Database Views

Overview

A database view defines table joins for reporting purposes. For example, a database view can join the Incident table to the Metric Definition and Metric Instance tables. This view can be used to report on incident metrics and may include fields from any of these three tables.

A number of useful database views are installed with the Database View plugin and the Database Views for Service Management plugin. These database views cover most metric reporting needs and greatly reduce the need to define new ones.

Database views cannot be created on tables that participate in table rotation.

Creating a New Database View

Perform the following tasks to create a new database view:

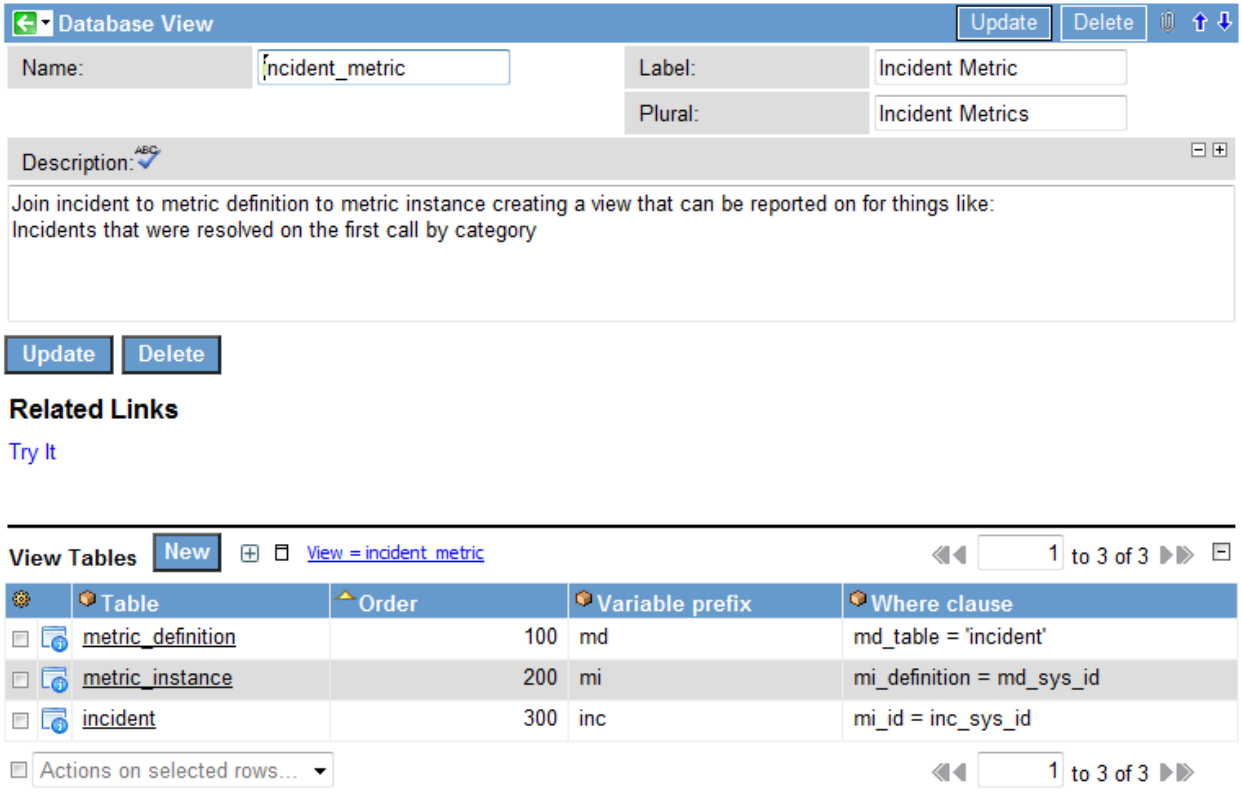
- **Task 1**: Create a new database view record.
- **Task 2**: Add tables to the database view using the **View Tables** related list on the Database View form.
- **Task 3**: Restrict the fields that are returned by the join by using the **View Fields** related list on the View Tables form.
- **Task 4**: Edit the number of rows returned, if necessary.
- **Task 5**: Test the database view you just created.

