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Stat Server Migration Guide

Stat Server 8.5.1

1/10/2022

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New in Release 8.5.x

Stat Server 8.5.1 General Changes

- Stat Server supports the following new Agent Workbin actions:
 - InteractionAbandonedDuringOffering
 - InteractionAccepted
 - InteractionAnswered
 - InteractionCleared
 - InteractionDistributed
 - InteractionEntered
 - InteractionReleased
 - InteractionWait
- Stat Server supports protected mode in addition to normal mode during configuration reloads.
- Stat Server supports Kernel Virtual Machine (KVM) on Windows and Linux.
- Stat Server supports Microsoft SQL Server 2017.
- Stat Server supports changes of the interaction cost for budget-based routing.
- Stat Server supports the SinceLogin time profile for blended agents.
- Stat Server supports the durable InteractionAgentPartyInProgress action for Tenants.
- Stat Server supports the new DoNotDisturb action on a media channel.
- Enhanced tracking of a multimedia interaction associated with the virtual queue (VQ).
- Default DN capacity for voice calls on a Multimedia DN has been changed to 1 (instead of 255).
- Stat Server supports budget-based routing. Stat Server release 8.5.110 and URS release 8.1.400.50 or higher is required.
- In addition to Warm Standby, Stat Server supports the Hot Standby redundancy mode for Stat Server high availability (HA) pairs on Windows and Linux platforms.
- Stat Server maps the content of the attribute_reason_desc from Interaction Server events to the value of the ReasonValue key in a UserData key-value list on Action for the CurrentState or in a Reasons key-value list for the CurrentStateReasons.
- Stat Server supports the overload protection method of reducing CPU consumption.
- Stat Server supports the retrospective InteractionAbandoned action for Tenants.
- Stat Server supports Windows Server 2016 and Windows Server 2016 Hyper-V.

- Stat Server supports Sliding, Selection, and SinceLogin aggregation intervals in the statistical category Formula.
- Stat Server logs operational statistics and current execution context into a special StatFile log file to help with diagnostics and troubleshooting.
- Stat Server supports the durable InteractionWait action for Tenants. The action is intended to track an interaction until it is actually handled by an agent.
- Stat Server supports the durable DND action on RegDN.
- Stat Server supports Red Hat Enterprise Linux 7.
- Stat Server supports the statistical category Formula for the Growing time profile.
- Stat Server supports the Ever Growing time profile for a limited set of the float-valued categories. See the [documentation](#) for more details.
- Stat Server supports the new DialRemoteRelease action on Campaign/CallingList statistical objects.
- Stat Server can be configured to undertake multiple attempts to register a DN.
- Stat Server supports multiple business attribute values in stat types.
- Stat Server supports the InteractionResponded action.
- Stat Server supports Routable and NotRoutable actions on an agent or place.
- Stat Server supports GroupBy and DistinguishBy features.
- Stat Server supports ApplyFilterAtActionEndOnly stat type option.
- Stat Server natively supports the Tenant statistical object.
- Stat Server supports ActorType, AgentID, and RequestEnvelope System attributes.
- Stat Server supports the GlobalUserData key-value list in filters and formulas.
- Stat Server serializes statistical aggregates to/from the backup file.
- Stat Server connects to Configuration Server in an asynchronous mode.
- Stat Server rereads the whole configuration upon receiving the event HistoryLogExpired from Configuration Server.
- Stat Server natively supports the StagingArea statistical object.
- Stat Server supports new *observer-related* and *outbound-call related* actions for a regular DN.
- Stat Server supports JDK 1.8.
- Stat Server includes functionality for the prevention of database update losses due to commit failures or loss of database server connection.
- Stat Server now only loads JVM, if it is defined in the configuration with absolute path.

Stat Server 8.5.0 General Changes

- Stat Server supports multiple Interaction Servers that handle the same Tenant.
- Stat Server supports the EventHint panic signal from Interaction Server. Refer to the *eServices Reference Manual* for more information about this feature.
- Stat Server supports Interaction Server Proxy.

- Stat Server supports direct connection to the database.
- Stat Server features a more robust DND model implementation for voice.
- Stat Server processes network messages (client and server) in a separate thread.
- Stat Server supports a higher number of concurrent client connections (on most platforms).
- Stat Server no longer supports Genesys suite-wide deployment wizards. All deployment wizards migrate to Genesys Administrator Extension (GAX):
 - Resource Capacity Editor of GAX covers all the functionality that was covered by the Recourse Capacity Wizard.

