

What's New for Oracle IoT Production Monitoring Cloud Service

As soon as new and changed features become available, Oracle IoT Production Monitoring Cloud Service instances are upgraded in the data centers where Oracle Cloud services are hosted. You don't need to request an upgrade to be able to use the new features—they come to you automatically. Here's an overview of new features and enhancements added recently to improve your Oracle IoT Production Monitoring Cloud Service experience.

 **Note:**

This What's New document will not be updated for post-20.3.1 features. The latest new feature summary information for Oracle IoT Production Monitoring Cloud Service is available from the Oracle Cloud Readiness site:

[New Feature Summary](#)

Release 20.3.1 — July 2020

Feature	Description
MQTT Server Connector	<p>Use the new MQTT server connector in Oracle IoT Production Monitoring Cloud Service to enable direct MQTT connectivity from devices and network providers. The MQTT server connector removes the need for an intermediate gateway or external MQTT broker.</p> <p>The connector uses the specified target factory to import the machines and machine types in Oracle IoT Production Monitoring Cloud Service. You can monitor the sensor data in operations center.</p>

Feature	Description
Export and Import Organizations	<p>As an administrator, you can export, or back up, an organization in Oracle IoT Production Monitoring Cloud Service. The organization is exported along with all its entities, such as factories, machine types, machines, associated rules, anomalies, predictions, settings, and integrations. You can then import the exported archive file into another instance of Oracle IoT Production Monitoring Cloud Service.</p> <p>For example, you can export an organization to create a backup before an update. You can also export an organization to move the organization from a test environment to a production environment once the tests are complete.</p>
PMML Data Engineering Support for Predictions	<p>If you wish to use a pre-trained prediction model in place of the automatic prediction training in Oracle IoT Production Monitoring Cloud Service, you can upload the trained model in Oracle IoT Production Monitoring Cloud Service to create a prediction. Oracle IoT Production Monitoring Cloud Service then performs the prediction scoring using your pre-trained model.</p> <p>You can use training models supported by pmml4s (PMML Scoring Library for Scala), such as the neural network. When creating a new prediction, upload your PMML file to replace the built-in models used by Oracle IoT Production Monitoring Cloud Service.</p>

Release 20.2.4 — June 2020

Feature	Description
Import Historical Data	<p>As an administrator, you can choose to import historical sensor and metric based data into Oracle IoT Production Monitoring Cloud Service, and use this historical data in IoT analytics artifacts, such as metrics, anomalies, predictions, and trends. For example, you may want to import pre-deployment sensor data and use it for training your anomalies and predictions.</p> <p>Oracle IoT Production Monitoring Cloud Service lets you create and download a <code>csv</code> template for an entity (machine) type. The template can include the sensor and metric attributes that you wish to include in your data. You can then use the template to upload historical data for your entities (machines).</p>
Incident Links in Rule Notifications	Your rule email notifications now contain a link to the corresponding incident making it easy to navigate to the incident details in the application.
Custom Data Analysis Time Windows for Dashboard Widgets	When creating dashboard widgets for metrics (KPIs), you can add custom time windows for your widgets. For example, you may want to see the pressure values for a machine 10 to 30 days before today.

Feature	Description
Overall Preventive Maintenance Schedule Optimization	<p>Enhanced maintenance schedule optimization suggestions prioritize minimizing overall delinquencies over individual machine failures.</p> <p>So, for example, if you have multiple machines with high failure probabilities, the maintenance schedule optimization first works on minimizing overall delinquencies. It then focuses on reducing product delinquencies attributable to individual machines.</p>

Release 20.2.3 — May 2020

Feature	Description
Create and Use Multiple Organizations	<p>You can now create organizations in addition to the default organization. Organizations are digital placeholders for the various heterogeneous entities that you have in your business, the locations where these entities operate from, and the associated users of these entities.</p> <p>For example, each organization can have its own factories, locations, machines, and users.</p> <p>External integrations are currently supported for the default organization only.</p>
Use Trends in Rules	<p>You can use trends created for your sensor attributes or metrics as rule conditions to trigger incidents, warnings, asset actions, or alerts.</p> <p>The rule condition can test for one or more Nelson Rules in the trend. When the selected trend occurs, the rule gets triggered.</p>
Mobile App Enhancements	<p>When updating production output and actual quantities, the operator can specify additional details related to reject and scrap quantities:</p> <ul style="list-style-type: none"> • Reject Reason: The reason for rejection. • Reject Details: Additional information related to the reject quantity. • Scrap Reason: The reason for scrap quantities. • Scrap Details: Additional information related to the scrap quantity.