Task 1: Create a Database View

1. Navigate to **System Definition > Database Views**.
2. Click **New**.

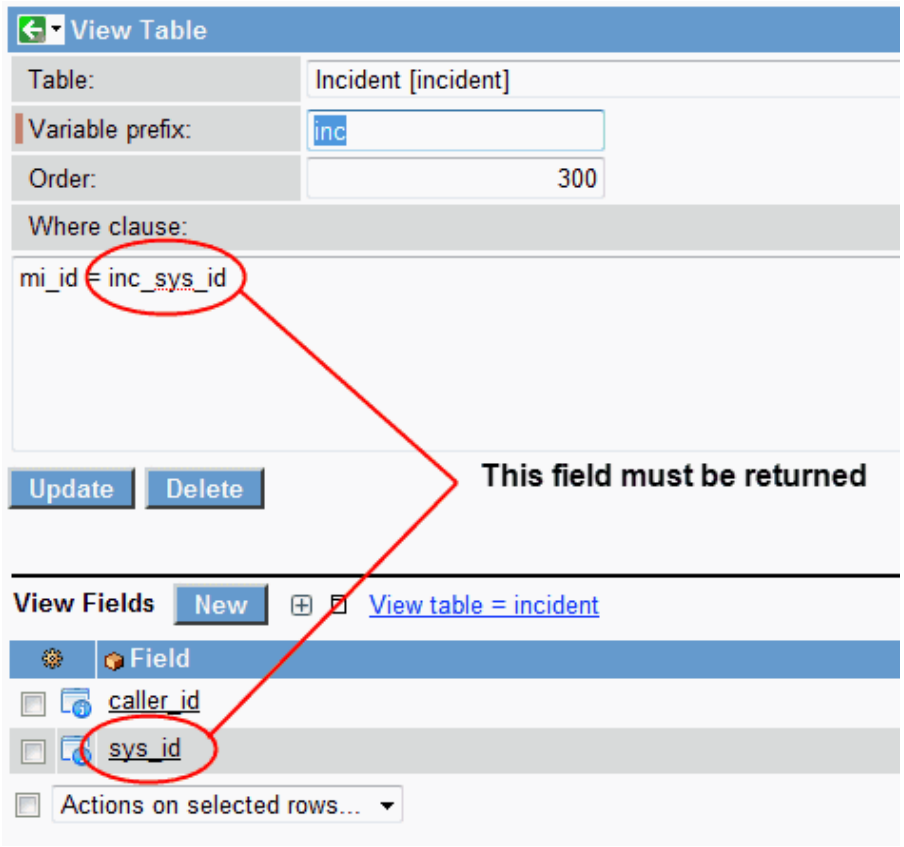
   The Database View form appears.
3. Name the view as you would name a new table.

   The **Label** and **Plural** fields define how the database view is labeled in lists and forms.



Task 2: Add Tables to the Database View

The **Table** field in the View Table form names the table to join to the database view. A **Variable prefix** can be assigned and used later when specifying a **Where clause** to define the conditions for the join. These conditions can refer to any field, but typically define the join by matching a field in the table to a field in another table that is part of the database view. When writing the **Where clause**, add the field name to the **Variable prefix** of its table with an underscore. For example, in the following screenshot, in the **Where clause** field, **mi_id** refers to the **id** field in the Metric Instance [metric_instance] table (mi) and the **inc_sys_id** refers to the **sys_id** field in the Incident [incident] table (inc). Database views can not be created on tables that participate in Table Rotation.



