

SLM

Database Model

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Introduction

The model is broken down into functional areas; some of the areas are overlapping and will contain the same set of tables but are used in different contexts.

S_SLA_DEFINITION	
PK	<u>sla_id</u>
	name description period_code period_start period_number period_begin period_end compliance_percentage compliance_alarm compliance_warning compliance_warning_level calc_id time_zone_name
FK1	

There are 3 main tables in the SLA model:

The SLA definition table contains information about the compliance period, compliance goals, etc.

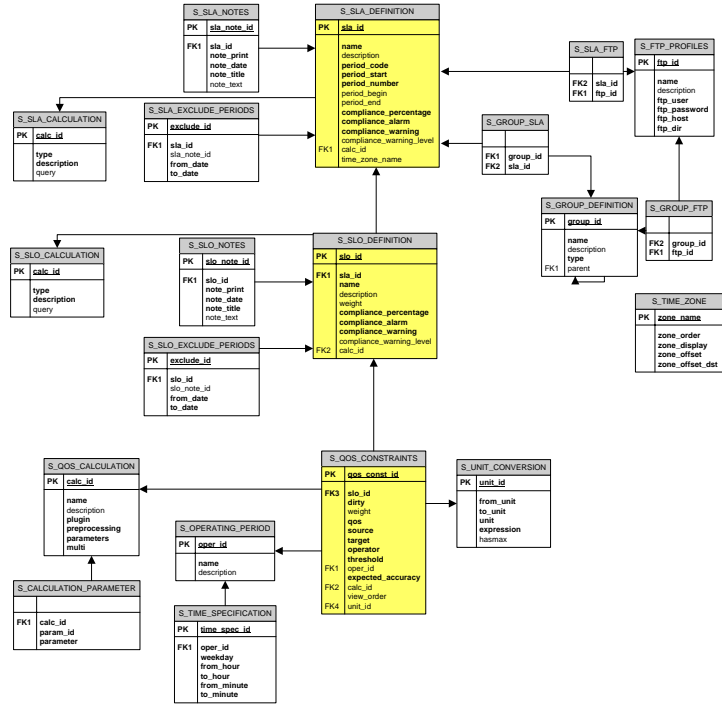
The SLO table describes each of the SLO's associated with the SLA.

The QoS constraint table contains the definitions of the QoS series that is used to calculate the SLO's.

S_SLO_DEFINITION	
PK	<u>slo_id</u>
FK1	sla_id
	name description weight compliance_percentage compliance_alarm compliance_warning compliance_warning_level calc_id
FK2	

The full model looks like this with the three main tables highlighted.

S_QOS_CONSTRAINTS	
PK	<u>qos_const_id</u>
FK3	slo_id
	dirty weight qos source target operator threshold oper_id expected_accuracy
FK1	oper_id
FK2	calc_id
FK4	view_order unit_id



The QoS data schema

There are two more tables that are an important part of the foundation of the data model; S_QOS_DEFINITION and S_QOS_DATA. Both tables are created and maintained by the **data_engine** and contains all references to data types and QoS data series.

S_QOS_DEFINITION	
PK	<u>name</u>
	qos_def_id qos_group description unit unit_short hasmax isbool type

S_QOS_DATA	
PK	<u>table_id</u>
U1	qos_def_id created checksum qos source target host origin robot probe r_table h_table samptime samplevalue samplemax

RN_QOS_DATA_0001	
	table_id samptime
	samplevalue samplestdev samplerate compressed tz_offset inserttime

HN_QOS_DATA_0001	
	table_id samptime
	sampleavg samplestdev samplestot samplesok tz_offset

S_QOS_DEFINITION

This table describes the different data types delivered by the probes; e.g. if a data type has a maximum value (disk), the data unit (MB) and type (state or interval based sampling). A QoS type is identified by the **qos_def_id** value.

