified	AssessmentMethod.BioradTemperatureCode	Always

Backward compatibility

The conversion procedure will copy as many field values as possible to the new database fields. However there are 2 issues:

Conversion based on possible ambiguity

The conversions are based on export parameters **Correspondent** and **BioradFormat** (Flex/Unity):

1. First, the parameters of the most recently updated command for QC population export to Biorad are used.

   The parameter values might be ambiguous if multiple of these commands are available.

2. If no such a command is found, the correspondent parameter of the most recently updated user preference is used (Context = 'QCPExport', Name='Preference', Value contains 'ExportFormat=3' (=Biorad)).

   The parameter values might be ambiguous if multiple of these preferences are available.

Change in field usage

There are some differences in the Biorad export fields.

Biorad level field

For both **Unity** and **Flex** format, the level code can now also be extracted from a Biorad compatible lot number. In earlier versions, this was only supported when using the **Unity** format.

Biorad lab code field

Code sets or identifications on Department and Lab are no longer used (they are not converted!). From now on, the field being used is **QCPopulation.BioradLabCode**.

Biorad lot number field

For both **Unity** and **Flex** format: when the field **NumberHasBioradLevel** on QCLot is checked, then the lot number's last digit will now also be exported as a 0. In earlier versions, this was

only supported when using Unity format.

Biorad analyte code field

The property code set on the correspondent's coding system is no longer used. A dedicated field **Biorad code** on property replaces it. When using Flex format, one can omit this field and use the **property mnemonic**.

Biorad method code field

The field **Method** on AssessmentMethod is no longer used, nor the site-attribute **_AlternateMethod**. From now on, a new dedicated field on AssessmentMethod is to be used: **BioradMethodCode**.

Biorad instrument code field

In earlier versions, following fields were used to determine the instrument code (depending on the format): the code value on the correspondent station code set, fields **Code** and **Mnemonic** on station, field **Method** on AssessmentMethod, site-attribute field **_AlternateMethod** on AssessmentMethod.

From now on, the following fields are to used, and in the following order:

- The new field on AssessmentMethod: **BioradInstrumentCode**
- If above is unknown, the new field on Station: **BioradInstrumentCode**
- If both are unknown:
  - If format is set to **Unity**: The field **Code** on station
  - If format is set to **Flex**: The field **Mnemonic** on station

Biorad unit code field

The unit code set on the correspondent's coding system is no longer used. A dedicated field **Biorad code** on **Unit** replaces it. When using Flex format, one can omit this field and use the **unit mnemonic** (this was not supported in earlier versions, one was obliged to use the code set).

Temperature code field

The field **Method** on AssessmentMethod is no longer used, nor the site-attribute **_AlternateMethod**. From now on, a new dedicated field on AssessmentMethod is to be used: **BioradTemperatureCode**.

Lab archive

License check for carrier storage (GLIMS_CSTO-00001)

Storing a carrier in a lab archive now requires the license "GLIMS_CSTO".

Pre-configuration of Isolation function "Define location" (GLIMS_ISTO-00008)

The Isolation-based function "Define location" can now be pre-configured, i.e. it is possible to define a menu option / ribbon item with a tool that has a parameter set. The tool option "Skip setup" is supported.
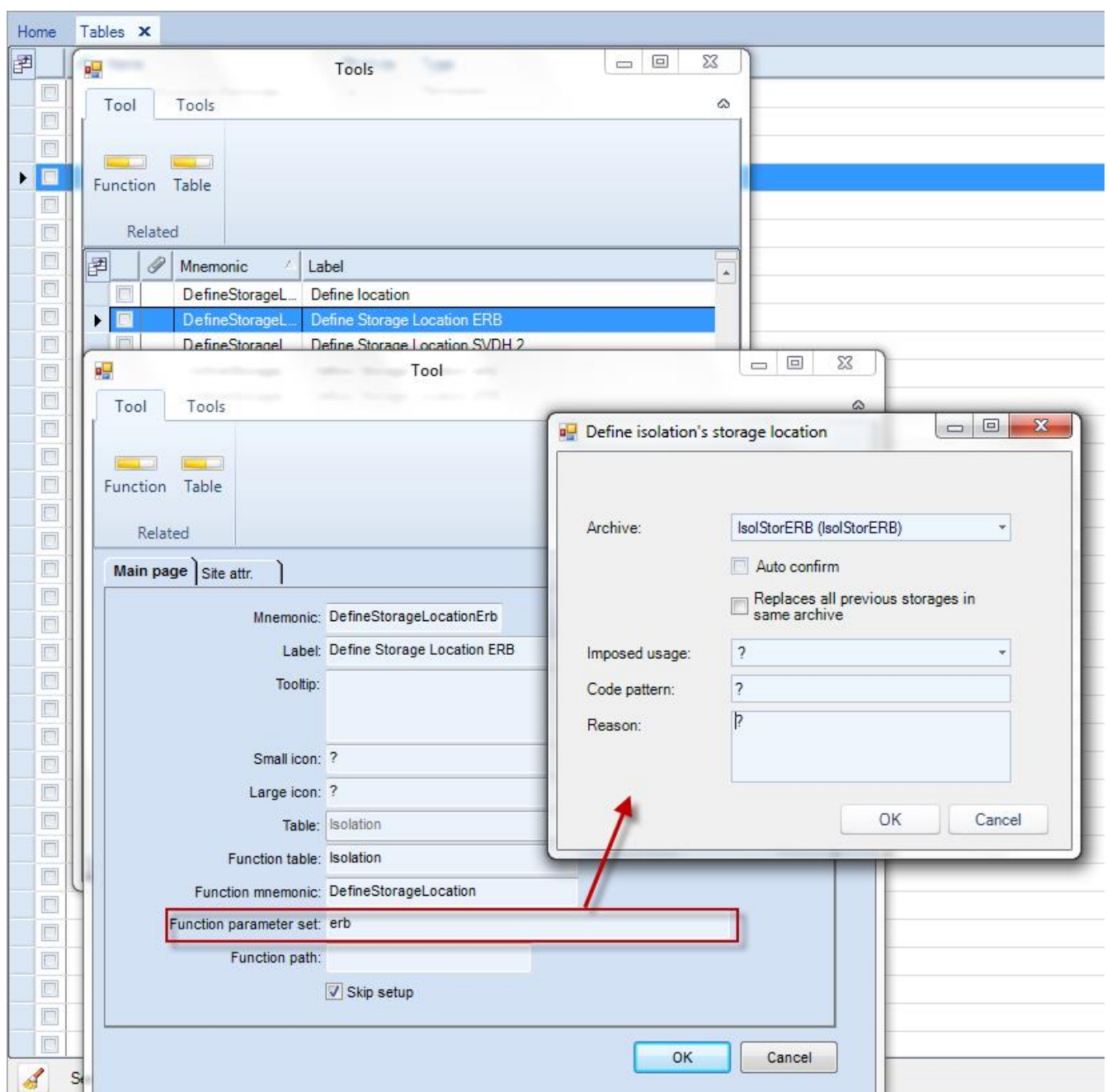
Search on archive status in storage query (GLIMS_ISTO-00010)

The archive storage query has a new option "Archiving status". It allows e.g. to lookup all storage items for which the storage location has already been defined but not yet confirmed.
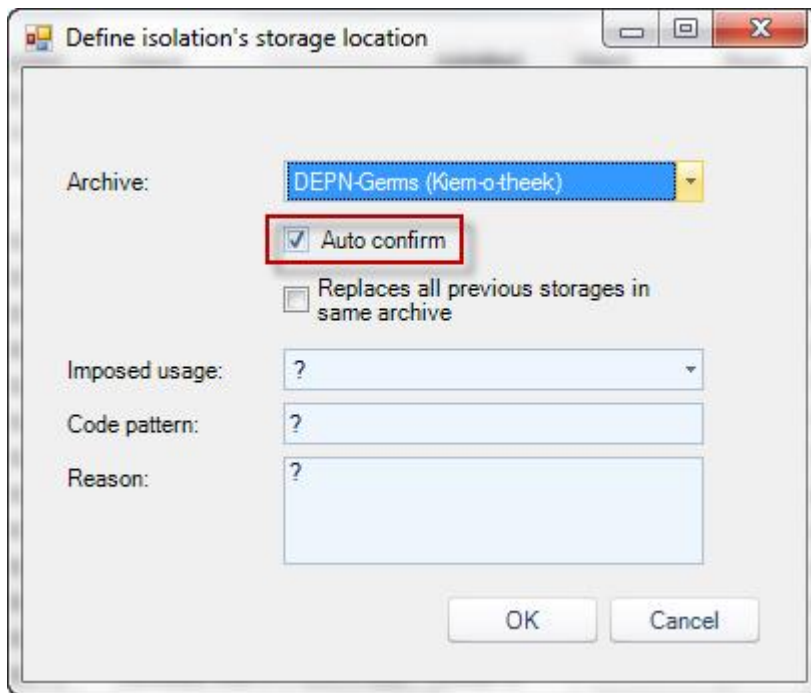
Flexible auto-confirmation of isolation storage (GLIMS_ISTO-00012)

Existing feature

In previous versions, when using the Isolation-based function "Storage -> Define location", it was already possible to auto-confirm the corresponding Item storage by enabling the Archive option "Auto-confirm store".

New feature

To provide more flexibility, the Isolation-based function "Storage -> Define location" itself now allows to indicate if the corresponding Item storage should be auto-confirmed. The default value of this option is synchronized with the "Auto-confirm store" setting of the selected archive.
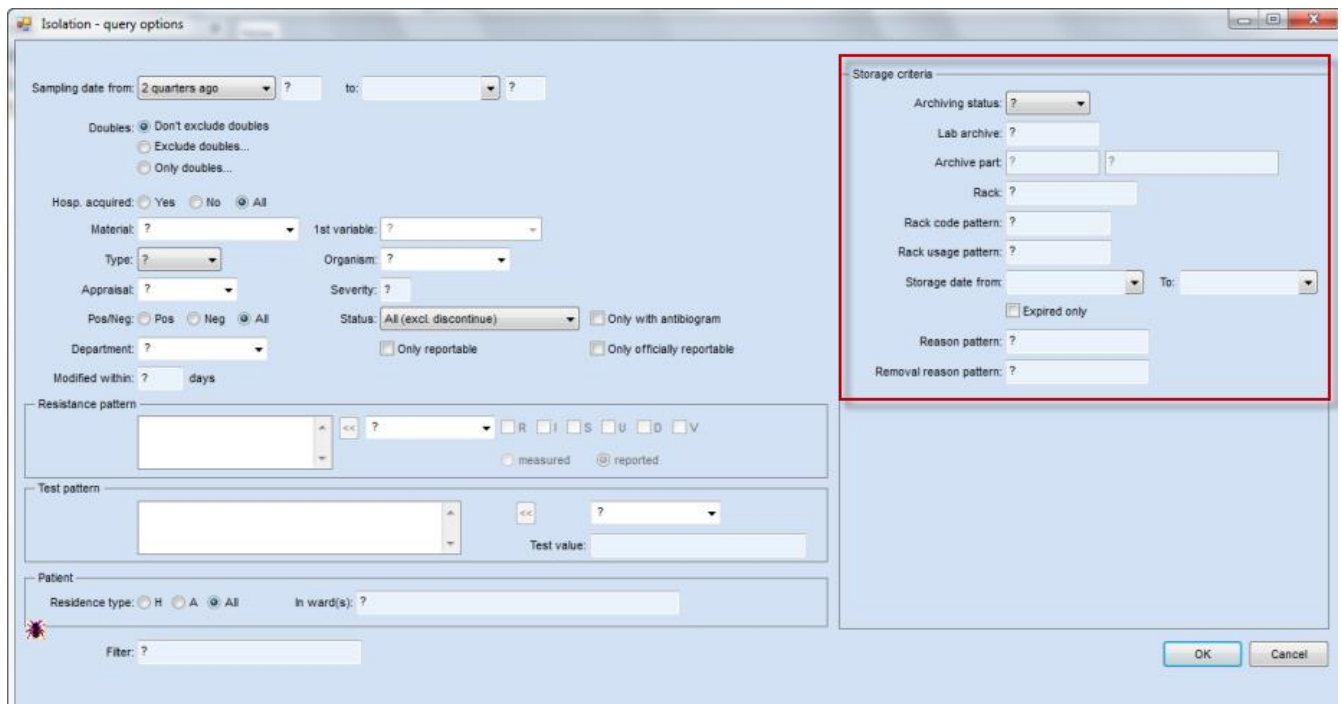
Storage criteria in isolation query (GLIMS_ISTO-00013)

All options of the archive storage query that are applicable to isolations are now also available in the isolation query. Note that this query is also used in the isolation statistics module.