Release 20.2.2 — May 2020

Feature	Description
Oracle Analytics Cloud Integration	Oracle Analytics Cloud integration is now available for both development and production environments.

Feature	Description
Three-Way Integration Enhancements: Oracle Fusion Manufacturing Cloud Service, Oracle IoT Production Monitoring Cloud Service, and Oracle Maintenance Cloud	<p>You can now import machines from Oracle Maintenance Cloud in addition to importing machines and machine types from Oracle Fusion Manufacturing Cloud Service. In order to avoid duplicate machine types, Oracle IoT Production Monitoring Cloud Service requires you to specify a pre-existing machine type when importing machines from Oracle Maintenance Cloud.</p> <p>Oracle IoT Production Monitoring Cloud Service now lets you test the connections when creating integrations.</p>
Production Output Details	<p>When a machine or operator updates the production output, the details can include reject and scrap quantities in addition to actual, or good, quantities. You can also include additional details, such as the reasoning behind reject or scrap classification and other reject and scrap details.</p> <p>If you have integrated with Oracle Fusion Manufacturing Cloud Service, all these production output details are synced with Oracle Fusion Manufacturing Cloud Service.</p>
New System Metrics	<p>The following new system metrics help track on-time delivery percentages for factories and machines:</p> <ul style="list-style-type: none"> • Factories On Time Delivery: Percentage of products in the factory that are delivered on time. • Machines On Time Delivery: Percentage of products for the machine that are delivered on time.
New and Updated Documentation	Updates were made to the REST API documentation.

Release 20.2.1 — April 2020

Feature	Description
Pass Operator Name to Oracle Fusion Manufacturing Cloud Service on Outbound Sync	When updating the output quantities in Oracle Fusion Manufacturing Cloud Service, Oracle IoT Production Monitoring Cloud Service also passes the name of the user/operator who produced the quantities in a work order. This helps in calculating efficiencies by identifying the quantities produced by each operator.
Auto-Delete Warnings	<p>Rule configurations now provide an option to automatically delete resolved warnings.</p> <p>You can also manually delete active and resolved warnings.</p>
New and Updated Documentation	Updates were made to the existing user guide and REST API documentation.

Release 20.1.2 — March 2020

Feature	Description
Design Center	<p>Use the new design center to create and manage your factories, machine types, machines, products, and all associated entities. Associated entities in an organization include metrics, predictions, anomalies, dashboards, and other entities.</p> <p>Continue to use the operations center to monitor your factories, metrics, incidents, warnings, and maintenance schedules.</p>
Use Oracle Fusion Manufacturing Cloud Service Together with Oracle Maintenance Cloud	<p>You can now use three-way integration between Oracle Fusion Manufacturing Cloud Service, Oracle IoT Production Monitoring Cloud Service, and Oracle Maintenance Cloud.</p> <p>Oracle IoT Production Monitoring Cloud Service imports and uses the machines from Oracle Fusion Manufacturing Cloud Service. These machines have corresponding assets in Oracle Maintenance Cloud.</p> <p>When an incident is raised for a machine in Oracle IoT Production Monitoring Cloud Service, a work order is automatically created in Oracle Maintenance Cloud.</p>
Send Automatic Email Notifications for Incidents and Warnings	<p>When a rule triggers an incident or warning, email notifications are automatically sent to all configured subscribers. Use the built-in, default SMTP account, or use your own SMTP server to channel the notifications.</p>
Time-Based Rules	<p>You can now specify weekly or monthly schedules for rules. A schedule defines the time period during which a rule is in force.</p>
Enhanced Preventive Maintenance Schedule Optimization Suggestions	<p>Enhanced maintenance schedule optimization suggestions prioritize machines with high failure probabilities while minimizing product delivery delinquencies. Both machine-learning data, that determines future machine failure probabilities, and production plans are used to come up with the recommendations.</p>
New and Updated Documentation	<p>Updates were made to the existing user guide.</p>