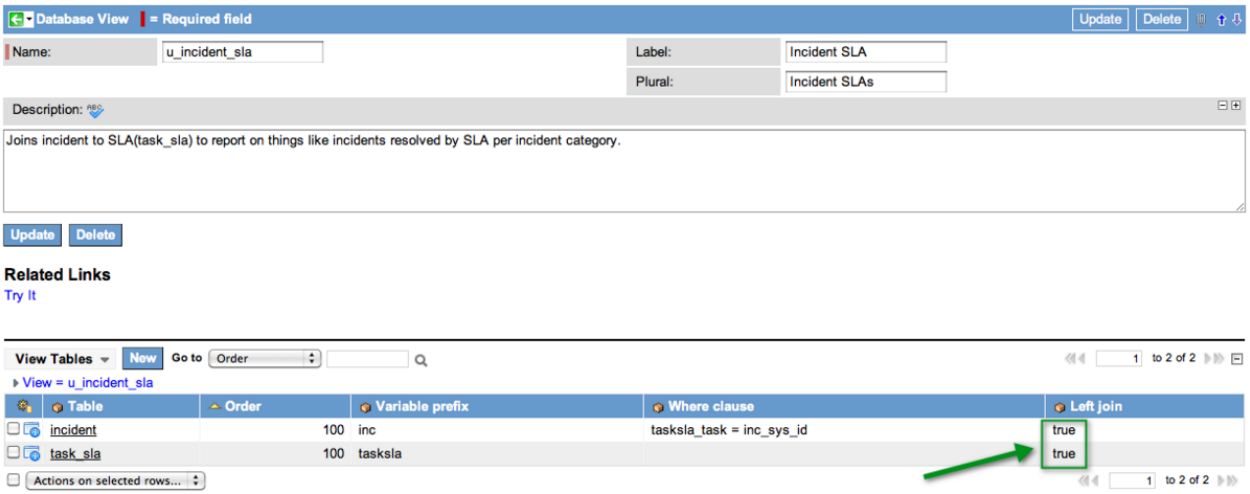
The **Where clause** supports these JavaScript conditional operators:

=, !=, <, <=, >, >=, &&, ||

To create a table with a left join:

1. From the Database View form, click **New** on the View Tables related list.
2. Personalize the form and add the **Left join** field (a check box) to the form.
3. Click **Save**.
4. Complete the form and select the **Left join** check box.
   - Selecting **Left join** causes the left-hand table in the database view to display all records, even if the join condition does not find a matching record on the right-hand table. Select this check box for view tables that specify a **Where clause**. Selecting **Left join** for view tables without a **Where clause** does not affect the query.
   - Joined tables are ordered left to right from lowest to highest **Order** values.
5. Click **Submit**.
6. Personalize the **View Tables** related list to show the **Left join** column.

   The **Left join** field shows a value of **true**.



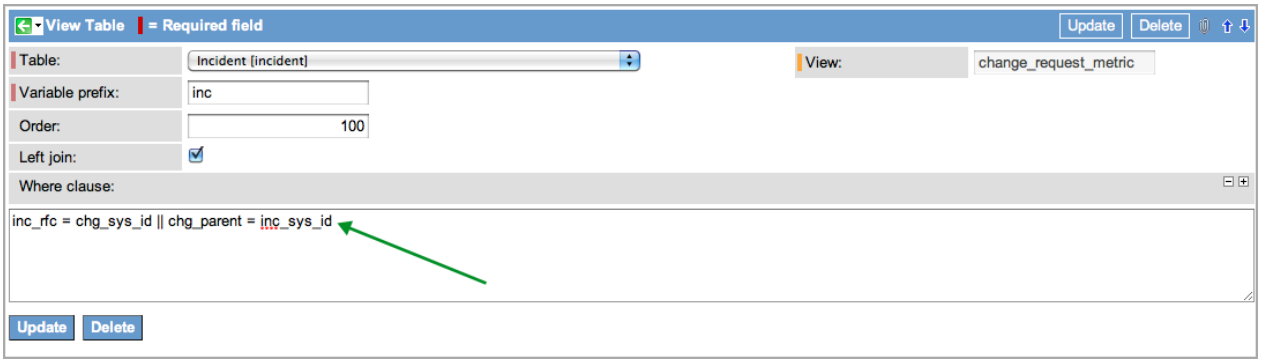
7. Click a record to view a table.

   The View Table form appears.

8. To add an OR to your where clause use ||.

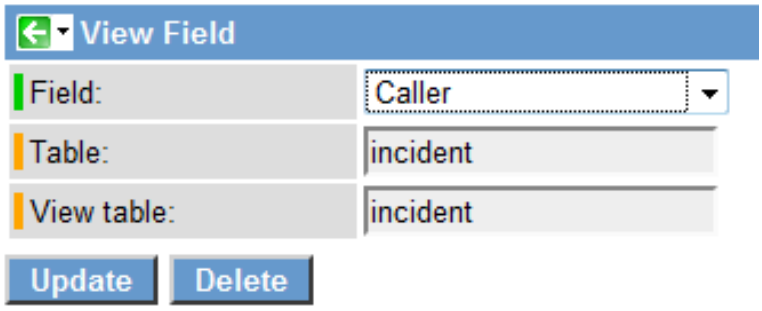
   For example, to query all incidents related to RFCs OR all incidents that are the parent of a change request, use the following syntax:

   ```
   inc_rfc = chg_sys_id || chg_parent = inc_sys_id
   ```



Task 3: Specify Fields to Return

The View Field form enables you to restrict or specify a field you want returned by the join. If no fields are defined in the View Fields list, all fields are returned. If any fields are defined, then only those fields are returned.