Show position when defining isolation storage location (GLIMS_ISTO-00014)

When defining the storage location of an isolation using the isolation function **Define location**, GLIMS will now show the exact position that has been assigned to the isolation within the archive.
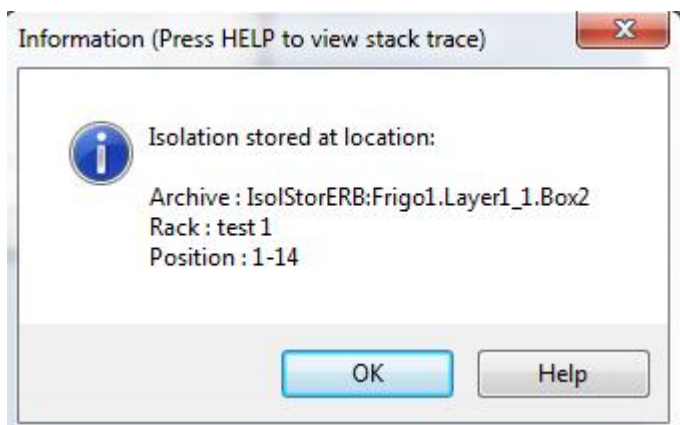
Archive information in isolation editor (GLIMS_ISTO-00015)

The **Archiving** page of the **Isolation** editor has been improved:

- The **Position** column has been removed.
- Information that does not relate to the isolation is no longer shown (e.g. specimen, carrier).

Moving racks to another archive (GLIMS_SERO-00103)

Introduction

A new screen has been added which allows to move racks from one archive to another using drag-and-drop.

Access

From the main menu

Click "Start -> Archive -> Move racks".

From a rack context

Select a rack and right-click "Move rack".

Features
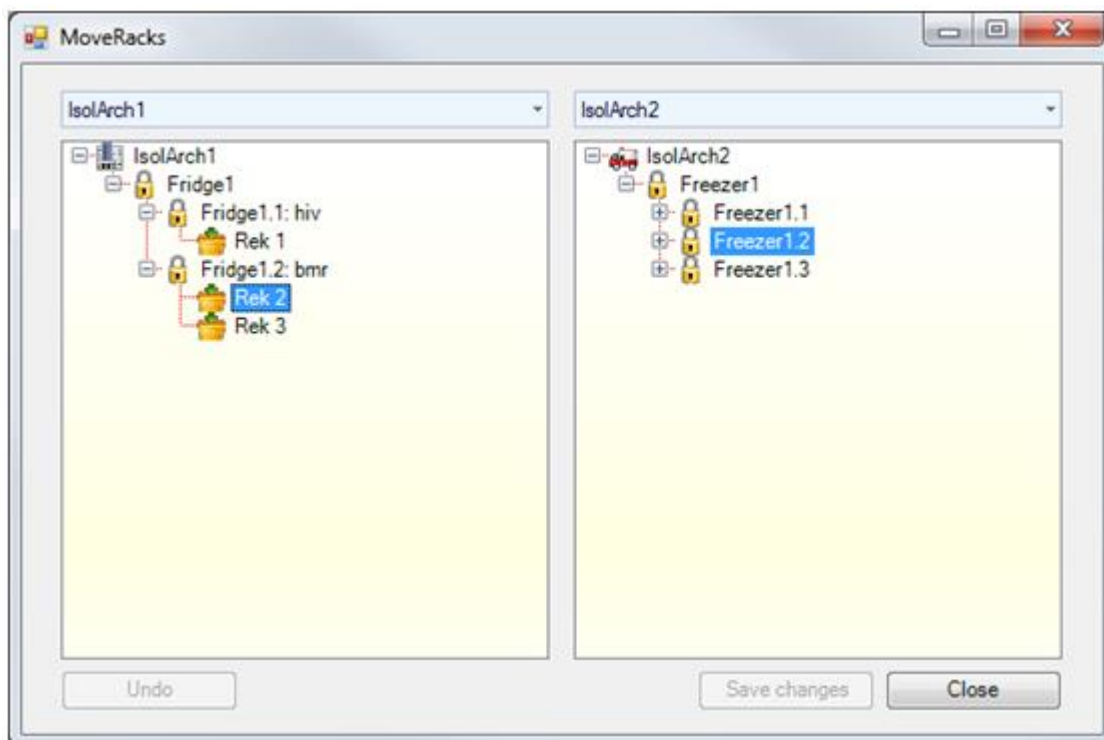
Source archive

Select the archive from which you would like to move racks to another archive. When starting from a Rack context, the source archive will already be set.

Target archive

Select the archive to which you would like to move racks.

Left window

When starting from a Rack context, the left window will only display the selected rack.

When starting from the main menu, the left window shows all archive parts and racks in the selected source archive. Any part of the archive can be dragged and dropped to the target archive. So you can move a single rack or all racks in an archive part. When selecting an archive part, all underlying racks will be moved.

You can only drop racks into the lowest level of the target archive. The structure of the source and target archive are never changed.

Right window

The right window shows all archive parts and racks in the selected target archive.

Undo

The Undo button allows to revert any **not yet saved changes**. As soon as you click "Save changes", the changes can no longer be undone.

Save changes

Changes are not saved immediately in order to allow the user to move several racks and then review the changes. The "Save changes" button has to be clicked to save the changes in the database.

As soon as any change has been made, the source and target archives can no longer be changed until the changes have been saved.

Once the changes are saved:

1.   You can no longer undo your changes.

2.   You can select another source and target archive.

Error in archive outline when deleting item storage (GLIMS_SERO-00108)

Problem description

An error occurred when:
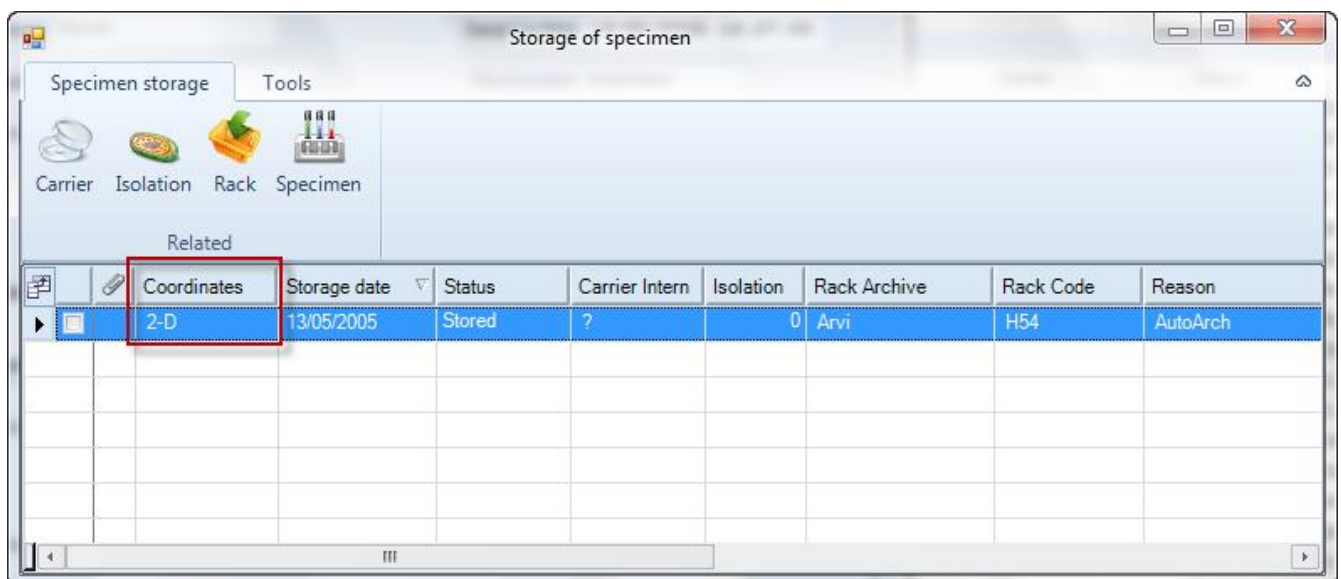
1. Opening the archive outline screen
2. Navigating to another lab archive screen and deleting an item storage
3. Returning to the archive outline screen and clicking the item storage that has been deleted in the meantime

This has been corrected.

If rack type is 2-dimensional, show position with 2 coordinates (GLIMS_ SERO-00112)

Previously, positions in a rack were displayed as a number throughout the application. Depending on the layout and definition of the rack type, positions are now displayed as coordinates instead; e.g. "A-3", "D-06", "2-3" ...

In every browser that had a "Position" column (number), a "Coordinates" column is now shown. Using the column selector you can still visualize the "Position" column.

In the "Item storage editor", the "Position" field is kept and the "Coordinates" are shown as a read-only field (as this is calculated).

Configurable list of rack usages (GLIMS_SERO-00114)

GLIMS allows to reserve the use of a number of racks for a special purpose (e.g. a study) by specifying a usage for these racks. In previous versions, it was possible to enter any text you wanted as "usage".

This has been changed: the list of possible "rack usages" can now be formally defined via "Start -> Archive -> Configuration -> Rack usages".

Improvements for archive query (GLIMS_SERO-00115)

The following improvements have been implemented for the archive storage query:

1. It is now possible to select an archive part from an archive outline screen.
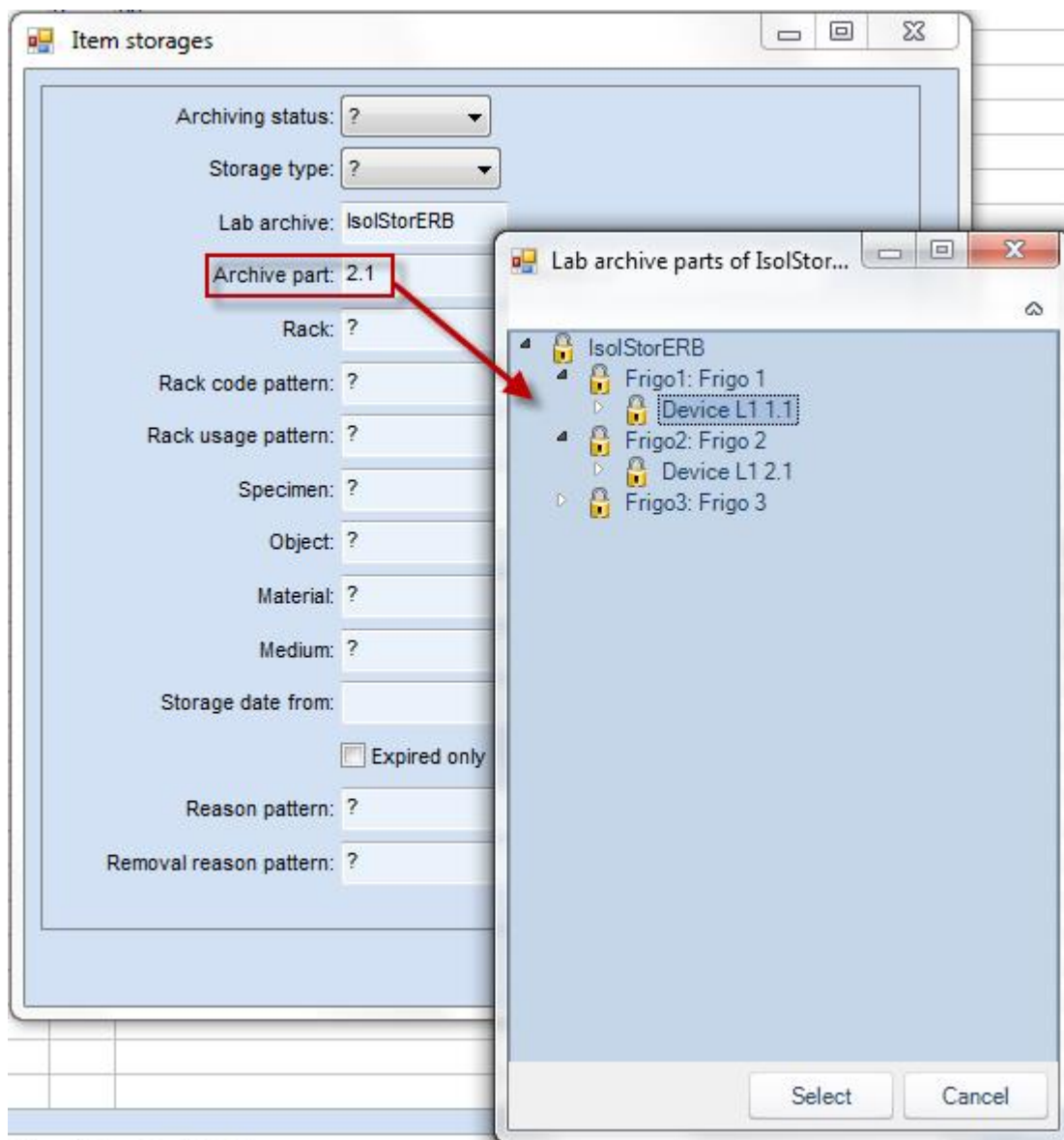
2. The query did not always return the correct item storages.