Compatibility with Framework Components

Stat Server 8.5 interoperates successfully with the following Framework components:

- Configuration Server, releases 6.5 through 8.5
- Local Control Agent, releases 6.5 through 8.5
- Message Server, releases 6.5 through 8.5
- DB Server, releases 6.5 through 8.1
- T-Server, release 6.5 through 8.5
- Solution Control Server, release 6.5 through 8.5

However, to access all of the features that are available in a particular release, Genesys recommends that you operate Stat Server within the same family of Framework components in which it was released, or the latest available component release. Otherwise, some documented features may not be available to you.

Configuration Option Changes

Option Changes in Stat Server 8.5.x

| Current Option Name | Section | Type of Change | Release # in Which Change Occurred | Details |
|-------------------------------|--------------|----------------|------------------------------------|--|
| mm-agent-logout-optimization | [statserver] | Added | 8.5.112.17 | Controls Stat Server behavior for multimedia agents logout. |
| mm-skip-reason-changed-events | [statserver] | Added | 8.5.112.16 | Prevents incorrect reason filter evaluation and the TotalContinuousNumber statistic calculation in certain scenarios by ignoring any |

| Current Option Name | Section | Type of Change | Release # in Which Change Occurred | Details |
|--|--------------|----------------|------------------------------------|--|
| | | | | reason change events. |
| config-reload-delay-if-primary | [statserver] | Added | 8.5.112.07 | Controls the delay of configuration reloads by the primary Stat Server in a redundant (primary-backup) pair in case of inability to restore a session with Configuration Server. |
| interaction-agent-party-in-progress-on-tenant-max-number | [statserver] | Added | 8.5.110.18 | Specifies the maximum allowed number of InteractionAgentPartyInProgress (Tenants) actions. |
| interaction-agent-party-in-progress-on-tenant-media-list | [statserver] | Added | 8.5.110.18 | A comma-separated list of media type names for which the InteractionAgentPartyInProgress (Tenants) action is generated. |
| old-stats-remove | [statserver] | Added | 8.5.110.18 | Controls when the statistical garbage-collection is performed |
| <media type name> | [budget] | Added | 8.5.110.03 | This option is configured on the Agent or Place object. |
| default-agent-budget | [budget] | Added | 8.5.110.03 | This option is configured on the MediaType object. |
| default-cost | [budget] | Added | 8.5.110.03 | This option is configured on the MediaType object. |
| default-cost-consult | [budget] | Added | 8.5.110.03 | This option is configured on the MediaType object. |
| default-cost-inbound | [budget] | Added | 8.5.110.03 | This option is configured on the MediaType object. |
| default-cost-internal | [budget] | Added | 8.5.110.03 | This option is configured on the |

| Current Option Name | Section | Type of Change | Release # in Which Change Occurred | Details |
|--------------------------------|---------------|----------------|------------------------------------|---|
| | | | | MediaType object. |
| default-cost-outbound | [budget] | Added | 8.5.110.03 | This option is configured on the MediaType object. |
| default-cost-unknown | [budget] | Added | 8.5.110.03 | This option is configured on the MediaType object. |
| default-agent-budget | [budget] | Added | 8.5.110.03 | This option is configured on the Tenant object. |
| default-cost | [budget] | Added | 8.5.110.03 | This option is configured on the Tenant object. |
| default-cost-consult | [budget] | Added | 8.5.110.03 | This option is configured on the Tenant object. |
| default-cost-inbound | [budget] | Added | 8.5.110.03 | This option is configured on the Tenant object. |
| default-cost-internal | [budget] | Added | 8.5.110.03 | This option is configured on the Tenant object. |
| default-cost-outbound | [budget] | Added | 8.5.110.03 | This option is configured on the Tenant object. |
| default-cost-unknown | [budget] | Added | 8.5.110.03 | This option is configured on the Tenant object. |
| enabled | [budget] | Added | 8.5.110.03 | This option is configured on the Tenant object. |
| interaction-cost-key | [budget] | Added | 8.5.110.03 | This option is configured on the Tenant object. |
| java-extension-loading-timeout | [java-config] | Modified | 8.5.109 | The default value is changed from 20 to 60 seconds. |
| addp-remote-timeout | [ha] | Added | 8.5.109 | Specifies the time interval, in seconds, that Stat Server in backup mode instructs the other Stat Server in the redundant pair to use when polling to check |