When you restrict the fields returned by creating View Field records, you must create a record for the join field from the **Where clause** in the parent record. If you omit a record for this field, it cannot be returned, and the join fails. In the previous example, the **Where clause** uses the **sys_id** field from the Incident table to establish the join. For the join to succeed with a restricted field list, you must include a record for the **sys_id** field.

Relabeling a Column

In some cases, two different tables may have fields of the same name that are both important (such as two tables with a **sys_updated_on** field).

To create clear reports, relabel the fields on the Database View [sys_db_view] table without changing the names of the fields:

1. Navigate to **System Definition > Language File**.
2. Click **New**.
3. Fill in the form as follows:
   - **Table:** Name of the database view
   - **Label:** Display label
   - **Plural:** Plural form of the display label
   - **Element:** Name of the field on the database view

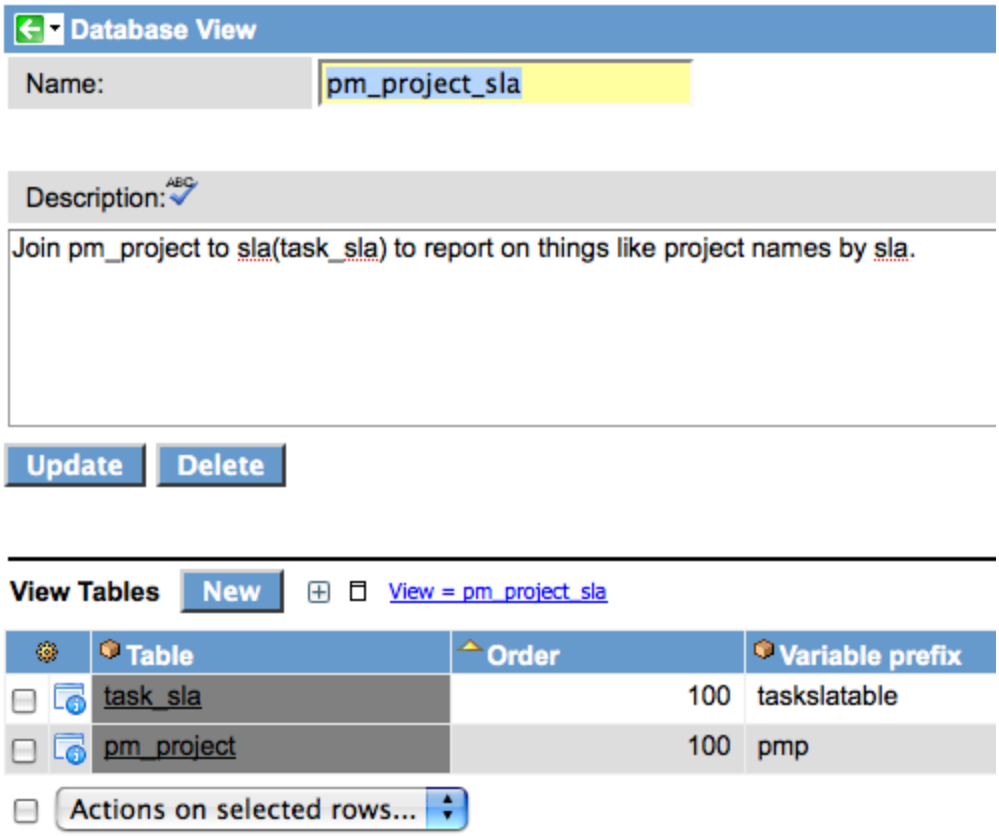
Task 4: Specify the Number of Records to Return

A property called `glide.db.max_view_records` controls the maximum number of rows returned when running a GlideRecord query in a script. The default value for this property is 10,000. To change this value, add the property to the System Property [sys_properties] table and edit the number of rows to return.

This property only applies when querying a database view table in a script. When displaying the database view table in a list or report, this property does not apply.

