Genesys Info Mart User's Guide

Populating Agent Activity Data

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Populating Agent Activity Data

Genesys Agent activity data for both active and completed agent states is stored in summary tables for resource sessions, states, and reasons relative to a given media type, for all media types. The summarized data, which is drawn from ICON, is stored in the following tables:

- SM_RES_SESSION_FACT
- SM_RES_STATE_FACT
- SM_RES_STATE_REASON_FACT

Starting with release 8.5.002, the SM_MEDIA_NEUTRAL_STATE_FACT table stores the summarized states for each agent resource across all media.

Features of agent activity data

The following are important, configurable features of agent activity data in Genesys Info Mart:

- **Do-Not-Disturb** — Do-Not-Disturb (DND) status for each DN (or place and media type in the case of eServices/Multimedia) can optionally be factored into the SM_RES_STATE_FACT and SM_RES_STATE_REASON_FACT tables, depending on the setting of the factor-dnd-into-sm-resource-states configuration option on the Switch object.

  DND is treated as a NOT_READY state, with the predefined software reason key DND_On and no reason value. The termination of the DND state is treated as a READY state. For more information, see Including Do-Not-Disturb data in summary tables.

- **Agent state hierarchy** — Agent states are organized in a hierarchy, so that a higher-priority state takes precedence if multiple states happen simultaneously. The default priority list (in descending order) is ACW, NOT_READY, BUSY, READY.

  You can change the hierarchy of states in the summarized resource state tables by adjusting the settings for the sm-resource-state-priority configuration option. However, be aware that, for parallel states, the state that is reported in the SM_RES_STATE_FACT, SM_RES_STATE_REASON_FACT, and SM_MEDIA_NEUTRAL_STATE_FACT tables also depends on whether ICON has been set to interrupt After Call Work (ACW) and NotReady states when an agent places or receives another interaction (see Obtaining uninterrupted voice AfterCallWork and NotReady data).

- **Uninterrupted voice** ACW **and NotReady data** — Genesys Info Mart can represent voice ACW and NOT_READY states and reasons that are sourced from ICON and have these states not be interrupted by incoming or outgoing calls that an agent makes while in these states. For more information, see Obtaining uninterrupted voice AfterCallWork and NotReady data.

How are summarized resource sessions, states, and reasons populated?

The SM_RES_SESSION_FACT, SM_RES_STATE_FACT, and SM_RES_STATE_REASON_FACT tables incorporate all data during the period in which an agent is logged on to a particular media type, regardless of the number of DNs or queues to which the agent logs on. By default, agent activity for all media types is included in the tables, but you can exclude certain media types by setting the applicable **populate-sm-<media type>-resource-activity** option in the [gim-etl-populate] configuration section to false. Starting with release 8.5.002, the SM_MEDIA_NEUTRAL_STATE_FACT table stores the

summarized states for each agent across all media for which Genesys Info Mart stores agent activity data.

The media-specific summarized tables are populated based on the start and end time taken from corresponding IDB fields of the date format, in order to achieve precision in scenarios with very short agent states.

- For voice, the start and end times are taken in milliseconds, and this precision is used in internal calculations for summary voice agent states, reasons, and sessions. This ensures, for example, the proper alignment of multiple agent states that occur within the same second. The time values that result from calculations, including durations, are converted to a second format when stored in the Info Mart database.
- For multimedia, the start and end times are taken in seconds, which is the precision currently available from the data source. Although agent states, reasons, and sessions for agents handling multimedia interactions are calculated in milliseconds, the initial input has a one-second precision. The time values that result from calculations, including durations, are stored in the Info Mart database in seconds.
- The `SM_MEDIA_NEUTRAL_STATE_FACT` table is based on media-specific data in the `SM_RES_STATE_FACT` table and does not record subsecond states.

> **Important**
>
> The **populate-sm-<media type>-resource-activity** configuration options control which media types are populated in the summary resource tables. GCXI reports require these tables to be populated. Be aware that disabling population of voice data (in other words, setting populate-sm-voice-resource-activity to `false`) also affects population of INTERACTION_RESOURCE_FACT columns related to agent states—for example, ACW metrics.

The `SM_RES_SESSION_FACT` table

This table provides a summary of resource sessions by agent and media type. Genesys Info Mart 8.5 always populates this table.

Each row of this table summarizes the login session(s) of all DNs and places that are associated with an agent relative to a given media type. The grain of the fact is an accumulating snapshot that represents the duration of the summary session.

A summary session represents the contiguous duration that an agent resource is logged on for a given media type, irrespective of the number of DNs and/or queues to which the agent resource logs on.