Release 19.3.2 — August 2019

Feature	Description
Enhanced Integration with Oracle Fusion Manufacturing Cloud Service	<p>Oracle IoT Production Monitoring Cloud Service now automatically updates the work order status and produced quantities in Oracle Fusion Manufacturing Cloud Service based on updates from the machine or operator.</p>

Feature	Description
Receive SMS Phone Notifications for Incidents and Warnings	Enables you to easily monitor, and act on, incidents and warnings. When a rule triggers an incident or warning, SMS notifications are sent to all configured subscribers on their mobile devices. Oracle IoT Production Monitoring Cloud Service integrates with the Twilio SMS service to help provide seamless SMS notifications.
New and Updated Documentation	Updates were made to the existing user guide.

Release 19.1.5 — March 2019

Feature	Description
Operations Center	Use the Operations Center to monitor your factories, metrics, incidents, warnings, and maintenance schedules. Customize your dashboard to include custom metrics. Use the breadcrumb navigation to easily switch between factories. The factory view in Operations Center lets you view the floor plans, machines, factory and machine metrics, production data, schedules, reports, anomalies, incidents, warnings and other details for your factory.
Customize Oracle Fusion Manufacturing Cloud Service and Oracle Maintenance Cloud Integrations	You can now configure the synchronization period for your integrations per your organization's needs.
New and Updated Documentation	Updates were made to the existing user guide and REST API document.

Release 19.1.1 — January 2019

Feature	Description
Use Global Metrics in Rules	You can now use global metrics in rules. Global metrics are calculated for a machine type as a whole, as opposed to metrics that are calculated per machine. To use a global metric in a rule, select the Use Global Metrics option when choosing the machine type target.
New and Updated Documentation	Updates were made to the existing user guide.

Release 18.4.5 — December 2018

Feature	Description
Connectors for OPC UA (OPC Unified Architecture) and PI System	<p>This feature is currently offered as an experimental feature, and is not available in the production version. The connector framework enables connectivity for devices that cannot otherwise directly or indirectly connect to Oracle Internet of Things Cloud Service. For example, you may have IP devices without the appropriate protocols to use a client gateway, or you may have your own cloud service that contains all your device information.</p> <p>The connector communicates with the remote server and discovers information, such as machine types and machines. The machine types and machines can be on-boarded automatically or manually. The associated device models are created based on the sensor attributes associated with your machines.</p>
Geo-Location Support in Factory Floor Plans	Supports moving machines, such as robots, that dynamically report their locations on the floor plan
Metrics for Production Plans and Maintenance Schedules	Supports computed metrics based on production plans and maintenance schedules in addition to factory and machine metrics.
Enhanced Oracle Manufacturing Cloud Integration	The factory view supports parallel routing tasks in product work order stages.
New and Updated Documentation	Updates were made to the existing user guide.

Release 18.4.1 — November 2018

Feature	Description
Trends	You can analyze statistical trends for your machine attributes using one or more Nelson Rules. These may help you analyze the consistency and predictability of your attribute values. Trends are available in the corresponding machine view of the machine attribute.
Operator Types and Enhanced Oracle Manufacturing Cloud Integration	<p>You can create different operator categories for different production task types. A designated operator can log in to the mobile application to see their assigned work orders, and update the production plans and actual production data.</p> <p>You can now assign operators to work orders imported from Oracle Fusion Manufacturing Cloud Service.</p>
New and Updated Documentation	Updates were made to the existing user guide and REST API document.