Filtering on Archive part in Lab archive queries (GLIMS_SERO-00121)

In the **Lab archive** module, the Item storage, Isolation and Rack query screen all have an **Archive part** option. When specifying an archive part in one of those queries, GLIMS only selected the records directly related to that archive part.

However, an archive part may contain a hierarchy of archive parts below it. The records related to those archive parts are now selected as well.

MISPL filter in item storage query (GLIMS_SERO-00122)

In the **Lab archive** module, the item storage query now offers a **Filter** field to refine the query criteria with an ItemStorage-based site function.

Icon for main parts of an archive(GLIMS_SERO-00126)

In the lab archive configuration, the field **Icon path for main part** allows defining an icon that will be used to visualize the main parts of this archive in the lab archive overview. However, the icon was used for the lab archive itself, not its main parts.

This has been corrected.

Storage period of an archive part (GLIMS_SERO-00130)

The **Storage period** is inherited from an **Archive** to its **Archive parts** and then to its **Racks**. As archive parts can be structured hierarchically, the storage period of an archive part should also be inherited from its parent archive part.

> **Example**

```
Archive A
      └ Archive part B
               └ Archive part C
                        └ Rack D
```

1. Assign a **Storage period** to Archive A: B, C and D will inherit the same value.
2. Assign a different **Storage period** to C: B will still inherit from A while D will now inherit from C.

MISPL function to get coordinates of item storage (GLIMS_SERO-00135)

An ItemStorage-based MISPL function named **Coordinates** has been added which allows to retrieve the coordinates of an item storage.

Microbiology

Introduction of isolation test status in GLIMS (GLIMS_BAC-00914)

Background info

Until now, an isolation test did not have a status. This implied that isolation test values could be entered and re-entered without a clear tracing.

As of now isolation tests will have a specific status (Expected, Available, Confirmed, Validated or Discontinued). This allows a more detailed management of the isolation test results.

New features

Isolation status description

Expected	Isolation test is added, but result is not available yet.
Available	A result is available for the isolation test.
Confirmed	The isolation test has been confirmed. The isolation test can be confirmed:

1. By confirming the microbiology action (e.g. in the microbiology work screen).
2. By selecting an isolation test (e.g. in the microbiology work screen, a microbiology work list) and using the context function "Confirm".

Validated	The isolation test has been validated. The isolation test can be validated:

1. By validating the microbiology action (e.g. in the microbiology work screen).

Discontinued	The isolation test has been discontinued. The isolation test can be discontinued:

1. By selecting an isolation test (e.g. in the microbiology work screen, a microbiology work list) and using the context function "Discontinue".

Note: in the microbiology screen, you can change the value of a discontinued isolation test. Its status will be reset to "Available".

Audit trail

All changes to the isolation test values are registered in an audit trail. Select an isolation test and use the context function "View audit trail" to see a full history.

Reports

The isolation test status can be exported in reports through dynamic text modules. Example:

IsoTestStatus := EnumeratedToString("IsolationTestStatus", .Test("<Microorganism TestMnemonic>").Status);

Analyzer communication

Two new options have been added for Stations:

Auto confirm isolation tests

If enabled, isolation tests uploaded by an instrument will be confirmed automatically.

Isolation test update status limit

Allows limiting the status in which isolation tests can be updated by an instrument. This field offers the following options:

1. Available: if the isolation test in GLIMS is confirmed or validated, the update is rejected. Available isolation tests can be updated.

2. Confirmed: if the isolation test in GLIMS is validated, the update is rejected. Available and confirmed isolation tests can be updated.

3. Validated: the update is always allowed, even for validated isolation tests.

The default value is "Available". Note that updates for discontinued isolation tests are always rejected.

New MISPL function Carrier.AddIsolationWithAppraisal (GLIMS_BAC-01013)

Introduction

Some customers would like to automatically **add an isolation AND set an appraisal** e.g. when carrier comment is changed.

New feature

To allow this, a new **MISPL function Carrier.AddIsolationWithAppraisal** is now available. It can e.g. be used in the Medium field "Trigger when comment changed."

The MISPL function has two parameters: Carrier.AddIsolationWithAppraisal(*Mnemonic*Microorganism*Mnemonic*, *Mnemonic*IsolationAppraisal*Mnemonic*).

Example
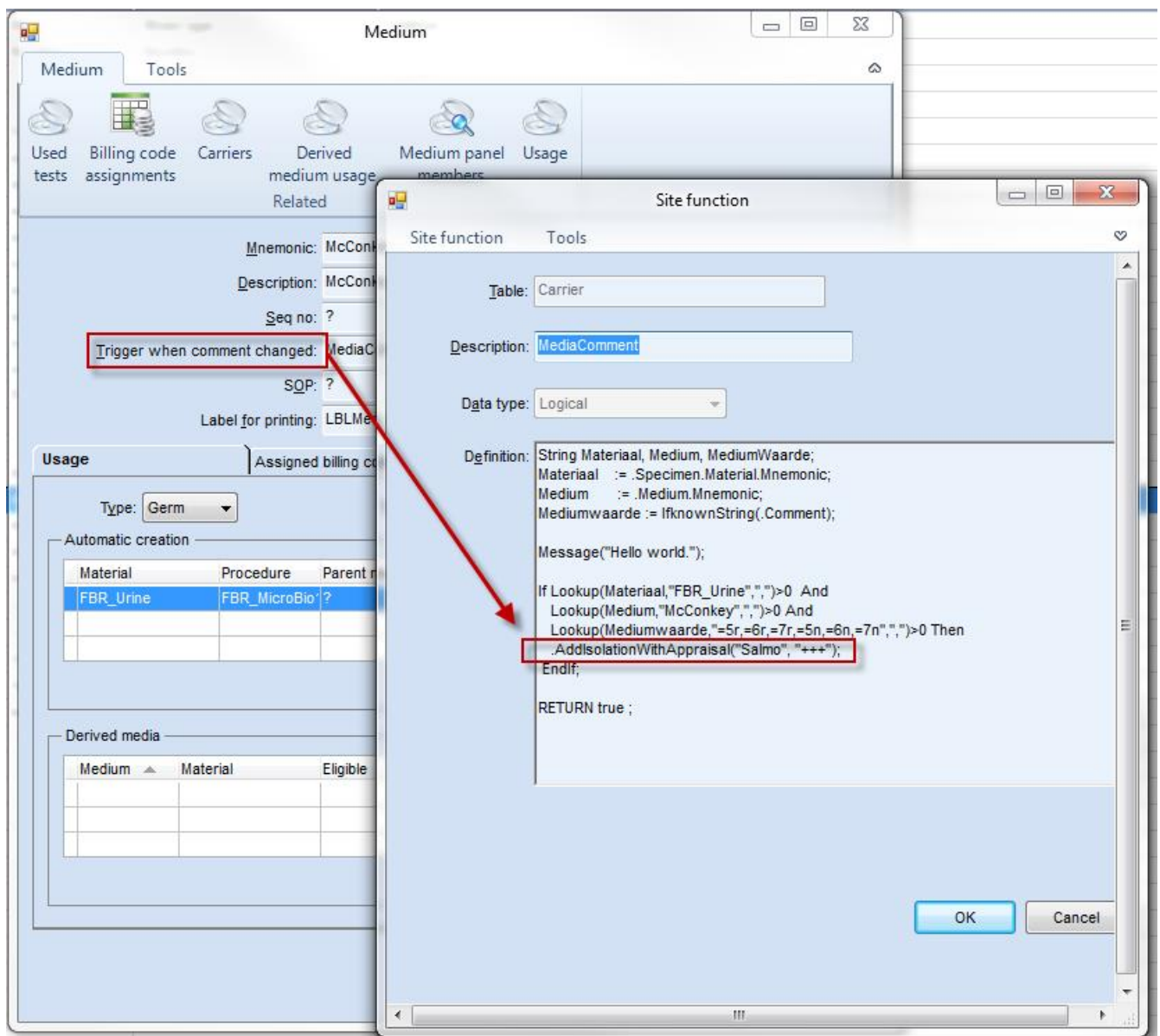
Issue with carrier comments in microbiology work screen (GLIMS_BAC-01022)

In the microbiology work screen, only comment changes for the first carrier in the carrier browser were saved.

This has been corrected.

New MicrobiologyAction-based MISPL function "SetConclusion" (GLIMS_ BAC-01024)

A new MicrobiologyAction-based MISPL function "SetConclusion" is available which allows to auto-matically add a conclusion in e.g. isolation or isolation test triggers.

Syntax: *Logical* **SetConclusion**(*String* ConclusionText, *Logical* Append).

Improvement for printing isolation test labels (GLIMS_BAC-01061)

When clicking the **Print** icon in the isolation test browser of the microbiology work screen, GLIMS will now only print the isolation test labels for the selected isolation.

If you want to print all isolation test labels, use the contextual menu/ribbon item **Print -> Print isolation test labels**.

Printing isolation test labels for the selected isolation
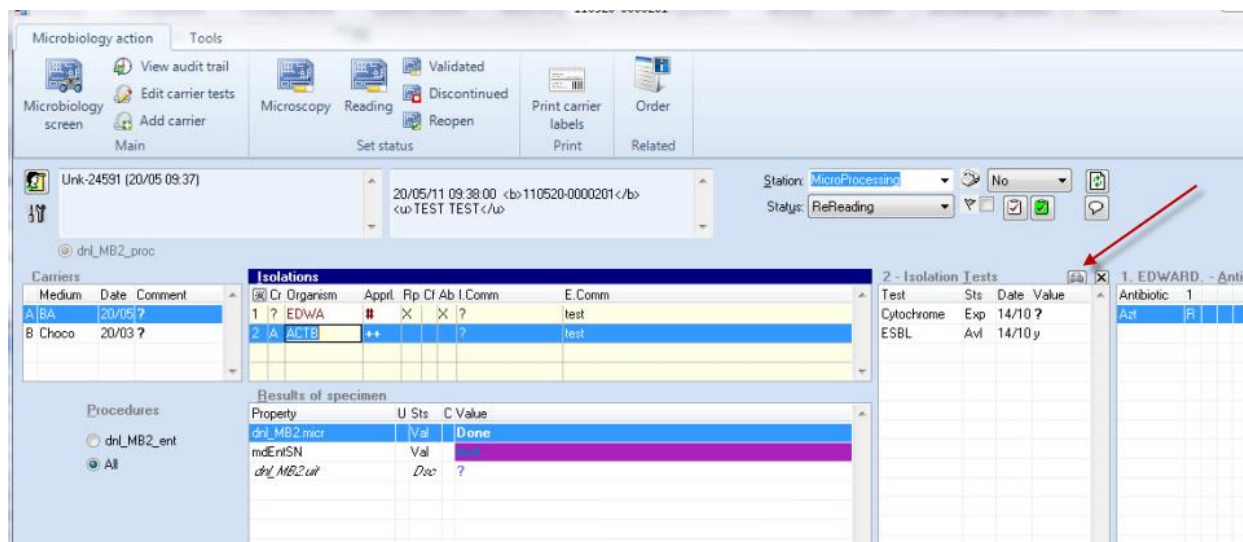
Printing all isolation test labels
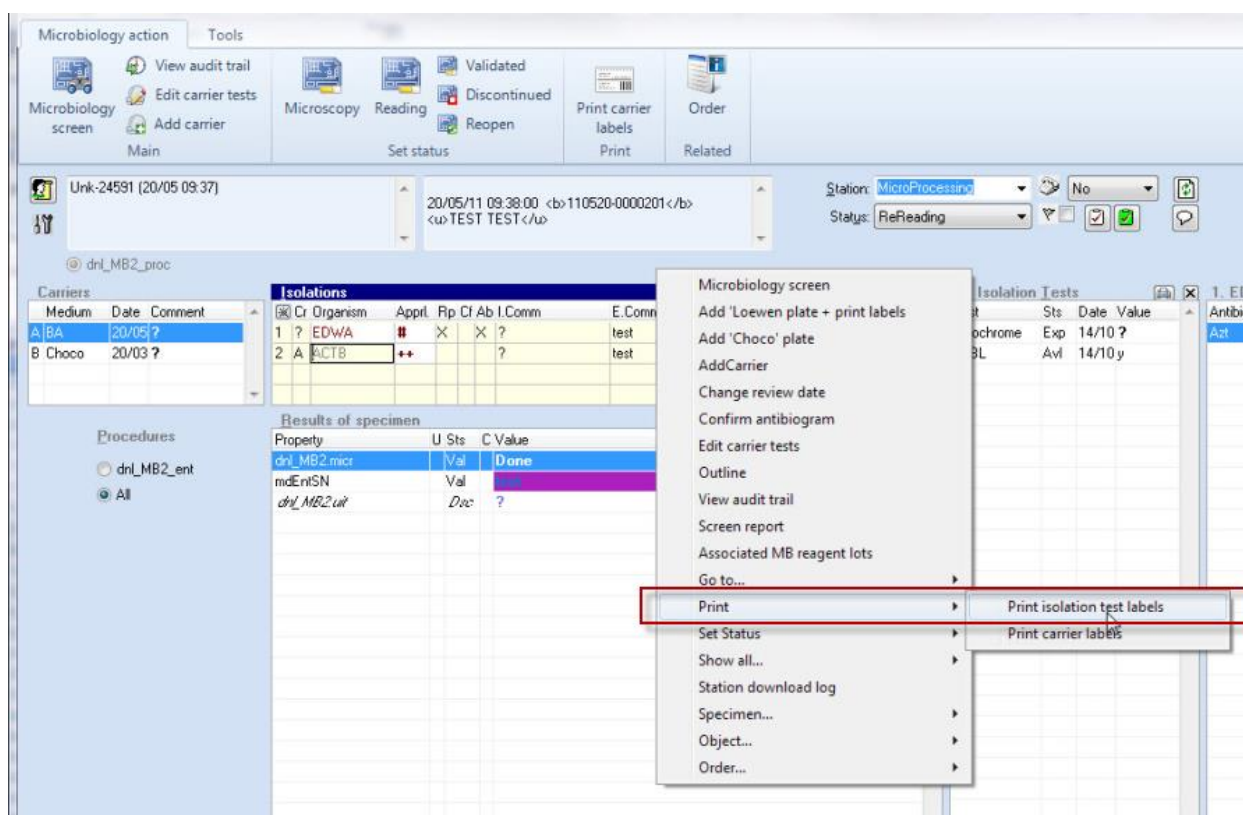
Display of RIS report value (GLIMS_Epid-00106)