- For voice, a summary session starts when an agent resource first logs on to any voice DN-queue combination. The session continues, irrespective of how many other voice DNs and/or queues the agent logs on to. The session ends when the agent resource logs off all voice DNs and queues.
- For multimedia, a session is first created when the agent resource adds a media type to their login session or logs onto a DN that supports this media. The login session continues until the agent resource removes the media type from the last login session that includes this media type, or logs out of the last DN that includes this media type.

Start and end dates and times are stored as facts in UTC time. Start and end date and times are also

stored as a dimension reference for DATE_TIME. Both active and completed sessions are populated.

> **Important**
>
> In some multimedia scenarios, an agent can process interactions for a particular media type without logging into the media (that is, without adding the media type to a place). In this scenario, Genesys Reporting does not see agent states related to the processing of interactions for the media type that is not added to the agent's place. Therefore, to ensure correct reporting, Genesys recommends that agents take care to add a media to a place before handling interactions of this media type.

The SM_RES_STATE_FACT table

Each row of this table describes a summarized agent resource state relative to a given media type. The grain of the fact is an accumulating snapshot that represents the duration of the summarized state. Genesys Info Mart 8.5 always populates this table.

A summary state represents the contiguous duration that an agent resource is logged on with a particular state for a given media type, irrespective of the number of DNs, places, and/or queues to which the agent resource logs on. The summary state is chosen from among the concurrent states of all DNs to which the agent is logged on, based on the configured state priority list. For multimedia, there are no DNs, so that the summarized state represents the state of the agent relative to the media type.

This table is sourced from IDB. The following states are recorded:

- Unknown (the agent is logged on, but the agent state is unknown)
- Busy
- Ready
- NotReady
- AfterCallWork (voice media only)

The start and end dates and times are stored as facts in UTC time. The start date and time are also stored as dimension references for the DATE_TIME dimension.

Whether the NotReady or AfterCallWork (voice media only) states can be interrupted by interactions that the agent initiates or receives while in these states depends on the configuration of the underlying ICON application.

Do-Not-Disturb is optionally factored into resource states in this table, based on the configuration of the underlying Switch object (see Including Do-Not-Disturb data in summary tables).

The SM_RES_STATE_REASON_FACT table

Each row of this table describes a summarized agent resource state reason and workmode relative to a given media type. The grain of the fact is an accumulating snapshot that represents the duration of the summarized state reason. Genesys Info Mart 8.5 always populates this table.

> **Important**
>
> You must set the ICON configuration option **gls-active-reason-codes** (in the **[callconcentrator]** section) to the mandatory value of `true`. This ensures that the SM_RES_STATE_REASON_FACT table is consistent in situations in which the reason code state ends after the transformation of the interval in which this reason code started. If this option is not set to `true`, the Genesys Info Mart configuration checker will log the problem and prevent any jobs from starting.

A summary state reason represents the contiguous duration for which an agent resource is in some state with a particular state reason for a given media type, irrespective of the number of DNs and/or queues to which the agent resource logs on. A reason code state that is written into this table should have a highest priority among all concurrent agent states. This means the same state (without reason) will occur in the SM_RES_STATE_FACT table.

The SM_RES_STATE_REASON_FACT table is sourced from IDB. Reasons are recorded for the following states:

- `Ready`
- `NotReady`
- `AfterCallWork` (voice media only)

The start and end dates and times are stored as facts in UTC time. The start date and time are also stored as dimension references for the DATE_TIME dimension.

Genesys Info Mart does not provide a default reason for the `NotReady` state. Whether the `NotReady` or `AfterCallWork` (voice media only) states can be interrupted by interactions that the agent initiates or receives while in these states depends on the configuration of the underlying ICON application.

Do-Not-Disturb is optionally factored into summary state reasons with the predefined reason code key `DND On` and no reason value, based on the configuration of the underlying Switch object (see Including Do-Not-Disturb data in summary tables). All reasons that are associated with the current highest priority state of the agent are recorded.

When multiple reason codes occur simultaneously for one agent, Genesys Info Mart chooses one of them to record in the SM_RES_STATE_REASON_FACT table based on the following considerations:

- A software reason code takes priority over hardware.
- If the keys are different, the higher-value string takes priority.
- If the keys are the same, the key with the higher string value (not the higher numeric value) takes priority (using case-insensitive alphabetical comparison).
- The `DND On` reason takes the lowest priority with respect to other reason keys.
- Among two identical software reason codes with identical keys the priority is given to the state with the larger case-insensitive alphabetical reason code value.

> **Important**
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> Reason code values are ranked alphabetically because ICON provides no data-type information to Genesys Info Mart that would identify whether the values are alphabetic, numerical, or mixed. As a result, some codes that occur in parallel may be ranked counterintuitively (5 > 45, for example)

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When a reason-code state has a lower priority than some other concurrent agent state without a reason, this reason code state is not recorded in the SM_RES_STATE_REASON_FACT table.