| Current Option Name | Section | Type of Change | Release # in Which Change Occurred | Details |
|---------------------------|---------|----------------|------------------------------------|---|
| | | | | the connection between the two servers. |
| addp-timeout | [ha] | Added | 8.5.109 | Specifies the time interval, in seconds, that Stat Server in backup mode waits before polling the other Stat Server in the redundant pair. |
| addp-trace | [ha] | Added | 8.5.109 | Determines whether ADDP messages are written to the primary and backup Stat Server logs. |
| chunk-size | [ha] | Added | 8.5.109 | Sets the number of statistics, processed simultaneously during replication of statistics between primary and backup Stat Server instances. |
| chunk-timeout | [ha] | Added | 8.5.109 | Duration, in seconds, between adjacent chunks during replication of statistics between primary and backup Stat Server instances. Term "chunk" means the number of statistics, processed simultaneously. |
| connect-timeout | [ha] | Added | 8.5.109 | Timeout, in seconds, when the reconnect attempt between Stat Servers, operating in high availability (HA) mode, is made. |
| session-expiration-period | [ha] | Added | 8.5.109 | Session expiration period (in |

| Current Option Name | Section | Type of Change | Release # in Which Change Occurred | Details |
|---------------------------------------|--------------|----------------|------------------------------------|--|
| | | | | seconds). |
| session-expiration-timeout | [ha] | Added | 8.5.109 | Specifies, in seconds, how often the session expiration is checked during the time configured in the session-expiration-period option. |
| debug-level | [statserver] | Modified | 8.5.109 | New HA value is added. |
| allow-new-connections-during-overload | [overload] | Added | 8.5.108 | Controls whether new clients can connect during the Stat Server overload. |
| allow-new-requests-during-overload | [overload] | Added | 8.5.108 | Controls whether new requests can be made during the Stat Server overload. |
| cpu-cooldown-cycles | [overload] | Added | 8.5.108 | Defines the number of cpu-poll-timeout cycles in a cooldown period. |
| cpu-poll-timeout | [overload] | Added | 8.5.108 | Defines, in seconds, how often the main thread CPU is polled. |
| cpu-threshold-high | [overload] | Added | 8.5.108 | Defines the higher level of the main thread CPU utilization threshold, which signifies the start of the Stat Server overload. |
| cpu-threshold-low | [overload] | Added | 8.5.108 | Defines the lower level of the main thread CPU utilization threshold, which signifies the start of the Stat Server recovery. |

| Current Option Name | Section | Type of Change | Release # in Which Change Occurred | Details |
|---------------------------------------|--------------|----------------|------------------------------------|---|
| cut-debug-log | [overload] | Added | 8.5.108 | Controls debug logging in the overload. If set to true, the debug log is cut during the Stat Server overload. |
| protection | [overload] | Added | 8.5.108 | Controls whether the overload protection is applied during the Stat Server overload. |
| qos-default-overload-policy | [overload] | Added | 8.5.108 | Defines the global overload policy. |
| qos-recovery-enable-lms-messages | [overload] | Added | 8.5.108 | Enables Standard recovery related log messages. |
| DynamicOverloadPolicy | [stat-type>] | Added | 8.5.108 | Defines actions that Stat Server may apply to a given statistic to reduce the overload . |
| interaction-wait-on-tenant-max-number | [statserver] | Added | 8.5.107 | Specifies the maximum allowed number of InteractionWait (Tenants) actions. |
| interaction-wait-on-tenant-media-list | [statserver] | Added | 8.5.107 | Specifies the list of media type name(s) for which the InteractionWait (Tenants) action is generated. |
| stat-file-show-clients-list | [statserver] | Added | 8.5.107 | Specifies whether Stat Server writes client connection details in the StatFile log file. |
| stat-file-show-options | [statserver] | Added | 8.5.107 | Controls whether Stat Server configuration options are shown in the StatFile log file. |
| stat-file-timeout | [statserver] | Added | 8.5.107 | Specifies the amount of time, in |