Background information

In GLIMS, you can have a RIS raw value and a RIS report value. In most cases these are identical but it is possible that a raw value is modified by a MISPL function before being printed on a report. When an antibiotic result is confirmed, the raw value is copied to the report value.

Problem description

Suppose an instrument sends both a RIS raw value and a RIS report value to GLIMS. When the antibiotic result is not automatically confirmed, then the user will not see the RIS report value in the microbiology screen.

Solution

The microbiology work screen will now show the RIS report value whenever a RIS report value is available or when the antibiotic result has reached status "Confirmed".

Note that this is not backward compatible: from now on, GLIMS may show RIS report values when the antibiotic result is not yet confirmed.

HLA

Re-introduce "HLA -> Personal Medical Record" function (GLIMS-05961)

In GLIMS version 9, the contextual function "HLA -> Personal Medical Record" for Persons was no longer available. This has been corrected.

> **Note**: you need to regenerate the context menu/ribbon for table "Person".
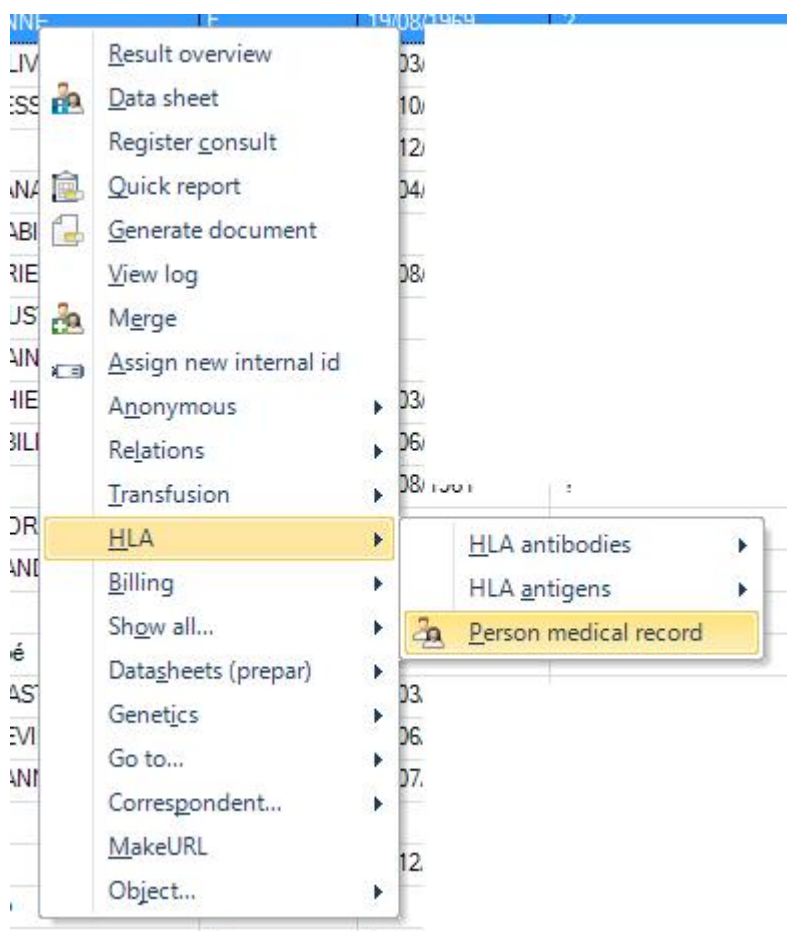
Blood transfusion

Error in blood bag check-out (GLIMS-05958)

When opening the blood bag check-out screen (Start -> Transfusion management -> Check-out), the following error could occur:
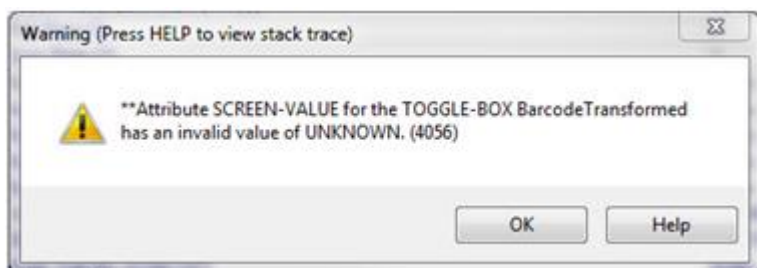
This has been corrected.

Error during blood bag administration (GLIMS_BTM-00773)

When administering blood bags (e.g. via the Multiple blood bag registration screen), an error could occur when a MISPL expression (accessing blood bag data) was defined in:

1. the general option **Report expression** (**Start -> System management -> Customize -> GLIMS transfusion module**).

   or

2. the field **When administered** of the blood product.

This has been corrected.

Issue with option "Always scan the product code" (GLIMS_BTM-00786)

When scanning a blood bag using its **External id**, GLIMS did not ask to specify the **Product code** even when the option **Always scan the product code** was enabled. This has been corrected.

> **Note**
>
> This issue did not occur when scanning a blood bag using its **External id as barcode**.

Issue with MISPL function BloodSelection.SetUtmostTransfusionTime (GLIMS_BTM-00813)

In a very specific case, an error could occur when using the MISPL function **BloodSelection.SetUtmostTransfusionTime**. This has been corrected.

Cycle column in compatible blood bag selection screen (GLIMS_BTM-00818)

The screen to select a compatible blood bag for a blood selection allows to show either the blood bag's **External id** or **Internal id** using the column cycle icon. This choice is now saved in the user's preferences.

Evaluate report expression when crossmatch specimen is available (GLIMS_BTM-00823)

In the blood transfusion module, when selecting a blood bag for a blood selection, GLIMS will automatically add a crossmatch requestable to the order (as configured in the blood product).

This crossmatch requestable requires a blood specimen. As there may be a significant delay between the creation of the original order and the availability of the specimen required for the crossmatch, GLIMS will now re-evaluate the **Report expression** (also defined in the) as soon as this specimen becomes **Available**.

Stock management

Disallow creation/deletion of items for purchase orders with status > approved (GLIMS_STCK-00521)

In several stock management screens (product ordering, product check-in, etc), the buttons to add/delete new purchase order items are disabled when the purchase order has a status higher than **Approved**.

However, it was still possible to use the **Insert** / **Delete** keys of the keyboard. This has been corrected.

Analyzers

Introduction of isolation sequence types (GLIMS_ANLZ-01007)

Background information

When multiple microbiology instruments (e.g. scanbac résultats, SIR, Vitek, Maldi) are working simultaneously on the same specimen, conflicts could arise in external isolation numbering (Station option "Isolation numbering" was set to "External").

New feature

Station fields

Isolation sequence type

By defining an isolation sequence type per station, each station can have its proper isolation sequence numbering. Multiple stations can share the same type.

Isolation numbering

The isolation numbering is now implicitly determined:

1.   for stations with an isolation sequence type, an external numbering is used (isolation sequence).

2.   for stations without an isolation sequence type, an internal GLIMS numbering is used.

Isolation sequence type

Isolation sequence types can be defined from the main menu via "Start -> Microbiology -> Configuration -> Isolation sequence types".

Mnemonic

Unique identifier for the isolation sequence type.

Scope

Defines the scope within which the isolation sequences must be unique (per specimen or per microbiology action).

Creation mode

Defines when the isolation sequence should be created: when creating an isolation or when creating an isolation test.

Note: the creation mode is ignored when the isolation is being created upon upload of a result message on a station having this isolation sequence type defined.

Creation of an isolation sequence

The isolation sequences are either created on insert of an isolation, or on insert of an isolation test. The creation mode is set on the isolation sequence type.

The isolation sequence value field is automatically incremented, based on the scope of the isolation sequence type (unique number per specimen or per microbiology action) and the highest value within that scope. The isolation sequence value might also be assigned when the isolation is uploaded from a station to GLIMS. The upload message contains the value for the isolation sequence.

Setting the creation mode of an isolation sequence type to "isolation test" may result in the creation of isolation sequences for the isolation on which an isolation test is being inserted. The sequences are created for each isolation sequence type with that creation mode, and used by a station which has an organism test method configured for that isolation test. The organism test method should be enabled and have an outbound id filled in.

Isolation sequence creation upon station result upload

Upon isolation upload from a station to GLIMS, GLIMS may create sequences for the isolation sequence type defined on the uploading station and any other isolation sequence type.

Isolation sequence of the uploading station

GLIMS may create isolation sequences for isolations uploaded to GLIMS on a station for which an isolation sequence type is defined. The isolation sequence type creation mode of the uploading station has no influence on that creation.

If no sequence value exists with a matching value, then GLIMS will create a new isolation sequence and set the value to the one received from the instrument. If the instrument did not send a sequence value, then GLIMS will calculate the value based on the isolation sequence values already defined for that sequence type.

If an isolation already exists with the same sequence value, then the sequence value remains and the isolation is updated where necessary (other organism, antibiotic result values, etc).

GLIMS will not create isolation sequences if no isolation sequence type is defined on the uploading station. Consequently, the isolation is rejected.

Isolation sequences for other stations

On creation of the uploaded isolation in GLIMS, GLIMS will try to create isolation sequence values for any sequence type defined on another station than the uploading station, and different than the one defined on the uploading station.

If the creation mode of that other sequence type is set to isolation, then the sequence is created and calculated unconditionally. If the isolation creation involves automatic creation of isolation tests (for instance triggered by a MISPL function), then sequence records are created for isolation sequence types with mode set to isolation test.

Isolation sequence creation when no station is involved

As described above, a station result upload to GLIMS might lead to the creation of isolation sequences.

Isolation sequences are also created when an isolation is inserted through other means. For instance: when an isolation is inserted in the microbiology work screen, or when isolations are created by means of electronic communication (not originating from an instrument).

When no station is involved, GLIMS will create sequences for any type configured on at least one station and having the creation mode set to isolation.

Work order message transmitted to a station

When downloading isolations to the instrument, GLIMS will send one of the following items as isolation sequence value in the work order message:

1. If an isolation sequence type is defined on the station: the value of the isolation sequence record
2. If no isolation sequence type is defined on the station: the Isolation.InternalSequencer

Deleting isolations in GLIMS

Deleting an isolation in GLIMS will not lead to the deletion of related isolation sequence records. The reference to the isolation however will be removed. This ensures continuation in the numbering of isolations: a sequence value will not be re-assigned to the next isolation of the specimen or microbiology action.

Isolate sequence access via MISPL

Label printing of isolation tests may require the value of the isolation sequence for a related station. The micro-organism test field "Label to print" allows to define an IsolationTest-based text module. This text module can now use the following Isolation-based MISPL function:

     Integer **GetSequence**(*String* IsolationSequenceTypeMnemonic)

This function returns the sequence value (integer) for a given isolation sequence type.