Task 5: Test the Database View

After the new view is defined, test it by clicking Try It under Related Links on the Database View form. If you do not see the Try It link, the tables necessary for the view do not exist. If this occurs, it is possible that you did not activate the necessary plugins to create the supporting tables. When tables are not present to support the view, the form looks like this:



Note: *Database views tables are not included in FTP exports.*

Using Disjunctions in Complex Queries

ServiceNow performs conjunction statements before disjunction statements in a query. Ensure that when creating a complex query you use parenthesis around disjunctions where appropriate to ensure proper grouping of query elements. For example, you must use parenthesis in the query `(md_table = 'incident' || md_table = 'task') && mi_definition = md_sys_id && mi_id = inc_sys_id`. Removing the paraenthesis from this query returns all records where the md_table value is **incident**.

Database Views in the Base System

These views are included in the base system with the Database Views and Database Views for Service Management plugins:

Name	Description	Label
change_request_metric	Join change to metric definition to metric instance, creating a view that can be reported on for things like: Changes that were closed by category.	Change Metric
change_request_sla	Join change_request to sla (task_sla), creating a view that can be reported on for things things like change request resolved by sla per change category.	Change Request SLA
change_task_metric	"Join change task to metric definition to metric instance, creating a view that can be reported on for things like: Change tasks that were closed by change state"	Change Task Metric
change_task_sla	Join change_task to sla(task_sla), creating a view that can be reported on for things things like change tasks resolved by sla.	Change Task SLA
change_task_time_worked	Join change task to task time worked to pull time worked entries associated with incidents.	Change Task Time Worked
incident_metric	"Join incident to metric definition to metric instance creating a view that can be reported on for things like: Incidents that were resolved on the first call by category"	Incident Metric
incident_sla	Join incident to sla(task_sla) to report on things like incidents resolved by sla per incident category.	Incident SLA
incident_time_worked		Incident Time Worked
pm_project_metric	"Join pm_project to metric definition to metric instance creating a view that can be reported on for things like: Projects that were closed by name or date"	Project Metric
pm_project_sla	Join pm_project to sla(task_sla) to report on things like project names by sla.	Project SLA
pm_project_task_metric	"Join pm_project_task to metric definition to metric instance creating a view that can be reported on for things like: Project tasks that were closed by name or date"	Project Task Metric
pm_project_task_sla		Project Task SLA
pm_project_task_time_worked	Join pm_project_task to task time worked to pull time worked entries associated with project tasks.	Project Task Time Worked
problem_metric	"Join problem to metric definition to metric instance creating a view that can be reported on for things like: Problems that were resolved on the first call by category"	Problem Metric
problem_sla	Join problem to sla(task_sla) to report on things like problems resolved by sla per problem state.	Problem SLA
release_feature_metric	"Join release_feature to metric definition to metric instance creating a view that can be reported on for things like: Release Features that were closed by product"	Release Feature Metric
release_project_metric	"Join release_project to metric definition to metric instance creating a view that can be reported on for things like: Releases that were closed by category"	Release Metric
release_task_metric	"Join release_task to metric definition to metric instance creating a view that can be reported on for things like: Release Features that were closed by feature"	Release Task Metric
release_task_sla	Join release_task to sla(task_sla) to report on things like release tasks by sla.	Release Task SLA
sc_request_metric	"Join sc_request to metric definition to metric instance creating a view that can be reported on for things like: Requests that were closed by category"	Catalog Request Metric
sc_request_sla	Join sc_request to sla(task_sla) to report on things like requests by sla.	Catalog Request SLA
sc_req_item_metric	"Join sc_request_item to metric definition to metric instance creating a view that can be reported on for things like: Request Items that were closed by item"	Catalog Request Item Metric

sc_req_item_sla	Join sc_req_item to sla(task_sla) to report on things like request items by sla.	Catalog Request Item SLA
sc_task_metric	"Join sc_task to metric definition to metric instance creating a view that can be reported on for things like: Catalog tasks that were closed by item"	Catalog Task Metric
sc_task_sla	Join sc_task to sla(task_sla) to report on things like tasks by sla.	Catalog Task SLA

Database View Reserved Words

Certain words have special functionality when used as table identifiers. Using these terms may cause unintended or undesirable performance. Please refer to the MySQL reserved words document [1] for more information.

References

[1] http://dev.mysql.com/doc/refman/5.5/en/reserved-words.html

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