| Current Option Name | Section | Type of Change | Release # in Which Change Occurred | Details |
|----------------------|--------------|----------------|------------------------------------|---|
| | | | | seconds, that Stat Server must wait after adding a record to the StatFile log file, before it can write another record. |
| enable-thread | [log] | Added | 8.5.106 | Specifies whether to enable or disable the logging thread. Refer to the Framework Management Layer User's Guide for more information about the log throttling . |
| throttle-period | [log] | Added | 8.5.106 | Specifies, in seconds, how long to keep the throttled verbose level. |
| throttle-threshold | [log] | Added | 8.5.106 | Specifies the size of the internal log queue at which the verbose level is to be reduced so as to lessen the load generated by logging. |
| reg-error-delay | [statserver] | Added | 8.5.105 | Specifies the minimal/least interval, in seconds, between the failed DN registration attempt and the next registration attempt. |
| reg-error-max-count | [statserver] | Added | 8.5.105 | Specifies the number of additional DN registration attempts if the initial registration request fails. |
| auto-backup-interval | [statserver] | Modified | 8.5.104 | New max value is 35791. |
| consult-acw-mode | [statserver] | Added | 8.5.104 | Controls when Stat |

| Current Option Name | Section | Type of Change | Release # in Which Change Occurred | Details |
|--|--------------|------------------|------------------------------------|--|
| | | | | Server generates the AfterCallWork action. |
| reconnect-timeout | [statserver] | Modified | 8.5.104 | New max value is 2147483. |
| reg-delay | [statserver] | Modified | 8.5.104 | New max value is 2147483. |
| reg-dns-chunk-delay | [statserver] | Modified | 8.5.104 | New max value is 2147483. |
| suppress-user-data | [statserver] | Added | 8.5.104 | Determines whether Stat Server should transmit call-extracted attached data. |
| interaction-wait-on-sa-max-number | [statserver] | Added | 8.5.103 | Specifies the maximum allowed number of InteractionWait (StagingAreas) actions. |
| interaction-wait-on-sa-media-list | [statserver] | Added | 8.5.103 | Specifies the list of media type name(s) for which the InteractionWait (StagingAreas) action is generated. |
| backup-file-aggregates-store | [statserver] | Added | 8.5.102 | Controls whether the statistical aggregates are read from/written into the backup file. |
| disconnect-from-lca-on-history-log-expired | [statserver] | Added | 8.5.102 | Controls whether Stat Server disconnects from LCA upon receiving the HistoryLogExpired event. |
| media-type | [statserver] | Meaning extended | 8.5.102 | Now voice is a valid value. |
| accept-clients-in-backup-mode | [statserver] | Modified | 8.5.1 | New default value is yes. |

| Current Option Name | Section | Type of Change | Release # in Which Change Occurred | Details |
|-------------------------|------------------------|------------------|------------------------------------|---|
| db-timeout | [statserver] | Added | 8.5.1 | Controls the timeout, during which Stat Server waits for response from DB Server. |
| db-txn-max-retries | [statserver] | Added | 8.5.1 | Controls the number of transaction retries with DB Server. |
| reconnect-timeout | [statserver] | Meaning extended | 8.5.1 | The option is now also applicable to the Configuration Server connection. |
| debug | [db-direct-connection] | Added | 8.5.0 | Controls advanced debugging information on interactions with a database in the direct connection mode. |
| enable | [db-direct-connection] | Added | 8.5.0 | Enables direct database connection. |
| identity-in-login-table | [statserver] | Added | 8.5.0 | Applicable only for Oracle. Enables Stat Server to fill the APP_DBID field in LOGIN table. This option is required for Stat Server to operate with an Oracle Real Application Clusters (RAC). |
| verbose | [db-direct-connection] | Added | 8.5.0 | Controls the verbosity level of Stat Server log messages about SQL statement and other database-related activities. |

