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# Workforce Management Administrator's Guide

12/16/2025

# Using WFM Prometheus metrics for monitoring & troubleshooting

To support additional resiliency and observability capabilities for (but not limited to) cloud based environment and deployment, the backend components of Genesys Workforce Management solution are modified to support Prometheus based metrics, available via http endpoints for engage on premise platform.

Use the below URL for WFM Prometheus based metrics:  
`http://<server-host>:<port>/metrics`

Where:

<server-host> - Host on which WFM backend component running (WFM Server, Builder, Data Aggregator or Daemon)

<port> - Port on which WFM backend component (WFM Server, Builder, Data Aggregator or Daemon) accepting client requests. This <port> can either be the default server listening port or a dedicated management port that need to be enabled with the management-port option:  
management-port = <port>

For more information, see the the following URLs:

Prometheus models: [https://prometheus.io/docs/concepts/data\\_model/](https://prometheus.io/docs/concepts/data_model/)

Prometheus supported metrics types: [https://prometheus.io/docs/concepts/metric\\_types/](https://prometheus.io/docs/concepts/metric_types/)

Grafana dashboards: <https://prometheus.io/docs/visualization/grafana/> (WFM backend components now supports wide list of metrics which will be defined later in this chapter. These metrics can be called and used to build Grafana like dashboards for solution monitoring.)

Following tables describes all supported and available metrics that can be used to build dashboards, reports, alerts and gives you opportunity to monitor solution health.

## System

Name	Type	Description	Labels
<b>wfm_system_start_time_seconds</b>	Gauge	Start time as epoch time, in seconds	[app_name, component, host, version]
<b>wfm_system_uptime_seconds</b>	Gauge	System uptime, in seconds	[component, host]
<b>wfm_system_leader</b>	Gauge	Leader indicator 0/1	[component, host]
<b>wfm_system_cpu_count</b>	Gauge	System CPU count	[component, host]
<b>wfm_system_process_private_bytes</b>	Gauge	Process private bytes	[component, host]
<b>wfm_system_process_virtual_bytes</b>	Gauge	Process virtual bytes	[component, host]
<b>wfm_system_process_cpu_time_ratio</b>	Gauge	Process CPU time %	[component, host]
<b>wfm_system_total_cpu_time_ratio</b>	Gauge	Total system CPU time %	[component, host]
<b>wfm_system_total_committed_bytes</b>	Gauge	Total system committed	[component, host]

Name	Type	Description	Labels
		bytes	
<b>wfm_system_total_memory_limit</b>	Counter	Total system memory limit, in bytes	[component, host]
<b>wfm_system_total_physical_memory_bytes</b>	Gauge	Total system physical memory, in bytes	[component, host]
<b>wfm_system_total_virtual_memory_bytes</b>	Gauge	Total system virtual memory, in bytes	[component, host]
<b>wfm_system_available_physical_memory_bytes</b>	Gauge	Available physical memory, in bytes	[component, host]
<b>wfm_system_physical_memory_load_ratio</b>	Gauge	Physical memory load %	[component, host]

## Session

Name	Type	Description	Labels
<b>wfm_session_count</b>	Gauge	Current session count labeled by the session scope, which can be 'agent', 'user', 'user agent' or 'system'	[component, host, scope]

## Socket Connections

Name	Type	Description	Labels
<b>wfm_connection_total</b>	Counter	Total connections	[component, host]
<b>wfm_connection_refused_total</b>	Counter	Refused connections	[component, host]
<b>wfm_connection_open</b>	Gauge	Open connections	[component, host]
<b>wfm_connection_idle</b>	Gauge	Idle connections	[component, host]
<b>wfm_connection_queued</b>	Gauge	Queued connections	[component, host, direction]
<b>wfm_connection_threads</b>	Gauge	Connection thread count	[component, host, direction]
<b>wfm_connection_threads_limit</b>	Gauge	Connection thread count limit	[component, host, direction]