Release 18.3.5 — September 2018

Feature	Description
Centralized User Management	<p>Oracle Identity Cloud Service provides a centralized identity store for your Production Monitoring roles and users.</p> <p>Oracle IoT Production Monitoring Cloud Service uses predefined roles for the application users. Roles are a set of privileges assigned to a user.</p>
Enhanced Anomaly Support and Behavior Mapping	<p>The enhanced anomaly interface lets you create various anomaly types from a single, simplified interface.</p> <p>You can now specify a sample time window containing acceptable patterns for sensor or metric data. This time window can be a typical period during which your machines, and associated sensors, behaved normally. The system uses the normal data pattern, you specify, to train itself. During day-to-day operations, the system looks out for deviations in sensor data patterns beyond the specified deviation percentage, and flags these as anomalous behavior.</p>
Optimized Maintenance Schedule uses Automatic System Predictions	<p>Oracle IoT Production Monitoring Cloud Service creates automatic failure predictions for each machine type that you select for maintenance schedule optimizations.</p>
Uber Entities in Rules	<p>You can now use aggregate metrics defined for all factories, or for all machines, in your rule conditions.</p>
New and Updated Documentation	<p>Updates were made to the existing user guide and REST API document.</p> <p>A new tutorial was added.</p>

Release 18.3.1 — July 2018

Feature	Description
Use Oracle Analytics Cloud to Create Analyses, Projects, and Dashboards on IoT Factory and Machine Data	<p>Oracle IoT Production Monitoring Cloud Service lets you sync factory, machine, and metric data with Oracle Analytics Cloud. You can use analyses, projects, and dashboards in Analytics Cloud to find the answers that you need from key IoT factory and machine data displayed in graphical formats.</p> <p>The Oracle Analytics Cloud Integration is currently available for testing purposes in development environments, and should not be used in production environments. The functionality, compatibility, interfaces, and APIs are subject to change.</p>
New and Updated Documentation	<p>Updates were made to the existing user guide.</p>

Release 18.2.5 — June 2018

Feature	Description
Python-Based Custom Code Metrics/KPIs	<p>You can now use python code modules, in addition to Java, to create custom code metrics or KPIs (Key Performance Indicators).</p> <p>Custom code metrics are domain-specific metrics that require the computations to go beyond the set of expressions provided by the common analytics services. A custom code metric lets you provide the Spark implementation for computing the results.</p>
Enhanced Oracle Manufacturing Cloud Integration	<p>You can now use the new work order configuration interface to associate machines with work orders downloaded from Oracle Manufacturing Cloud.</p> <p>You no longer need to manually edit the work orders <code>csv</code> file to add the machine IDs.</p>
Use Predictions in Rules	Create a prediction-based rule to generate an incident, alert, or warning based on the predicted value for a machine attribute.
New and Updated Documentation	Updates were made to the existing user guide.

Release 18.2.3 — May 2018

Feature	Description
Optimal Preventive Maintenance Schedule Suggestions Based on Data and Predictions	<p>Determines the optimal preventive maintenance schedule that addresses high probability machine failures while minimizing product delivery delinquencies.</p> <p>Shows recommended maintenance schedule in a different color from the current maintenance schedule. The recommendation also includes data on failure probability and loss of production.</p>
New and Updated Documentation	Updates were made to the existing user guide.

Release 18.1.5 — March 2018

Feature	Description
Custom Code Metrics/KPIs	<p>Use custom code metrics for domain-specific metrics that require the computations to go beyond the set of expressions provided by the common analytics services. A custom code metric lets you provide the Spark implementation for computing the results.</p>
Oracle Manufacturing Cloud Integration	<p>You can download work orders from Oracle Manufacturing Cloud, associate machines with the work orders, and view work orders in the factory view. As a factory manager, you can load the production plan by work orders and track their progress.</p>

Feature	Description
Anomaly Detection for Non-Normal Data	As a factory manager, you can detect anomalies for data streams where the data is not normally distributed (non-Gaussian distribution).
Use Contextual Data Feeds	You can add contextual data feed from external systems that you can then use in metrics and analytics.
Use Predictions	Use predictions to predict future values of machine-related metrics, and to predict machine failures. You can use predictions to analyze the impact on your production plans.
New and Updated Documentation	Updates were made to the existing user guide.