Log Events Changes

LMS Changes in Stat Server 8.5.x

| Message ID | Level | Text | Type of Change | Release # |
|------------|----------|---|----------------|------------|
| 10087 | STANDARD | Protected configuration monitoring mode stopped (duration=%d sec) | Added | 8.5.112.07 |
| 10086 | STANDARD | Protected configuration monitoring mode started | Added | 8.5.112.07 |
| 10085 | STANDARD | Normal configuration monitoring mode stopped (duration=%d sec) | Added | 8.5.112.07 |
| 10084 | STANDARD | Normal configuration monitoring mode started | Added | 8.5.112.07 |
| 10082 | TRACE | Large kv-list ([number] bytes) in CurrentState value | Added | 8.5.110.12 |
| 10078 | STANDARD | Budget model is disabled on tenant '%s' | Added | 8.5.110.03 |
| 10077 | STANDARD | Budget model is enabled on tenant '%s' | Added | 8.5.110.03 |
| 10081 | STANDARD | Invalid time-range: '%s' = '%s' | Added | 8.5.109 |
| 10080 | STANDARD | Invalid filter: '%s' = '%s' | Added | 8.5.109 |
| 10075 | STANDARD | Overload protection on %s deactivated | Added | 8.5.108 |
| 10074 | STANDARD | Overload protection on %s activated | Added | 8.5.108 |
| 10073 | STANDARD | Overload recovery failed on %s (%d current CPU usage) | Added | 8.5.108 |
| 10072 | STANDARD | Overload recovery started on %s (%d | Added | 8.5.108 |

| Message ID | Level | Text | Type of Change | Release # |
|------------|----------|--|----------------|-----------|
| | | current CPU usage) | | |
| 10071 | STANDARD | Overload ended on %s (%d current CPU usage) | Added | 8.5.108 |
| 10070 | STANDARD | Overload detected on %s (%d current CPU usage) | Added | 8.5.108 |
| 10069 | STANDARD | Building virtual agent groups on tenant '%s', %d percent complete | Added | 8.5.105 |
| 10068 | STANDARD | Name uniqueness violation for %s '%s' (tenant '%s') (old dbid=%d, new dbid=%d) | Added | 8.5.104 |
| 10067 | STANDARD | Application failed to restore session with Config Server | Added | 8.5.100 |

Diagnostics changes

- Stat Server ignores identically named places and indicates that with the following Standard type LMS message: 10068 Name uniqueness violation for %s '%s' (tenant '%s') (old dbid=%d, new dbid=%d).
- Stat type definitions are now printed at startup if the Init:6 value is specified for the [statserver]\debug-level configuration option.
- Statistical requests to open statistics (OpenStat, GetStat) and associated responses (EventStatOpened, EventError) are printed at Init:4 (previously, at Init:5).
- Stat Server recognizes the [log]\time-format configuration option when printing timestamps in the log.
- If session with Configuration Server cannot be restored, new Standard type LMS message 10067 Application failed to restore session with Config Server is printed in the standard log.
- If Init:7 is specified in [statserver]\debug-level, then additional diagnostics is printed on Init log level.

Migrating from Stat Server 8.1.2 with Connection to DB Server, to Stat Server 8.5.0 with Direct Database Connection

Prerequisites:

- A Database Access Point (DAP) properly configured for connection to the database with initialized Stat Server tables.

Tip

If you plan to use only direct connection to the database without DBServer, you can configure the DAP without connection to a DBServer.

- Installed and properly configured related DBMS client software.

Tip

See [Framework Database Connectivity Reference Guide](#) for more information.

Migration steps:

- Install Stat Server 8.5.0.
- In the Stat Server application object, under Options / Application Options (GAX), in the [db-direct-connection] section set the enable option to on. Default value for the enable option is off.
- Optional. Set the verbose option in the db-direct-connection section to a value from 1 to 4 to produce more verbose log output on Stat Server database-related activities.

Tip

For Oracle, you can install Oracle Instant Client.

For DB2, you can install the IBM Data Server Runtime Client.

For SQL Server, you can install Microsoft Data Access Components (which includes ODBC), but this should not be necessary as Windows ships with ODBC.

Migrating LOGIN table from 8.1.2 to 8.5.0 for Oracle

In general, Stat Server tables upgrade is not required, because Stat Server 8.5 works properly with tables from previous releases. If you use Oracle RAC environment, you must upgrade the LOGIN table using the upgrade script, which adds extra fields.

Using the Oracle sqlplus client, run the script `sql_scripts/oracle/upgrade_850_login_oracle.sql`, which will upgrade the table for use with Stat Server 8.5.0, and migrates existing data. This script creates two additional fields, ID and APP_DBID. Note that for existing data, the APP_DBID field will simply be set to 0.

Important

- Running the script `login_oracle.sql` creates the table, and deletes previously existing data from it.
- Before you begin, back up your original LOGIN table, because running this script will reinitialize it, removing any old data from this table.

In the Stat Server application object, under Options / Application Options (GAX), in the [statserver] section set the `identity-in-login-table` option to on. This setting is not on by default.