## HTTP

Name	Type	Description	Labels
<b>wfm_http_request_total</b>	Counter	Total requests	[component, host]
<b>wfm_http_request_failed_total</b>	Counter	Total failed requests	[component, host]
<b>wfm_http_request_duration_seconds</b>	Histogram	Successful requests duration, in seconds	[component, host]
<b>wfm_http_request_failed_duration_seconds</b>	Histogram	Failed requests duration, in seconds	[component, host]

Name	Type	Description	Labels
<b>wfm_http_request_latency_seconds</b>	Gauge	Successful requests latency over the rolling time window, in seconds	[component, host]
<b>wfm_http_request_failed_latency_seconds</b>	Gauge	Failed requests latency over the rolling time window, in seconds	[component, host]
<b>wfm_http_request_failed_ratio</b>	Summary	Failed requests ratio over the rolling time window	[component, host]
<b>wfm_http_request_rps</b>	Summary	Requests per second (RPS) over the rolling time window	[component, host]
<b>wfm_http_request_active</b>	Gauge	Active requests	[component, host, operation, uri]
<b>wfm_http_request_read_time_seconds</b>	Gauge	Request read time, in seconds	[component, host, operation, uri]
<b>wfm_http_request_read_bytes</b>	Counter	Request read bytes	[component, host, operation, uri]
<b>wfm_http_request_write_time_seconds</b>	Gauge	Request write time, in seconds	[component, host, operation, uri]
<b>wfm_http_request_write_bytes</b>	Counter	Request written bytes	[component, host, operation, uri]
<b>wfm_http_response_total</b>	Counter	Total responses	[component, host, code, operation, error, uri]
<b>wfm_http_response_time_seconds</b>	Gauge	Response time, in seconds	[component, host, code, operation, error, uri]
<b>wfm_http_response_latency_seconds</b>	Gauge	Successful response latency over the rolling time window, in seconds	[component, host, code, operation, error, uri]
<b>wfm_http_response_failed_latency_seconds</b>	Gauge	Failed response latency over the rolling time window, in seconds	[component, host, code, operation, error, uri]

## Task

Name	Type	Description	Labels
<b>wfm_task_total</b>	Counter	Total tasks	[component, host, task]
<b>wfm_task_refused_total</b>	Counter	Total refused tasks	[component, host, task]
<b>wfm_task_cancelled_total</b>	Counter	Total cancelled tasks	[component, host, task]
<b>wfm_task_failed_total</b>	Counter	Total failed tasks	[component, host, task]
<b>wfm_task_active</b>	Gauge	Active tasks	[component, host, task]
<b>wfm_task_active_max</b>	Gauge	Maximum active tasks over the rolling time window	[component, host, task]
<b>wfm_task_active_limit</b>	Gauge	Active tasks limit	[component, host, task]

Name	Type	Description	Labels
<b>wfm_task_queued</b>	Gauge	Queued tasks	[component, host, task]
<b>wfm_task_queued_max</b>	Gauge	Maximum queued tasks over the rolling time window	[component, host, task]
<b>wfm_task_queued_limit</b>	Gauge	Queued tasks limit	[component, host, task]
<b>wfm_task_queued_time_seconds</b>	Summary	Task time in the queue, in seconds	[component, host, task]
<b>wfm_task_handle_time_seconds</b>	Summary	Task handle time, in seconds	[component, host, task]
<b>wfm_task_duration_seconds</b>	Summary	Task duration, in seconds	[component, host, task]
<b>wfm_task_latency_seconds</b>	Summary	Task latency over the rolling time window, in seconds	[component, host, task]
<b>wfm_task_all_threads</b>	Gauge	Task thread pool size	[component, host]
<b>wfm_task_all_active</b>	Gauge	Active tasks	[component, host]
<b>wfm_task_all_active_max</b>	Gauge	Maximum number of active tasks since last restart	[component, host]
<b>wfm_task_all_active_limit</b>	Gauge	Active task limit	[component, host]
<b>wfm_task_all_queued</b>	Gauge	Queued tasks	[component, host]
<b>wfm_task_all_queued_max</b>	Gauge	Maximum number of queued tasks since last restart	[component, host]
<b>wfm_task_all_queued_limit</b>	Gauge	Queued task limit	[component, host]
<b>wfm_task_all_throttled</b>	Gauge	Throttled tasks	[component, host]
<b>wfm_task_all_throttled_max</b>	Gauge	Maximum number of throttled tasks since last restart	[component, host]