S_QOS_DATA

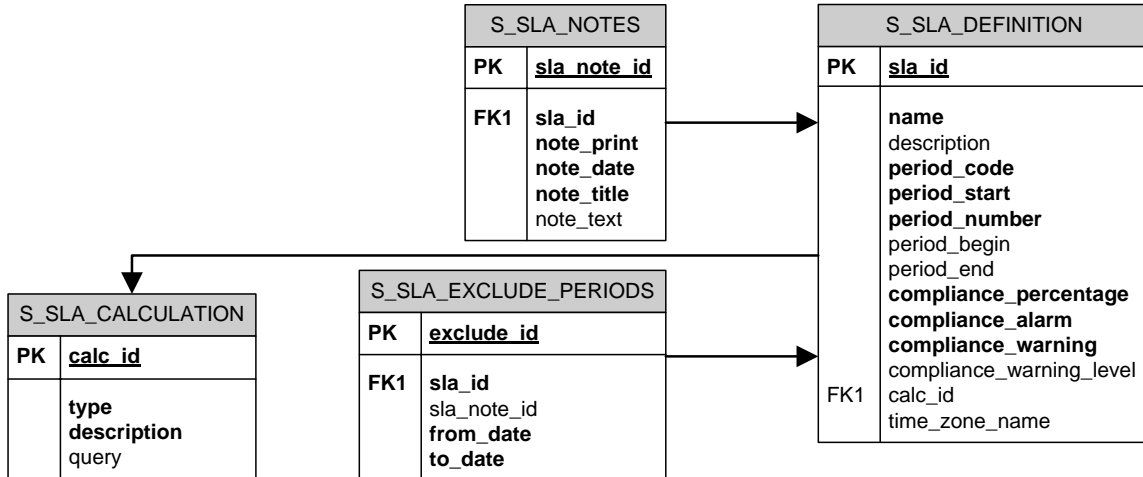
The table contains a row for each QoS object that has been sent from the probes. Each QoS object is identified by **table_id** and contains information about where the data came from (source, target, host, robot, probe) and where the data is stored (**r_table** and **h_table**). The last three columns are not used at the moment.

The data from a given QoS object is found by looking up the table name in **r_table** and select from that table using the **table_id** as a key in the select.

The value of **r_table** is based on QoS type identifier using 4 digits; RN_QOS_DATA_<qos_def_id>.

SLA Definition

The SLA definition has three support tables.



S_SLA_NOTE

A note can be created to describe a specific situation that affects the SLA. The **note_date** is used to associate the note with a specific SLA compliance period. Notes are often used together with exclude periods to describe why it was created.

S_SLA_EXCLUDE_PERIODS

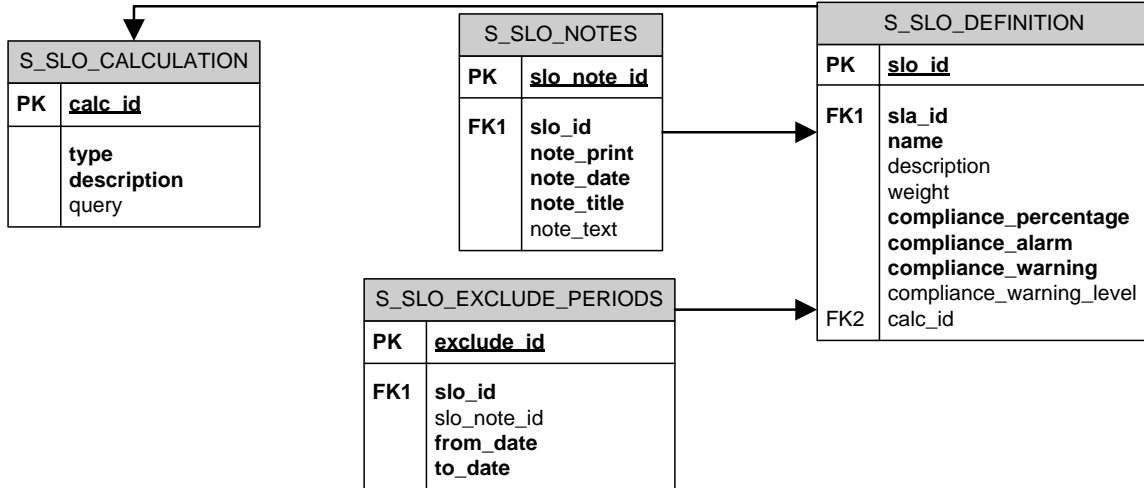
An exclude period is defines a period where all SLO's and their QoS constraints are excluded from the SLA calculation.