Consultation of isolation sequences

The values of the isolation sequences are visible in the isolation browser of the microbiology screen, in the column named "Seq". The column is only visible when at least one "External sequencer" exists or an "Isolation sequence" exists for one of the isolations of the microbiology action.

The isolation sequence values are also visualized in the isolation editor (tab folder "detail").

Repeated tests not always downloaded correctly (GLIMS_ANLZ-01012)

The following issues have been solved:

Case 1

Repeated tests were not always downloaded correctly.

The download is triggered by an ALL-query requesting finished & cancelled tests. If the result repeat is executed just after the query for finished/cancelled tests is received by the service, then the service would still download the result as a cancellation upon a subsequent ALL-query.

Case 2

A related issue is the download of confirmed, validated or discontinued tests the first time a query for such tests is received for a station in the lifetime of a service. This can give incorrect downloads to the instrument, since GLIMS does not know for how long the service has been inactive the moment that these results reached their status.

Correction for creation of station logs (GLIMS_ANLZ-01013)

When GLIMS had to create two similar station logs for the same station at the same second in time and for the same assessment method, the following error message could appear in the service log file:

> ** b_StationLog already exists with Assessment method 23179631 Event time 2456234.587476. (132)

This has been corrected.

Convert site attribute AssessmentMethod.IsArchive (GLIMS_ANLZ-01017)

The "AssessmentMethod" site attribute "IsArchive" is converted to a formal database field labeled "Transmit archive information".

Configuration for screen synchronization with Kiestra (GLIMS_ANLZ-01018)

Background information

In previous GLIMS versions, the setup for microbiology screen synchronization with the Kiestra system required the use of a site attribute named "_MicroScreenSync". In GLIMS 9.3, this temporary solution has been replaced by a more robust implementation

New implementation

1. First you need to define the microbiology screen devices (Start -> Microbiology -> Configuration -> Micro screen sync devices -> By number).

2. As soon as 1 enabled device is configured in GLIMS, the microbiology action browser will show a button "Screen sync select" which allows to select one of the configured devices.

Allow clearing isolation comment upon isolation update (GLIMS_ANLZ-01042)

Problem description

The existing Station option Overwrite comment indicates if an internal or external isolation comment should be overwritten by a newly uploaded comment from the analyzer.

However, when an isolation update message received from the analyzer did not contain any comments (no or empty comment segments), the existing isolation comments were not cleared.

Solution

A new **Station** option **Clear isolation comments** has been added. If enabled, previous isolation comments will be cleared if an update message is received which does not contain any isolation comments.

Avoid sending old pathology carriers to analyzers (GLIMS_ANLZ-01047)

Problem description

Users can add pathology carriers to old orders that were created before an analyzer ever requested work orders. For such work orders, GLIMS would send both the recently added carriers and the old carriers in a work order.

This is not desired. Only the recently added carrier should be included in the work order.

Solution

The translator can now send a pathology carrier "offset time" in the query for work orders. When specified, GLIMS will skip work orders which have been created after that offset time.

Note

The information in the ASTM query message is transmitted as a M-record of type 'QArg':

- M.3.1.1: Fixed value 'arg'
- M.4.1.1: Fixed value 'PCarOffsTm'
- M.5.1.1: Date time value, format CCYYMMDDhhmmss (only CCYYMMDD is mandatory)

Full antibiogram replacement after analyzer update (GLIMS_ANLZ-01048)

Problem description

1. A microbiology analyzer sends a full antibiogram to GLIMS.
2. Upon a second reading, a number of individual antibiotic results are suppressed on the analyzer or middleware solution.
3. When the analyzer sends an update to GLIMS, these suppressed antibiotic results are not deleted in GLIMS.

Solution

A new Station option "**Delete antibiotic results**" was introduced.

If enabled, and at least one valid antibiotic result is received for an isolation, GLIMS will delete the existing antibiotic results.

Notes

- This action is logged in the service log file.
- GLIMS tracks the deletion of antibiotic results. This can be consulted in the audit trail of the isolation and microbiology action.
- The Station option "Isolation update status limit" remains valid. If this limit is reached, GLIMS will not accept any updates and therefore not delete existing anti-biotic results either.

Issue when storing results received from analyzer (GLIMS_ANLZ-01053)

An issue was detected where a result sent by an analyzer was not stored because it was locked by another user or process. This has been improved.

Note: GLIMS will now try to store the result twice within the same second, but if the result is still locked the result will still be rejected.

However, GLIMS will from now create a log entry for each result that could not be stored. The auto-created log type in GLIMS is named "Station result".

Event evaluation blocks automatic sort (GLIMS_ANLZ-01054)

The event evaluation function could block automatic sorting in case the measured volume was too low. The event handling has been optimized to prevent this.

For more information, please check the chapter "Distributor systems in slave mode".

POC: encounter lookup without institution (GLIMS_POC-00042)

The MISPL function "CreateSpecimenOrder" allows to lookup patients by encounter external ID. In previous versions, the search required an institution mnemonic parameter: GLIMS searches for an encounter assigned by that institution.

This is too strict for sites with multiple institutions. In the use case for this modification, the site guarantees that the encounter external ID's are unique. This modification allows GLIMS to lookup the unique encounter regardless of the institution. Hence, the institution mnemonic parameter can be omitted. An error will be produced when a another encounter with the same external id is found for a different person.

So when looking up patients by their encounter external ID in POC communication, ensure that the encounter external ID's are unique when multiple institutions are involved !

Communication

Support for Context, Context date and Context info during order import (GLIMS_OI-00444)

In case of electronic order entry, GLIMS now provides support for the Order fields Context, Context date and Context info.

As this information is retrieved from a ZOD segment, ensure that the HOML translator is configured to process ZOD segments (option -k ZOD).

Too many events in IHE order communication (GLIMS_OI-00491)

An event type **RequestGroup** with sub type **LabInitiated,StatusNotification** was incorrectly created when **LAB1(OP+ORT) / LAB-3 (OP+ORT)** was selected in the **IHE LTW context** (**Start -> System management -> Customize -> GLIMS**).

This has been corrected.

Do not export actions for "frozen" orders (GLIMS_OX-00105)

In rare cases, an order can have the temporary status "Frozen". When actions are exported to an analyzer for such "frozen" orders, it is possible that some, but not all tests for a given specimen are sent to the analyzer. A few seconds later the remaining tests are sent.

As a result, the tube had to be placed a second time on the analyzer. To ensure that all tests are exported simultaneously, GLIMS will no longer export actions for frozen orders.

Support identifier type code in patient communication (GLIMS_PI-00298)

Case description

When exchanging patient information, a patient is identified by one or several identifications each assigned by an identification provider (a **Correspondent** in GLIMS). In communication messages, both the actual identification and identification provider are mentioned.

However, several countries have also implemented a national health care program which introduces a national number.

> **Examples**
>
> - The Netherlands: BSN number
> - Belgium : Rijksregisternummer
> - France: INS number

For each identification provider (correspondent), GLIMS should be able to indicate which **identification type** is used in its communication messages.

The HL7 protocol explicitly supports this in the field PID-3, CX-5 : "Identifier type code".

> **Example**
>
> "NNNLD" for BSN numbers in The Netherlands.

New feature

Defining identification types

To define the different identification types, click **Start -> Correspondents -> Identifications -> Identification type**.

Mnemonic

> Unique code for the identification type that is used in communication messages. E.g. "NNNLD" for BSN number in The Netherlands.

Name

> Name that is used to display the identification type in GLIMS.

Description

> Multilingual description of the identification code.

Assigning an identification type to an identification provider

For each identification provider (correspondent), the identification type can be specified in the field **Default identification type**.

> **Tip**
>
> If an identification provider supports several identification types, you will have to define a different Correspondent record for each identification type.

Communication messages

In communication messages, GLIMS will identify a patient by the actual identification number, the identification provider and the identification type.

> **Example**
>
> [1234^^^HIS_A^PI~5678^^^HIS_B^NNNLD]
>
> where
>
> - 1234 is the identification assigned by provider "HIS_A" with identification type "PI"
> - 5678 is the identification assigned by provider "HIS_B" with identification type "NNNLD"

> **Note**
>
> Whether or not the identification type information is processed depends on the driver (version) and the external application.

Reset Person data via communication message (GLIMS_PI-00305)

When a **Family doctor** or **Mother** was defined for a **Person**, it was not possible to reset this data via communication messages received from an external application. This has been corrected.

Host-restricted monitoring of services/translators (MATE-02906)

GLIMS offers a tool "MonitorServices" to automatically restart services and translators for which "autostart" is turned on, but which aren't running at the moment of checking.

However, in larger environments, where services and translators are spread over multiple application servers, these tools were insufficient as it might not always be able to start those remote services.

For this reason we have added a parameter "Local services only" to the function gp_Site.MonitorServices. If enabled, the function will only monitor services which are configured to run on the specific host.

This means system managers can now setup and schedule a "MonitorServices" task per application server in order to automatically restart services that aren't running at the moment of checking - but limited to the specific host.

Introduction of service groups (MATE-03039)

Introduction

In order to streamline the management of services and translators in a **multi-server environment**, a new table **gp_ServiceGroup** was introduced.

This table serves as centralized configuration of **Host** and **Log directory** information, and optionally allows setting an **Administrator role** which users will need to have in order to Start/Stop/Register/Unregister the Services and Translators which are a member of this Service group.

Fields

Mnemonic / Description / Comment

These are standard fields that allow you to clearly define a unique name and the goal of the individual Service group records.

Upon conversion of an existing database, the Comment field will be filled with the names of the Service and Translator records that were altered to refer the new Service group records.

Host (mandatory)

Changes to the configuration of Services:

You can no longer configure the Service.Host directly.

Instead, you are now required to select a Service group for that particular Host.

Changes to the configuration of Translators:

You are now required to select a Service group for that particular Host.

Tips

> **Tips**
>
> It is possible to configure **multiple Service groups for the same Host**. This allows for more logical grouping of Services and Translators in function of their goal within the communication network.
>
> It is possible to configure a **different Service group for the Service and its underlying Translators**. This makes it clearer that the Translator processes are running on a different server than the Service process through which they communicate with the application.

Log directory (optional)

This field allows you to set a specific "root" log directory for the Services and Translators which are a member of this Service group.

By default, Log directory is set to the unknown value '?' which means that the existing 'root' log directory is applied.

Administrator role (optional)

When you set this **Administrator role**, users will only be able to Start/Stop/Register/Unregister the Services and Translators in this Service group, if they are logged in with that specific Role.

Notes

> **Note**:
>
> This is an important feature for multi-site environments, where each site has its own IT-staff and these employees should not accidentally interrupt the routine on another site.

Functions

As it is not allowed to directly modify the field **ServiceGroup.Host** after creation, a function **Change host** was added to the **ServiceGroup** table. If you do not see this function in the context menu, you can add it manually.

With this function, you can update the Host, and all Services and Translators which are a member of this Service group will be automatically unregistered as Windows services.

Notes

> **Note**:
>
> Unfortunately, due to technical limitations, the unregistered services will have to be registered as Windows services manually on the new host.

Conversion of existing databases

When an existing database is converted to the new schema, the conversion procedure will automatically create the necessary ServiceGroups, based on the information in the existing Service records' Host field, and will automatically assign the Service.ServiceGroup and Translator.ServiceGroup references.