Release 18.1.3 — February 2018

Feature	Description
On-Demand and Scheduled Metrics	<p>On-demand metrics are calculated when they appear on a page, such as the Map page. On-demand metrics use less computational resources. You cannot use an on-demand metric for anomalies, predictions, and historical analysis.</p> <p>Scheduled metrics are refreshed at the intervals you specify. Scheduled metrics can be used in anomalies, predictions, and historical analysis.</p>
New and Updated Documentation	Updates were made to the existing user guide.

Release 17.4.5 — December 2017

Feature	Description
Oracle Maintenance Cloud Integration	<p>You can import machines from the SCM Maintenance Cloud into Oracle IoT Production Monitoring Cloud Service.</p> <p>When an incident is created against an imported machine in Oracle IoT Production Monitoring Cloud Service, the incident automatically translates into a work order in the SCM Maintenance Cloud. For example, if a threshold rule triggers an incident when a device associated with a machine is overheating, a work order corresponding to the incident automatically gets created in the the SCM Maintenance Cloud.</p> <p>When you release, close, cancel, or modify the work order in the SCM Maintenance Cloud, the corresponding incident status in Oracle IoT Production Monitoring Cloud Service is automatically updated. The synchronization between Oracle IoT Production Monitoring Cloud Service and SCM Maintenance Cloud happens every five minutes.</p>

Feature	Description
Sensor Value Based Direct Metrics	You can define machine metrics and factory metrics based on aggregated sensor values. For example, you can create a metric to track the maximum temperature reported by the temperature sensors for a machine type.
Use Machine Types in Rules	You can now create rules that apply to all machines of the same machine type.
New and Updated Documentation	Updates were made to the existing user guide. The reference documentation was updated to accommodate for bug fixes and functionality changes in the application.

Release 17.4.3 — November 2017

Feature	Description
Simulator	Use the simulator to create data for testing or demonstrating the application.
New and Updated Documentation	Major updates were made to the existing user guide. The reference documentation was updated to accommodate for bug fixes and functionality changes in the application.

Release 17.3.5 — September 2017

Feature	Description
Custom Metrics	Define metrics that are specific to your domain or your factories. Use the formula editor to specify the expression to calculate your custom metric.
Anomalies	Use anomalies to identify abnormal behavior that may cause production issues.
Warnings	Use warnings to log production issues that don't require your immediate attention but that might help you troubleshoot a problem in the future.
Machine Type	Create machine types to define the icon and device model that the machines of that type will use.

Release 17.3.3 — August 2017

Feature	Description
Digital Birth Certificate	Create a factory birth certificate to view factory product production for a defined period.
Machine Metrics	Use machine metrics to determine the operational condition of factory machines.
New and Updated Documentation	Miscellaneous updates were made to the existing user guide and reference documentation to accommodate for bug fixes and functionality changes in the application.

Release 17.2.5 — June 2017

Feature	Description
Plans at Risk Key Performance Indicator	The Plans at Risk key performance indicator (KPI) is now available when viewing the historical status for a machine. Use this KPI to determine if preventive maintenance puts your production plans at risk.
Production Key Performance Indicator	The Production KPI is now available when viewing the historical status for a machine. Use this KPI to determine the average daily production for the machine.
Overall Equipment Effectiveness Key Performance Indicator	The Overall Equipment Effectiveness (OEE) KPI is now available when viewing the historical status for a machine. Use this KPI to determine the productivity of the machine.
Rules Now Include a Create Alert Option	When creating a new rule or editing an existing rule, users can now select Create Alert to generate an alert message when the rule conditions are met.
New and Updated Documentation	Miscellaneous updates were made to the existing user guide and reference documentation to accommodate for bug fixes and functionality changes in the application.

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