S_SLA_CALCULATION

The table contains the different methods available for calculating the SLA compliance from the SLO's.

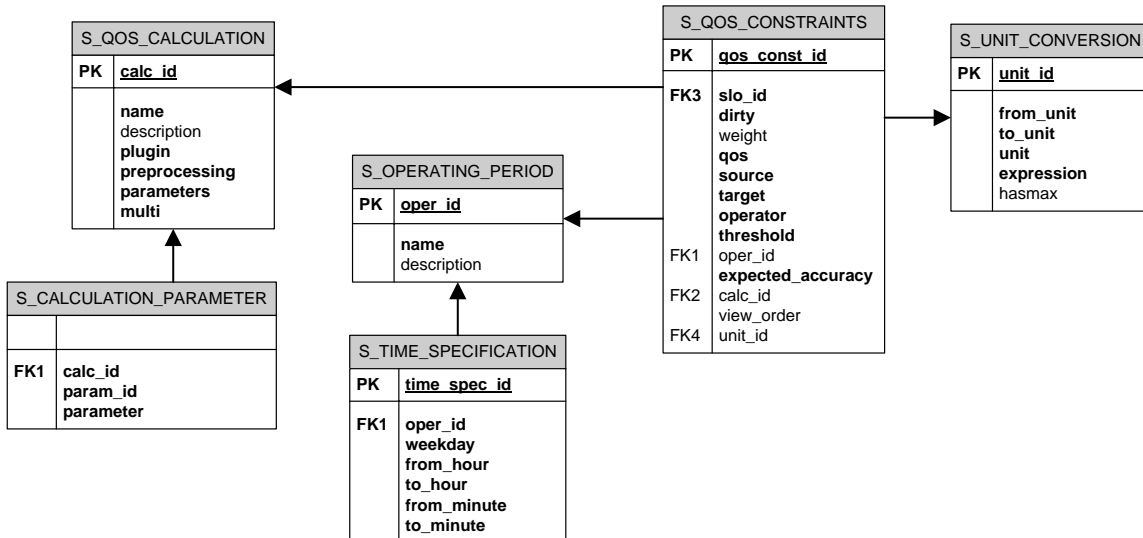
SLO Definition

The same support tables as the SLA definition table; the only difference is that they belong to the SLO definition instead of the SLA definition.



QoS Constraint

The QoS constraint definition table has a different set of support tables than the SLA and SLO definitions. These tables contain settings that decide how a QoS series is calculated.



S_OPERATING_PERIOD

The operating period used for this QoS Constraint; the actual definition of the period is found in S_TIME_SPECIFICATION.

S_QOS_CALCULATION

This table contains definitions of all the calculation methods available for calculating QoS constraints. The definition contains *plugin* name (dll) and some additional settings. Parameters for the calculation profile are stored in S_CALCULATION_PARAMETER table.

S_UNIT_CONVERSION

A QoS series that is stored as B/s can in the GUI be configured as MB/s or any other unit type that can be calculated from B/s. The expression for calculating new values based on the original unit type is found in the expression column (SQL).

SLA Calculations and support tables

Requests for calculating a given SLA is put into D_SLA_JOBS by the sla_engine scheduler or by a user from the SLA Manager. Each job has a unique identifier that is used to identify the result of the calculation. The result of a calculation is put into D_nnn_COMPLIANCE tables where the result is kept until **expire_date** in D_SLA_JOBS. Jobs with the **history** flag set are stored into the H_nnn_COMPLIANCE tables as well.