Detailed information on all of the simultaneous reason codes is available in the GIDB_G_AGENT_STATE_RC_V, GIDB_G_AGENT_STATE_RC_MM, GIDB_G_AGENT_STATE_A_V, and GIDB_G_AGENT_STATE_A_MM tables. Note that the GIDB_G_AGENT_STATE_RC_V and GIDB_G_AGENT_STATE_RC_MM tables may contain multiple records for a single interaction, differing in their ending timestamp, if a reason-code state starts in one extract interval and ends in another extract interval.

The ignored-reason-codes configuration option enables you to filter out reason codes that are not useful for reporting, so that they do not interfere with the priority rankings. Any hardware or software reason code keys specified by this option will not appear in the RESOURCE_STATE_REASON and SM_RES_STATE_REASON_FACT tables. For example, by default, Genesys Info Mart will ignore the INTERACTION_WORKSPACE key that Genesys License Reporting Manager (LRM) attaches to interactions to indicate that Genesys Workspace Desktop Edition (formerly known as Interaction Workspace [IWS]) is being used.

The SM_MEDIA_NEUTRAL_STATE_FACT table

This table, which was introduced in release 8.5.002, is populated when the populate-media-neutral-sm-facts configuration option is set to `true`.

Each row of this table describes a summarized state of an agent resource across all media. Using media-specific SM_RES_STATE_FACT data as the source, the media-neutral state is the highest-priority state in effect for any of the agent's media for which Genesys Info Mart has been configured to populate summarized states. The priority is based on the configured state priority list.

A new row is inserted whenever there is the possibility that a new media-neutral summarized state was entered, such as when a summarized state begins in any media session for the resource, or when a summarized session for the resource ends. Because of the way the rows are populated, there may be multiple sequential rows for an agent with the same media-neutral state. There will never be more than one media-neutral state for an agent in the same second.

The SM_MEDIA_NEUTRAL_STATE_FACT table is populated up to the point where summarized state data is available for activity from both voice and multimedia data sources. Because evaluation of the highest media-neutral state can occur only after the media-specific summarized states have been transformed, population of the SM_MEDIA_NEUTRAL_STATE_FACT table is commonly one ETL cycle behind the SM_RES_STATE_FACT table.

The STUCK_FLAG indicates whether the highest-priority media-neutral state was determined based on data from only one of the data domains (voice or multimedia) — for example, because one of the

data domains was lagging significantly behind the other, or because there is only one data domain in the deployment.

The start and end dates and times are stored as facts in UTC time. The start date and time are also stored as dimension references for the DATE_TIME dimension. The start and end times result from calculation of the media-neutral summarized resource state and do not necessarily match the values in the underlying GIDB table(s) or the SM_RES_STATE_FACT table.

How is summarized data processed?

Genesys Info Mart combines information from ICON for the same agent and media type from the ICON GX_SESSION_ENDPOINT table to form summarized media type sessions.

For both voice and multimedia, Genesys Info Mart combines information for the same agent and media type from the GX_SESSION_ENDPOINT, G_LOGIN_SESSION, G_AGENT_STATE_HISTORY, G_AGENT_STATE_RC, G_AGENT_STATE_RC_A, and G_DND_HISTORY tables in IDB to form summarized states and reasons, which optionally have Do-Not-Disturb status factored into them.

In addition, for voice, a configurable state priority list is used to determine which DN's state is considered to be the winning state if the agent is logged on to more than one voice DN at a time.

> **Important**
>
> The timestamps for the start and end time in summarized tables may not match times in the IDB tables. END_TS in summarized tables means the beginning of the second by which the state has ended.
>
> The difference in stored times becomes greater in complex scenarios with multiple simultaneous states for the same agent.
>
> Moreover, the state sequence order may be incorrect in deployments with multiple Interaction Concentrator instances, because of time synchronization errors between the hosts.

Special considerations for long-duration sessions or states

Given usual contact-center organization and policies, Genesys reporting does not expect agent login sessions or states to be very long-lasting. However, in practice, agent sessions and states might last indefinitely — for example, if agents never log out.

From the point of view of Genesys Info Mart operations, long-lasting agent sessions and states negatively affect transformation performance. From the point of view of data quality, very long-lasting agent sessions or states can yield misleading reporting results — for example, if shift reporting (perhaps used for agent compensation) is based on unrealistic agent-activity data.

For these reasons, Genesys Info Mart provides functionality to apply timeouts to agent login sessions and states that exceed configurable maximum durations. By default, Genesys Info Mart allows a maximum duration of 24 hours for login sessions and 4 hours for each instance of an agent state within a login session. You can change the respective maximum durations by adjusting the settings for the max-session-duration-in-hours and max-state-duration options.