## Database

Name	Type	Description	Labels
<b>wfm_db_connection_total</b>	Counter	Total database connections	[component, host]
<b>wfm_db_connection_failed_total</b>	Counter	Total failed database connections	[component, host]
<b>wfm_db_connections</b>	Gauge	Current database connections	[component, host]
<b>wfm_db_connection_time_seconds</b>	Summary	Time to establish database connection, in seconds	[component, host]
<b>wfm_db_command_total</b>	Counter	Total number of database commands	[component, host, task]

Name	Type	Description	Labels
		executed	
<b>wfm_db_command_failed_total</b>	Counter	Total number of failed database commands	[component, host, task]
<b>wfm_db_command_duration_seconds</b>	Summary	Database command duration, in seconds	[component, host, task]
<b>wfm_db_fetch_total</b>	Counter	Total number of database fetches	[component, host, task]
<b>wfm_db_fetch_duration_seconds</b>	Summary	Database fetch duration, in seconds	[component, host, task]
<b>wfm_db_deadlock_total</b>	Counter	Total number of database deadlocks detected	[component, host, task]

## Cache

Name	Type	Description	Labels
<b>wfm_cache_size_bytes</b>	Gauge	Cache size, in bytes, labeled by cache type	[component, host, cache]
<b>wfm_cache_hit_count</b>	Counter	Cache hit count, labeled by cache type	[component, host, cache]
<b>wfm_cache_miss_count</b>	Counter	Cache miss count, labeled by cache type	[component, host, cache]
<b>wfm_cache_hit_ratio</b>	Summary	Cache hit ratio over the rolling time window	[component, host, cache]

## Memory Allocations

Name	Type	Description	Labels
<b>wfm_alloc_objects</b>	Gauge	Allocated object count, labeled by object type	[component, host, object]
<b>wfm_alloc_object_size_bytes</b>	Gauge	Object allocation size, in bytes, labeled by object type	[component, host, object]

## ETL

Name	Type	Description	Labels
<b>wfm_etl_run_total</b>	Counter	Total ETL runs	[component, host]
<b>wfm_etl_run_failed_total</b>	Counter	Total failed ETL runs	[component, host]
<b>wfm_etl_run_cancelled_total</b>	Counter	Total cancelled ETL runs	[component, host]
<b>wfm_etl_run_progress_percent</b>	Gauge	Last ETL run progress %	[component, host]
<b>wfm_etl_run_start_time_seconds</b>	Summary	Last ETL run start time as epoch time, in	[component, host]

Name	Type	Description	Labels
		seconds	
<b>wfm_etl_run_end_time_seconds</b>	Seconds	Last ETL run end time as epoch time, in seconds	[component, host]
<b>wfm_etl_run_outcome</b>	Gauge	Last ETL run outcome: 0 - complete, 1 - cancelled, 2 - failed	[component, host]
<b>wfm_etl_record_total</b>	Counter	Total ETL records transferred by subsystem: 'configuration', 'adherence', 'schedule', 'performance'	[component, host, subsystem]