New Service type "Service controller" (MATE-03040)

In addition to "Translator server" and "Task scheduler", you can now setup a Service of type "**Service controller**". This type of service is used for remote start/stop of services and translators (e.g. via MIPS Watchdog) and is especially useful in multi-server environments.
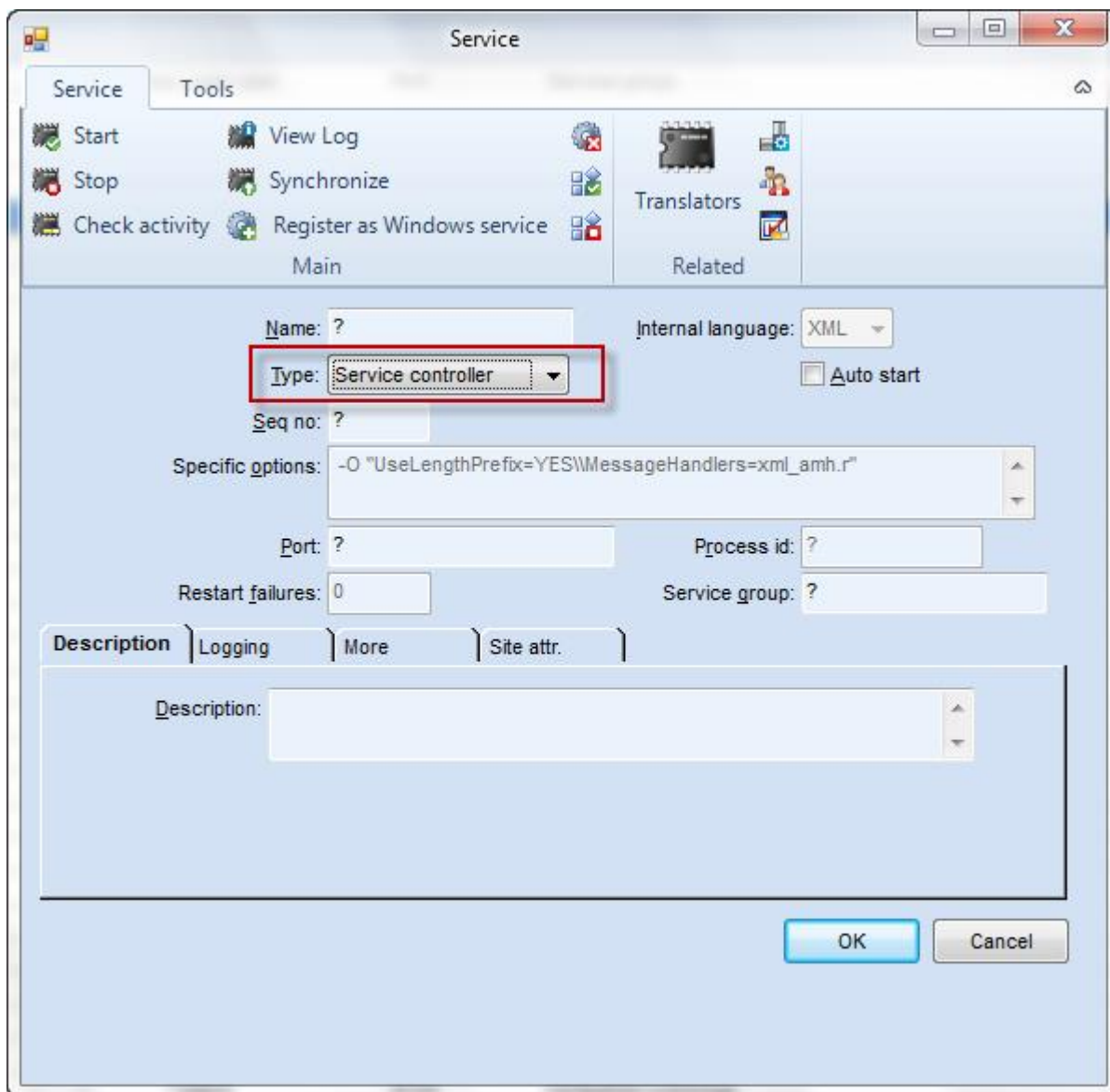
The Service editor was also modified to prevent configuration errors:

- When the type is set to "Task scheduler", the internal language is fixed to 'URL'
- When the type is set to "Service controller", the internal language is fixed to 'XML' and the specific options are fixed to '-O "UseLengthPrefix=YES~\~\MessageHandlers=xml_amh.r"'

The database conversion will automatically convert existing Service records of type "Translator server" to "Service controller" if applicable.

Sorting services and translator in Watchdog (MATE-03201)

In previous versions, the system overview sent by the GLIMS to Watchdog daemon, always sorted the services and translators by their database creation order. As the Watchdog Dashboard has no sorting capabilities, this would result in a semi-random placement of the services and their translators within the Dashboard user interface.

Even though the Watchdog dashboard still doesn't have sorting capabilities, the application now sorts the services and translators in alphabetical order, which ensures a more logical placement of these items within the Dashboard user interface.

Sending "alive" messages to the Watchdog (MATE_COMHL-00237)

In previous versions, only services of type "URL" were sending "alive" messages to the Watchdog. This has now been changed so that services of type "XML" also actively send out these messages.

Host-restricted start/stop of services/translators (MATE_COMHL-00239)

For larger environments, where services and translators are spread over multiple application servers, the functions to start and stop all services (gp_Site.StartupServices and gp_Site.ShutdownServices) now have an option "**Local services only**".

If this option is set, only services on the local server will be started/stopped.

Billing

Financial export in "Exact" format (BILX_EXACT-00001)

When exporting financial data in the "Exact" and "Exact Globe 2003" format using the Fin-ancialShipment.Send function, credit note items are now exported as negative amounts (preceded with a "-" sign).

Financial export in "Exact" format (BILX_EXACT-00002)

When exporting financial data in the "Exact" format using the FinancialShipment.Send function, more characters are now allowed for the field "debnr" (10 characters) and "kstplcod" (8 characters).

This change only applies to the "Exact" format, not to the "Exact Globe 2003" format.

Export KVDT files using KV-Connect (BILX_GKVC-00002)

Introduction

GLIMS 9.3 allows to export KVDT files (German billing) using KV-Connect.

Configuration

Before you can start using KC-Connect, the following configuration is required in GLIMS:

Change your KV-Connect password

After having received your account information to connect to KV-Connect, you have to change your password before you start using the connection.

From the main menu, click "Start -> Billing -> Configuration -> KBV -> **Change KV-Connect password**".

Communicate with

> The "Test server" option can be used for testing purposes.

Login user

> Enter your KV-Connect login name.

Current / New password

> Enter your current and new password.

Generate a KV-Connect certificate

After having changed your password, you have to create a public/private key pair and let the KV-Connect server sign a certificate for these keys.

From the main menu, click "Start -> Billing -> Configuration -> KBV -> **Generate KV-Connect certificate**".

Communicate with

> The "Test server" option can be used for testing purposes.

Login user / Password

> Enter your login name and password

Key store / pass phrase

> Your key pair and certificate are stored in a Java **Keystore** (*.jks file). You can choose to create a new one (by specifying a jks file that does not exist) or reuse an already existing jks. When generating a new key store, the **pass phrase** (password) provided will then be used to encrypt the key store. If the key store exists, you have to provide the password it was encrypted with before.

Once you have generated a certificate, you can send and receive messages using KV-Connect. You will always have to provide the most recently generated jks file so messages can be encrypted/decrypted and signed/verified. Older jks files will be unable to send proper messages nor be able to decrypt answers.

The key store generated by GLIMS is compatible with the one generated by the KV-Connect client (cfr. KV-Connect downloads). This means you can use a key store generated by the KV-Connect client in GLIMS (just point to the .jks files: e.g. c:\KV-Connect\users\<username>\mailkeystore.jks). You can also let the KV-Connect client use the key store generated by GLIMS (replace the jks in the user KV-Connect user directory with the one you have generated).

Known restrictions and limitations

- Use a separate key store for every KV-Connect user
- Certificates signed by KV-Connect are only valid for 2 years. Every 2 years you will have to regenerate your certificate.
- When creating a new keystore, you can not navigate to this non existing file using the "File open…" dialog you get when double clicking the "Key store" field. You have to manually type in the full path to the keystore you wish to create (e.g. "c:\keystore.jks" without the quotes).

Export

GLIMS communicates with KV-Connect via the KV-Connect REST server (so the KV-Connect client is not used).

Generate XML and send to KV-Connect REST server

From a **financial shipment**, right-click and choose "**KBV -> GenerateKVConnectXML**".

Version

Increases automatically when re-sending a financial shipment. When re-sending a financial shipment, the screen will use the same information as the first export. This behavior can be changed by manually resetting this field to "1".

.xkm Datei

Select the encrypted KVDT file. This is a .xkm file created using the pruefassistent).

Sammelerklaerungsdatei

An optional file with extra information.

BSNR

Automatically derived from the financial shipment (firm identification).

Quartal

Automatically derived from the financial shipment's external date.

Testdaten / Vollstaendig

Send

When pressing the "Send" button:

1.   an xml file "einlieferung_Abrechnung.xml" is generated (in the same directory as the selected .xkm file)

2.   after entering the KV-Connect login details, GLIMS will send the XML file to the KC-Connect REST server

3.   Depending on the result, the financial shipment will have status "Sent" or "Transfer failed".

Check KVConnect reply

GLIMS allows to check the reply for a previously sent .XKM file.

From a **financial shipment**, right-click and choose "**KBV -> CheckKVConnectReply**".

Communicate with

The "Test server" option can be used for testing purposes.

Destination email

Login user / password

Enter your login name and password.

Key store / pass phrase

> Enter your key store and pass phrase.

This function only checks the replies for the related financial shipments. The replies are logged in a log type named "KVConnect abrechnung (check reply)". The log entries have the financial shipment as subject. These logs are also available from the financial shipment by using the contextual function "Show log entries".

Financial export in "German KVDT" format (BILX_GKVDT-00026)

When exporting financial data in the "German KVDT" format using the FinancialShipment.Send function, invoices that only contain rejected items will now be skipped.

Convert site attribute for LANR identification provider (BILX_GKVDT-00030)

The SpecificSite-based site attribute used to specify the LANR provider (German KBV) has been converted to a regular database field. The site attribute will be converted automatically during the GLIMS 9.2 upgrade.

Financial export in "German KVDT" format (BILX_GKVDT-00031)

When exporting financial data in the "German KVDT" format using the FinancialShipment.Send function, GLIMS can use a more flexible method to lookup the billing item executor for export.

1. For each executing class, you can now specify a dummy "Executor property" via a site attribute with name "_KBVExecutorProperty" (base table "ExecutingClass", type "Reference", target table "Property").

2. When the specified property is requested and validated, GLIMS will lookup the validation user. To link this user to the correct HC provider, you can use the site attribute "_KBVExecutor" (base table "sc_User", type "Reference", target table "HCProvider"). The referred HC provider should have a LANR and BSNR identification. This HC provider will be used as executor.

When the site attributes have been defined, but no "executor property" is requested, the previous executor lookup mechanism (billing 'items' executor from provision) will be used and a warning will be logged.

Financial export in "German KVDT" format (BILX_GKVDT-00032)

The export of financial data in the "German KVDT" format (using the FinancialShipment.Send function) has been updated to support the latest changes (quarter 1, 2013) in KBV regulation.

Financial export in "German KVDT" format (BILX_GKVDT-00033)

When exporting financial data in the "German KVDT" format using the FinancialShipment.Send function, an error occurred when the patient's last name contained more than 28 characters. This has been corrected.

Financial export in "German KVDT" format (BILX_GKVDT-00037)

The error logging has improved when GLIMS encounters an incorrect "Versichertennummer". This number could either be an "eGk" or a traditional "FK 3105" number. The error message will now clearly indicate so.

Support new version of SDKV (German billing) (BILX_GKVDT-00038)

When exporting financial data in the "German KVDT" format using the FinancialShipment.Send function, GLIMS now supports the new version of SDKV (SDKV0199.04).

Financial export in "Infohos v2" format (BILX_INFOHOS2-00003)

The export of financial data in the "Infohos v2" format using the FinancialShipment.Send function has been updated to meet new RIZIV rules.

Financial export in "MedSoc" format (BILX_MEDSOC-00001)

When exporting financial data in the "MedSoc" format using the FinancialShipment.Send function, field 7 FISTAT will now be filled with the "EncounterType.Code" from GLIMS.

Financial export in "Xtenso v1.3" format (BILX_TRIPLEP-00009)

A number of changes have been applied to the financial export in "Xtenso" format in order to comply with version 1.3.

Financial export in "Vektis OS301" format (BILX_VEK8OS301-00001)

GLIMS now supports a new financial export format "**Vektis OS301**". Click here for more details about this format.

> **Note**:
>
> This feature requires the license "VEKTIS OS FINANCIAL EXPORT".

Financial export in "Vektis" (v8) format (BILX_VEKTIS8-00012)

If available, GLIMS will now always export the specialism in the Vektis item "421". In previous versions, the specialism was only exported when item "420" (zorgverlenerscode) was also available.

Financial import in "Vektis" format (BILX_VEKTIS8-00016)

In addition to exporting financial data in the Vektis format, GLIMS also allows to import returned files with rejections in the Vektis format. However, in some cases, too many billing items were credited in GLIMS.

This has been corrected.

Financial export in "HVOSVT" format (GLIMS_3PI-00001)

When exporting financial data in the "HVOSVT" format using the FinancialShipment.Send function, an error could occur. This has been corrected.

Faster lookup of general payment agreements (GLIMS_BILL-02742)

Introduction

General payment agreement are payment agreements that are not correspondent-specific (PaymentAgreement.Party is empty) and which are applicable for all parties. From a performance point of view, the lookup of general payment agreements was not efficient.

New feature

A new **Payment agreement field "General"** has been introduced which will make the search for general payment agreements faster. This performance improvement should be noticeable in the general payment agreements browser and in the MISPL function "SpecificSite.PaymentAgreements" (mainly used in the Order set defaults MISPL).

Option "Eliminate Versandpauschale" for KVDT export (GLIMS_BILL-02815)

When exporting financial data in the KVDT format, a new option Eliminate Versandpauschale is available.