Detecting session inactivity

The timeout implementation enables Genesys Info Mart to detect when a session has gone inactive.

Genesys Info Mart will end the session when all states have ended, even if the end of the session has not been extracted and the session has not yet timed out. For example, if a state is timed out by max-state-duration and there are no other active states, then Genesys Info Mart deems the session to be inactive and terminates it.

Recognition of sessions that have gone inactive can provide more useful reporting on situations in which agents forget to log out. The smaller the value of **max-state-duration**, the sooner Genesys Info Mart will detect the session inactivity.

Handling resumed session activity

If a state transition occurs in a session that Genesys Info Mart previously timed out or ended because of inactivity, Genesys Info Mart creates a new session beginning with the new state. The new session continues until the first of the following occurs:

- All states in the new session have ended or have timed out.
- The new session times out after max-session-duration-in-hours.

> **Important**
>
> After a state has been timed out by **max-state-duration**, if there is a new resource state reason for that state, the reason will not be associated with any state or session:
>
> - `SM_RES_STATE_REASON_FACT.SM_RES_SESSION_FACT_KEY = -1`
> - `SM_RES_STATE_REASON_FACT.SM_RES_STATE_FACT_KEY = -1`

Special case with no contact center activity

In the rare event that there is no call or interaction activity in the contact center, agent states are updated only after some delay. You can minimize this delay by setting an appropriate value for an ICON configuration option, **dss-no-data-tout**. The default value is 300 seconds. As a result, by default there is a five-minute (300 second) delay before Info Mart sees that the agents have no interaction states. Genesys recommends that you reduce the delay to 60 seconds.

Obtaining uninterrupted voice AfterCallWork and NotReady data

To obtain uninterrupted `ACW` and `NOT_READY` data, set the **gls-enable-acw-busy** configuration option, which is located in the **[gts]** section on the **Annex** tab of the Switch configuration object, to `0` (the default setting is `1`). This setting affects the agent model for parallel states.

Regardless of the configured priority list for parallel agent states in Genesys Info Mart, if `gls-enable-acw-busy=0` and an agent goes into the `ACW` or `NOT_READY` state and then makes some calls on the same switch during `ACW` or `NOT_READY`, ICON considers such calls to be a part of the `ACW` or `NOT_READY` state.

This means that, even if the default priority list is changed to have `BUSY` take first precedence over `ACW` and `NOT_READY`, but ICON is configured not to interrupt `ACW` and `NOT_READY` states, the `BUSY` state is not recorded when it happens during uninterrupted `ACW` and `NOT_READY` states.

Including Do-Not-Disturb data in summary tables

Do-Not-Disturb data is optionally factored into states and reasons in the summarized `SM_RES_STATE_FACT` and `SM_RES_STATE_REASON_FACT` tables for all media types. Inclusion of DND data is controlled by the factor-dnd-into-sm-resource-states configuration option, which is located in the **[gim-etl]** section on the **Annex** tab of each switch. The default setting is `true` for eServices/Multimedia switches and `false` for voice switches.

For eServices/Multimedia, Do-Not-Disturb is treated as a global `NotReady` for all media types to which an agent is logged on at a given place.

DND states are treated as `NotReady` with a reason that indicates `DND On`. The following table describes how DND state is calculated for the default state priority list (`AfterCallWork`, `NOT_READY`, `BUSY`, `READY`, `UNKNOWN`). The logic might be different for a user-configured state priority list, specified by the sm-resource-state-priority configuration option.

Calculating DND Status

Conditions	Resulting DND Status
DND is turned *on* and the declared state is currently Ready.	The resource is considered to be in a `NotReady` state with a reason that indicates `DND On`.
DND is turned *off* and the declared state was previously Ready.	The resource returns to Ready with whatever reasons were originally attached to the Ready request.
DND is turned *on* and the declared state is currently `AfterCallWork`.	The resource stays in the `AfterCallWork` state. If `AfterCallWork` ends before DND is turned back off, the resource becomes `NotReady`, and the reason is `DND On`. If DND is turned on and off during `AfterCallWork`, the resource state is never shown as `NotReady`. **Note:** `AfterCallWork` applies only to non-multimedia media types.
The resource is in `NotReady` state and DND is turned *on* or *off*.	Any `NotReady` reasons that are currently in effect are not interrupted. If an existing `NotReady` state had no reasons, a new `NotReady` reason state with the key `DND On` is added.
The resource is in `Busy` state and DND is turned *on*.	The resource immediately enters the `NotReady` state with `DND On` as the reason, and the `Busy` state is closed.