## Data Aggregator (DA)

Name	Type	Description	Labels
<b>wfm_da_writes_db_total</b>	Counter	Total number of DA database record writes	[component, host, record_type]
<b>wfm_da_writes_db_failed_total</b>	Counter	Total number of failed DA database record writes	[component, host, record_type]
<b>wfm_da_writes_db_retried_total</b>	Counter	Total number of retried DA database record writes	[component, host, record_type]
<b>wfm_da_writes_db_queue_wait_time_seconds</b>	Histogram	DA database record time in queue, in seconds	[component, host, record_type]
<b>wfm_da_writes_db_write_time_seconds</b>	Histogram	DA database record write time, in seconds	[component, host, record_type]
<b>wfm_da_writes_db_duration_seconds</b>	Histogram	DA database record write duration, in seconds	[component, host, record_type]
<b>wfm_da_writes_file_total</b>	Counter	Total number of DA dump file data writes	[component, host]
<b>wfm_da_writes_file_failed_total</b>	Counter	Total number of DA dump failed file data writes	[component, host]
<b>wfm_da_writes_queue_size</b>	Gauge	DA database writer queue size	[component, host]
<b>wfm_da_statserver_event_total</b>	Counter	Total number of events received from StatServer, labeled by event type	[component, host, event]
<b>wfm_da_statserver_error_total</b>	Counter	Total number of errors received from StatServer, labeled by	[component, host, event]

Name	Type	Description	Labels
		event type	

## Builder

Name	Type	Description	Labels
<b>wfm_builder_job_total</b>	Counter	Total schedule build jobs	[component, host]
<b>wfm_builder_job_failed_total</b>	Counter	Total failed schedule build jobs labeled by error type. Possible 'error' label values: 'internal', 'data', 'network', 'wfmserver', 'cfgserver', 'system'.	[component, host, error]
<b>wfm_builder_job_cancelled_total</b>	Counter	Total cancelled schedule build jobs	[component, host]
<b>wfm_builder_job_active</b>	Gauge	Active schedule build jobs	[component, host]
<b>wfm_builder_job_active_limit</b>	Gauge	Maximum allowed number of active concurrent schedule build jobs	[component, host]
<b>wfm_builder_job_queued</b>	Gauge	Queued schedule build jobs	[component, host]
<b>wfm_builder_job_reading</b>	Gauge	Schedule build jobs reading input data	[component, host]
<b>wfm_builder_job_writing</b>	Gauge	Schedule build jobs saving the results	[component, host]
<b>wfm_builder_job_queue_time_seconds</b>	Time series	Schedule build jobs time in queue, in seconds	[component, host]
<b>wfm_builder_job_queued_latency</b>	Time series	Job time in queue over the rolling time window, in seconds	[component, host]
<b>wfm_builder_job_read_time_seconds</b>	Time series	Schedule build jobs reading input data time, in seconds	[component, host]
<b>wfm_builder_job_build_time_seconds</b>	Time series	Schedule build jobs scheduling time, in seconds	[component, host]
<b>wfm_builder_job_write_time_seconds</b>	Time series	Schedule build results saving time, in seconds	[component, host]
<b>wfm_builder_job_duration_seconds</b>	Time series	Schedule build jobs duration, in seconds	[component, host]
<b>wfm_builder_job_sites</b>	Histogram	Schedule build site count	[component, host]
<b>wfm_builder_job_agents</b>	Histogram	Schedule build agent count	[component, host]



Name	Type	Description	Labels
<b>wfm_builder_job_days</b>	Histogram	Schedule build day count	[component, host]
<b>wfm_builder_task_active</b>	Gauge	Active scheduling tasks	[component, host]
<b>wfm_builder_task_active_limit</b>	Gauge	Maximum allowed number of active concurrent scheduling tasks	[component, host]
<b>wfm_builder_task_active_ratio</b>	Ratio	Active task ratio (task_active / task_active_limit) over the rolling time window	[component, host]
<b>wfm_builder_task_queued</b>	Gauge	Queued scheduling tasks	[component, host]

## Golden Metrics

Name	Type	Description	Labels
<b>golden_signals:traffic</b>	Gauge	Traffic normalized in the range from 0 to 1	[component, host]
<b>golden_signals:latency</b>	Gauge	Latency normalized in the range from 0 to 1	[component, host]
<b>golden_signals:errors</b>	Gauge	Errors ratio	[component, host]
<b>golden_signals:saturation</b>	Gauge	Saturation normalized in the range from 0 to 1	[component, host]

## Health

Name	Type	Description	Labels
<b>wfm_health_status</b>	Gauge	Component health status: 0 - green, 1 - yellow, 2 - red includes component's dependencies and their health statuses	[component, host, dependency]