If enabled, GLIMS will remove the **40100** billing code(s) when a **40120** exists for the same patient and quarter (read the same financial shipment). GLIMS will also eliminate superfluous 40100 and 40120 billing codes (when they occur more than once per quarter).

This will be logged in the general **Log** tables

Issue with invoice item query (GLIMS_BILL-02843)

When using the **Standard invoice item query** (e.g. in a command), no results were shown when a financial shipment was selected as query criterion.

To solve this, a new query **Invoice items of financial shipment** is now available.

Financial export in "Xtenso" and "Infohos" format (GLIMS_BILL-02974)

Introduction

When exporting financial data in "Xtenso" and "Infohos" format, GLIMS can now send a specific "Internal issuer" for requests added by the lab.

New feature

1. Requests added by the lab are marked in order entry with a request flag "Added by lab".
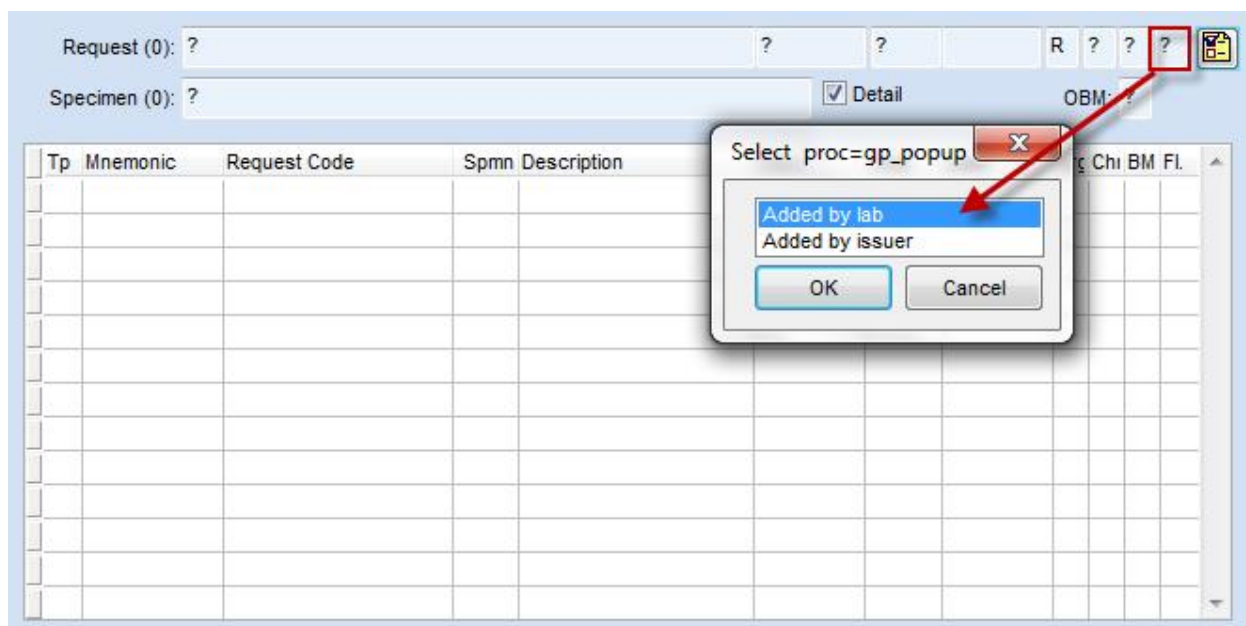
2. For each department, an "Internal issuer" can be specified.

3. For requests added by the lab, the internal issuer (if specified) will be exported in both the "pre-scriptor" and "executor" records of the "Xtenso" and "Infohos" protocol.

Specific details for "Xtenso" protocol

> Prescriptor field = field 10 : position 71, 6 long
> Executor field = field 6 : position 54, 6 long
> Norm prescriptor = field 31 : position 173, 1 long (always value '4' sent)

Specific details for 'InfoHos' protocol (specific "E" record)

> Prescriptor field = field 13 : position 69, 6 long
> Executor field = field 10 : position 51, 6 long

Support field sequence for FSE fields in order entry (GLIMS_BILL-02990)

Most FSE fields (French billing) are now also available in the "Sequence" tab page of the order entry options. Note: to define the sequence for the FSE field "Nature d'assurance", you should use the field "OrderContextString".

Order set defaults MISPL executed twice (GLIMS_BILL-02996)

When creating a new order and navigating to the "Billing" tab page, the order set defaults MISPL was sometimes executed twice. This has been corrected.

Printing billing documents and grouping by Gross amount (GLIMS_BILL-02997)

Sorting and grouping on billing documents was not correct when sorting/grouping by "Gross amount". This has been corrected.

The screenshot shows a "Billing document template" dialog with the following fields:
- Mnemonic: INVSSIMPEL
- Document type: FinancialTransaction
- Description: Test voor uitprinten van invoice-summaries

Tabs: Main, Sorting, Texts, Discount, VAT, Site attr.

Sorting tab:
- Line data sorting 1: Gross amount
- Line data sorting 2: ?
- Line data sorting 3: ?
- Line data sorting 4: ?
- Line data cumulation 1: Gross amount
- Line data cumulation 2: ?
- Line data cumulation 3: ?
- Line data cumulation 4: ?
- Invoice sorting function: ?
- Order sorting function: ?
- Invoice summary sorting: ?
- Payment sorting: ?
- Gain sorting: ?
- Shipment sorting function: ?

OK   Cancel

Payment import in "BVB" format (GLIMS_BILL-03011)

When importing payments in the "BVB" format, it could happen that the payer's bank account number was appended with "EUR". GLIMS will now strip this suffix in order to store the correct account number.

Financial export in "Exact" format (GLIMS_BILL-03014)

When exporting financial data in the "Exact" format and an error occurs, GLIMS will now produce a more detailed error message.

Payment import in "BVB I.5" format (GLIMS_BILL-03028)

When importing payments in the "BVB I.5" format, the following error could occur:

"*Calculated total does not match actual total.*"

This has been corrected.

Setup of financial shipment query on Unix (GLIMS_BILL-03044)

Problem description:

1. On a Windows system. define a **Command** on table **FinancialShipment**
2. In the query options screen, enter a value for **Send status from** and **Send status to**.
3. When executing / opening the command on a Unix system, the values for these fields were not taken into account.

This has been corrected.

Error in invoice summary statistics (GLIMS_BILL-03052)

When exporting invoice summary statistics and choosing **Last supplement dates** as **Row**, the following error could occur:

> ** *Incompatible data types in expression or assignment. (223)*

This has been corrected.

Financial export in "HPRIM XML" format (GLIMS_BILL-03057)

When exporting financial data in the **HPRIM XML** format using a command, the output was empty if the option **Full logging** was enabled. This has been corrected.

Improvement for MISPL function InvoiceSummary.Data (GLIMS_BILL-03058)

Invoice summaries are usually balanced by means of a payment or a loss/gain. However, invoice summaries with a negative amount (credit invoice summaries) can also be used for that purpose.

The MISPL function "InvoiceSummary.Data(UnbalancedAmount/BalancedAmount/PaidAmount:<date>)" will now also take such credit invoice summaries into account.

Consider issuer discount when printing price list (GLIMS_BILL-03059)

When printing a price list, GLIMS did not take issuer-specific discounts into account. This has been corrected.

Payment import in "Swift" format (GLIMS_PYIP-00004)

The following improvements have been made for importing payments in the "Swift" format:

1. Full import of the "Verwendungszwecks" when looking up the payment reference.
2. The original "Verwendungszwecks" of the Swift import file is now stored in the payment's "Original reference".
3. The original payment reference is displayed in the payment editor ("Raw reference").

Statistics

Performance issue when selecting agent group in order statistics (GLIMS_ AST-00040)

A performance issue was detected in the order statistics when:

1. When the Row option was set to "Agents"

2. An Agent group was selected in the query options.

This has been corrected.

Extensions for reporting statistics by email (MATE_STAT-00147)

The "Output options" screen of the statistics modules allows to report the statistics by email. The following enhancements have been implemented:

1. In previous versions, the "**To**" field was limited to 100 characters. This restriction has been lifted.
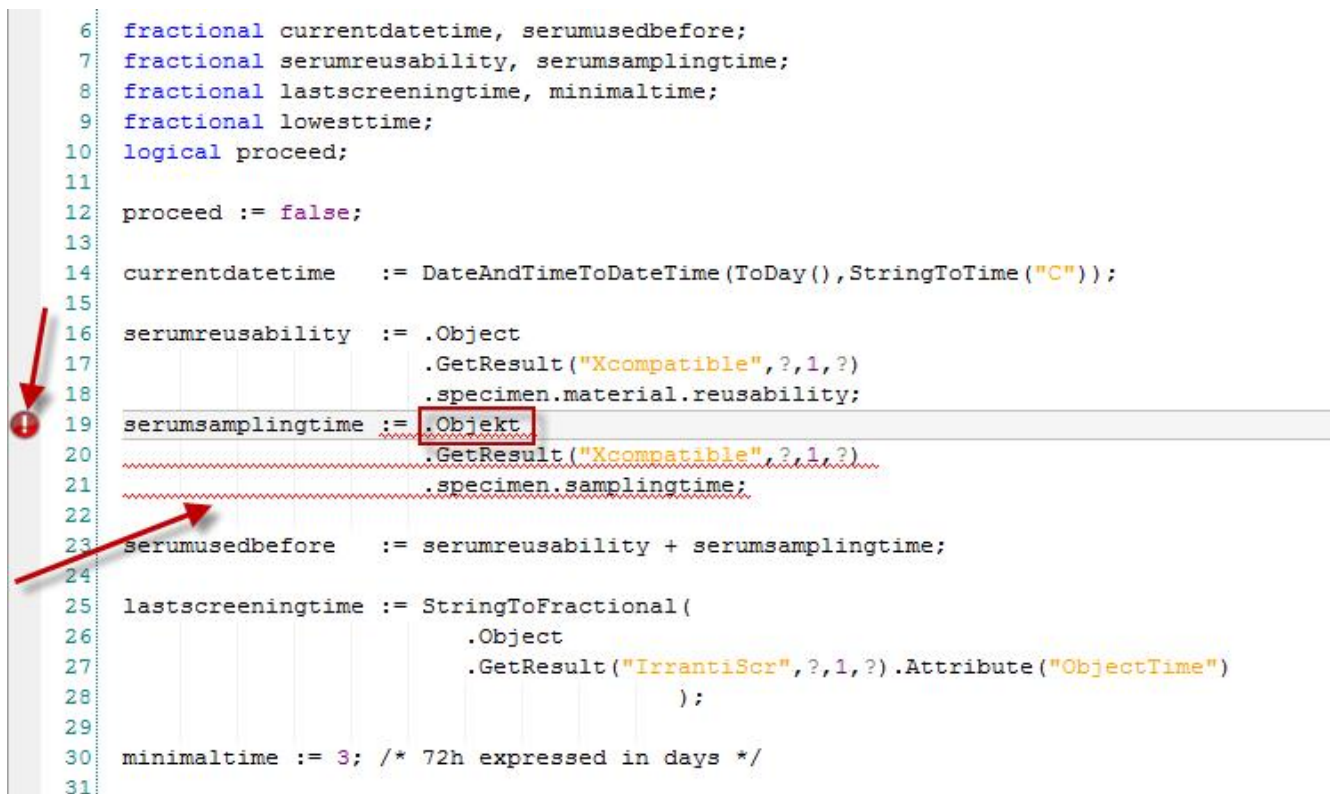2. The new "**CC**" field allows to specify who should receive a copy of the email.