D_SLA_JOBS	
PK	job_id
	job_state job_host owner description create_date execute_date expire_date report history sla_id period_begin period_end

D_SLA_COMPLIANCE	
	job_id created sla_id compliance_percentage percentage period_begin period_end breach_date breach_value

D_SLO_COMPLIANCE	
	job_id created sla_id slo_id compliance_percentage percentage slo_weight sla_percentage period_begin period_end

D_QOS_COMPLIANCE	
	job_id created sla_id slo_id qos_const_id total ok weight threshold percentage accuracy period_begin period_end

H_SLA_COMPLIANCE	
	sla_id created compliance_percentage percentage period_begin period_end

H_SLO_COMPLIANCE	
	sla_id slo_id created compliance_percentage percentage period_begin period_end

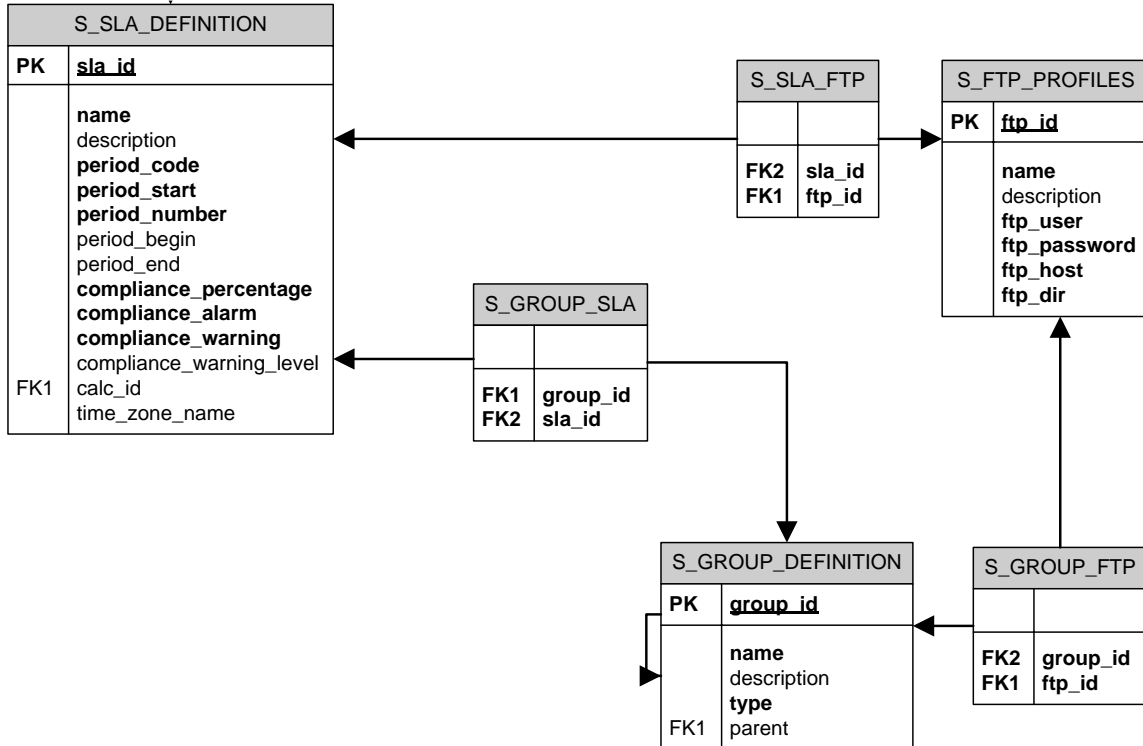
H_QOS_COMPLIANCE	
	sla_id slo_id qos_const_id created total ok threshold percentage accuracy period_begin period_end

Groups and FTP setup

The S_GROUP tables define the hierarchy of SLA folders, and the FTP tables define the FTP setup for the SLA's and the groups.

The FTP setup with host, user and password is found in S_GROUP_FTP. Which reports that should be FTPed are found in S_SLA_FTP and S_GROUP_FTP.

Group members are found in S_GROUP_SLA and the relationships between groups are found in S_GROUP_DEFINITION.



Account and Contact

These tables are used by the Manager to define Accounts and Contacts.

CM_ACCOUNT_SLA is the link between SLA's and accounts. The CM_GROUP_ACCOUNT table is used to link group structures to an account.

The CM_ACCOUNT_OWNERSHIP table contains information that decides what QoS data that belong to an account, the **origin** field refers to the same field in the S_QOS_DATA data.