3. In both the "To" and "CC" field, you an **use the F6 key to open a larger window**.
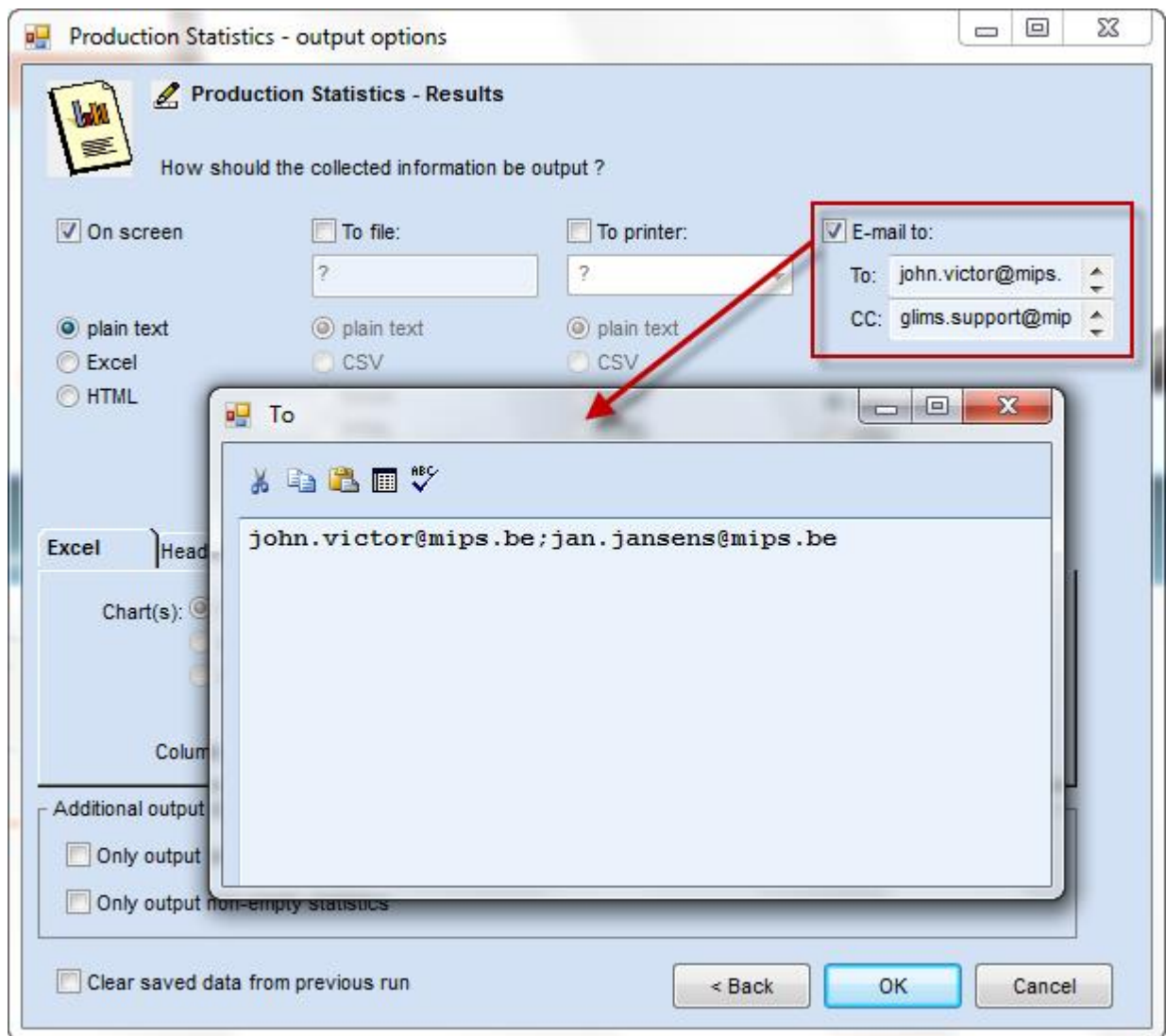
MISPL

Visual indication of syntax errors in MISPL editor (MATE-02458)

The MISPL editor will now visually indicate any syntax errors. A warning icon is shown before the applicable line number and the affected lines are underlined in red.

"Insert" key in MISPL editor to open MISPL expression builder (MATE-02460)

When pressing the "Insert" key in the MISPL editor, GLIMS no longer opened the MISPL expression builder. This has been corrected.

New built-in MISPL function "XmlEscaped" (MATE_MISPL-00059)

When exporting data in XML format using site functions or dynamic texts, system managers had to manually escape the reserved XML characters (ampersand, less-than, greater-than, quote). This was error-prone as it had to be copied over again and again to multiple site functions and text definitions.

Now MISPL offers a built-in function "XmlEscaped" to convert the reserved XML characters.

Example:

   OutputString := XmlEscaped("These characters should be escaped: &, <, >, "".");

will result in OutputString containing the properly escaped text:

These characters should be escaped: &, <, >, ".

System management

Function gp_site.CheckUp now available for users (GLIMS-05926)

The minimal user type for the gp_site.CheckUp function has been lowered from 'System manager' to 'User' so that this function is now also available for users.

Note: when upgrading to GLIMS 9.3, a privilege will be created in GLIMS for this function for backwards compatibility.

Correction for "Purge old routine data"(GLIMS-06181)

An issue was identified where the "Purge old routine data" tool crashed when trying to purge Objects of type "Person" that did not actually refer to a Person record.

Although Objects of type "Person" without an actual Person record are an indication of corrupt data, the Purge tool will no longer fail to delete such objects.

Reviewed procedure to anonymize GLIMS database (MATE-02407)

The procedure to anonymize the GLIMS database has been reviewed:

1. The flag indicating that the database has been anonymized, is now a hidden field on gp_Site and no longer an easy modifiable site attribute field. It cannot be modified through export/import.

2. The anonymization process will from now on generate random first names/last names with a trailing "@" character, making it easily recognizable that the database has been anonymized.

Import/export of table fields of datatype "BLOB" or "CLOB" (MATE-02497)

Import/export of table fields of datatype "BLOB" or "CLOB" is now fully supported.

Export

When exporting records from a table with "CLOB" or "BLOB" fields, an export file will be created with as CLOB/BLOB field data the name of a CLOB/BLOB file with format

- CLOBS: <TableShortName>!<FieldName>!<CodePage>!<Id>.blb
- BLOBS: <TableShortName>!<FieldName>!<Id>.blb

<CodePage> is the code page used in this session, example "UTF-8". <Id> is the id of the table record.

For each exported record, a file with matching name is created in the same folder as the .csv file. This file contains the data from the exported BLOB/CLOB column. In case of CLOB this is in text format, for BLOB it is in binary format.

Import

When importing records from a table with "CLOB" or "BLOB" fields, the import file will be examined. For CLOB/BLOB fields the matching file will be searched in the folder containing the .csv file. The import will fail if the .blb file is not available.

Before attempting to import files, the data in the .blb files will be compared with the data in the database. For CLOB fields this is a "RAW" comparison, for BLOB fields this is a byte to byte comparison, although the import program will apply other, more performant comparison techniques first.

Display 'Device' and 'Terminal' name in status area (MATE-02664)

More and more often, users of our applications do not access them directly, but via a remote connection (CITRIX, Windows Terminal Services or variants thereof). In such environments, it is important to know the actual client device in addition to the remote connection host.

This modification brings two useful changes:

1. If a user is logged in via a remote desktop connection, then we display both the 'Device' and 'Terminal' name in the bottom right area of the application window. This text is of the form '<Device> (via <Terminal>)' - e.g. 'JohnDoeClient (via CitrixServer)'.

2. A new built-in MISPL function 'CurrentDevice' was added to complement the existing MISPL function 'CurrentTerminal' and will return the client device name (if applicable).

"Check storage" reports wrong drive (MATE-02849)

On a computer with multiple drives, the "Check storage" function could display information about the wrong drive.

This has been corrected.

Support accents and umlauts in database import (MATE-03038)

When importing data using the gp_Site based function "DatabaseImport" (Start > System Management > Database > Import), accents and umlauts were not correctly stored.

This has been corrected.

Prevent finalized log entries without expiration date (MATE-03045)

An issue has been identified where finalized logs did not have an expiration date. As a result these logs were never purged.

This modification assigns an appropriate expiration date to all finalized logs where the expiration date is not specified (provided that the log type also specifies an expiration period).

The process is done when upgrading to 9.3 (first session starting 9.3). As a result, automatic log purge commands may start purging many (expired) log records.

Limit AppServer messages to administrators (MATE-03173)

Before this modification, all failures to connect with the OpenEdge Application Server were displayed regardless of the type of user, while the client session continues to work in 'fat' mode.

This was causing unnecessary confusion for regular users, and we have modified the behaviour to only display these error messages if the user is logged in as "System manager" or "Developer".

Improvements for database conversion on Oracle/UNIX (MATE_SETUP-00191)

Several improvements have been implemented for upgrading the GLIMS database to version 9 on Oracle/UNIX.

Improvements for installation/upgrade procedure on UNIX (MATE_SETUP-00192)

The pinstall script (conversion script for installations/upgrades on UNIX) has been adapted to setup an AppServer configuration on UNIX.

1. an executable for AppServer will be linked automatically.
2. the ubroker.properties file in the $DLC/properties directory will get entries that are required to run an AppServer on UNIX and that can be used by any Windows client.

The setup is the same for Progress and Oracle installations. Some Oracle-specific environment variables might have an empty value in case of a Progress installation.

Miscellaneous

Prevent selection of inactive HC providers (GLIMS-05781)

In some fields (e.g. "Sampler" and "Family doctor" in order entry), GLIMS allowed selecting an inactive HC provider. Note: an inactive HC provider is a correspondent for which the "Active until" date has elapsed.

This has been corrected.

Performance of property lookup (GLIMS-05797)

Searching for a property could be slow, particularly on an Oracle database. Example:

1. Start the "Incomplete results" query (Start -> Routine -> Results -> Incomplete results).
2. Double click in the "Property" field.
3. In the property browser, type some characters to lookup a property.
4. The lookup was slow.

This has been improved.

Export order information to Labco DataWareHouse (GLIMS-06132)

GLIMS now allows to export order information in the "Labco DataWareHouse" format.

Configuration:

1. Create a Command on the Order table
2. Select the Standard query and define a query parameter set
3. As function, choose "ExportDataWarehouse"
4. Create a function parameter set

Consistency in Action/Specimen function .Attribute("PropertyCodeList") (GLIMS-06180)

Both from the Action and Specimen table, the MISPL function .Attribute("PropertyCodeList") allows to retrieve a list of properties. However, these functions had a slightly different behavior:

1. The Action based MISPL function would return the property mnemonic if the property code is not available.
2. The Specimen-based MISPL function would not include the property if no code is available. The Specimen-based MISPL function .Attribute("CompletedPropertyCodeList") was introduced to accomplish this.

For both the Action and Specimen table, the MISPL functions now behave exactly the same:

1. .Attribute("PropertyCodeList"): returns a list of property codes. Properties without code are excluded.
2. .Attribute("CompletedPropertyCodeList"): returns a list of property codes. For properties without code, the mnemonic is used.

Hybase: only export reportable isolations (GLIMS-06184)

When exporting data to Hybase, GLIMS will now exclude isolations that are marked as "not reportable".

Hybase: export patient sex (GLIMS-06191)

When exporting data to Hybase, GLIMS will now also include the patient's sex (M or F) at the end of the patient line.

"Current department" in queries (GLIMS-06296)

In all queries that allow selecting a department, the option "**Current**" has been added. This allows selecting records based on the user's current department (as chosen during login).

Example: the order review query screen:

Issue with dynamic texts (MATE-03036)

A dynamic text without an explicit "return" statement could return the result of the previous dynamic text. This has been corrected.

> **Example**
>
> The dynamic text:
>
> ```
> {: Return "first text";}
> {: if 1> 2 then
> Return "impossible";
> endif;
> }
> ```
>
> would return:
>
> ```
> first text
> first text
> ```

Context header in audit reports (MATE-03041)

All audit reports now have a fixed header at the top which provides more context when printing the report. The header contains the following information:

- Date + Time
- Current Department
- Current Device
- Current User (Login name + First name and Last name)
- Context Table + Record externalization

Examples

> **Example**:

Deliver help files in HTML5 format (MATE-03170)

As of GLIMS version 9.3, the help files are delivered in HTML5 format, replacing the outdated CHM files which caused compatibility issues with recent operating systems.

The help files will be installed in a fixed location which must not be changed (doc\<Language>).

Command line option for "Start tool" (MATE-03179)

The **-param** command line parameter was extended with an option **-T** where one can specify the **Mnemonic** of a Tool record defined on the gp_Site table. If the -T option is specified, then it overrides the **Start tool** defined at the User and gp_Site level.

Example

This allows e.g. for better integration with third-party lab work flow monitoring dashboards.

Assuming there is a gp_Site-based Tool with Mnemonic 'UrgencyMonitor', you could start the application with a command-line as follows:

path\to\prowin32.exe -basekey ini -ininame bin\progress.ini -p gp_prun -param "-P be/mips/ablframework/gui/start.p -T UrgencyMonitor" -assemblies assemblies

---

New MISPL function to retrieve attachments (MATE_ATCH-00015)

A new gp_Site-based MISPL function **GetAttachments** is available. For each attachment, it returns a comma-separated list of path/file names.

> *String **GetAttachments** (Mnemonic **TableName**, Recid **RecordId**, String **CategoryName**)*

Mnemonic **TableName**
Recid **RecordId**
String **CategoryName**

Example

Conversion of attachment categories (MATE_COMHL-00268)

During the upgrade to GLIMS version 9, the Attachment site attribute "Category" is converted to records in the new "AttachmentCategory" table. However, as the "Name" field of this table does not allow "spaces", these will be stripped during the conversion.

> **Warning**: When using the Twain scanning functionality, please check the "Document type" configuration to ensure that the "attachment category" in the "**Twain scan categories**" corresponds to the "Name" of an actual "Attachment category" record.