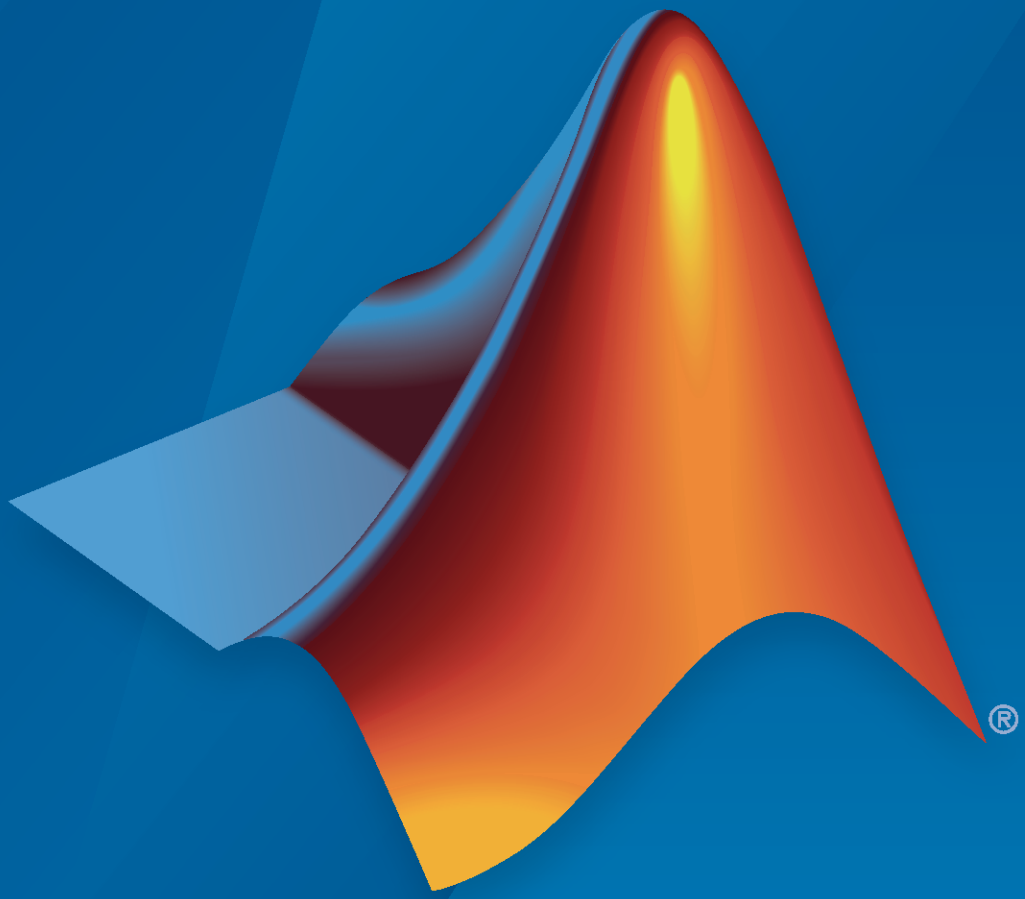
MATLAB® Production Server™ Release Notes



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The MathWorks, Inc.
1 Apple Hill Drive
Natick, MA 01760-2098

MATLAB® Production Server™ Release Notes

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R2023a

Version: 5.2

New Features

Security: Addressed known SSL security vulnerabilities, which includes disabling SSL renegotiation by default

MATLAB Production Server now addresses known SSL security vulnerabilities, which includes disabling SSL renegotiation by default. When server authentication requirements change, SSL renegotiation lets clients maintain their connection to the server by enabling them to re-enter their authentication details. However, SSL renegotiation exposes security vulnerabilities and must be used with caution.

To enable SSL renegotiation, uncomment the `enable-ssl-renegotiation` property in the `config/main_config` file of your server instance.

R2022b

Version: 5.1

New Features

Compatibility Considerations

Web Request Handlers: Test MATLAB function and URL routes using the testing interface in the Production Server Compiler app

You can use the testing interface in the **Production Server Compiler** app to test web request handlers. Configure access to the routes file, then start the test server in the app to test MATLAB functions for deployment to MATLAB Production Server. For more information, see Test Web Request Handlers (MATLAB Compiler SDK).

Kerberos: Use Kerberos to authenticate user access to Linux server instances

You can configure Kerberos to authenticate user access to MATLAB Production Server instances running on Linux®, in addition to existing support for Windows®. For more information, see Use Kerberos Authentication and Kerberos Delegation.

Data Caching: Using Redis on Windows requires WSL installation

MATLAB Production Server ships a newer version of Redis™. To use Redis on server instances that run on Windows machines, an installation of Windows Subsystem for Linux (WSL) is required. For details, see Install WSL for Server Instances Running on Windows.

Compatibility Considerations

Previous versions of MATLAB Production Server do not require a WSL installation to use Redis.

Python Client: Support for Python 3.10

The Python® client library now supports Python 3.10, in addition to existing support for versions 3.8 and 3.9. For more information on client system requirements, see Product Requirements and Platform Availability for MATLAB Production Server.

Streaming Data Framework for MATLAB Production Server: Interact with Kafka event streams and develop streaming analytic functions

Use Streaming Data Framework for MATLAB Production Server to read from and write to event streaming platforms, such as Kafka®. Using this framework, you can:

1. Develop a streaming analytic function in MATLAB that filters, transforms, records or processes event stream data.
2. Connect to a streaming source and test how the analytic function reads from and writes to event streams by using Streaming Data Framework for MATLAB Production Server functions.
3. Simulate the production environment for testing your streaming analytic algorithms (requires MATLAB Compiler SDK™).
4. Package the analytic function and deploy it to your production environment by using MATLAB Production Server.

For more information on this framework, see Event Stream Processing.

MATLAB Production Server Reference Architecture on Azure: Support for R2022b release (November 2022)

You can now deploy MATLAB Production Server R2022b on Microsoft® Azure® using the reference architecture on GitHub®.

To access the reference architecture, see MATLAB Production Server on Microsoft Azure on GitHub.

For information on deploying MATLAB Production Server using this reference architecture, see MATLAB Production Server Reference Architecture on Azure in the MATLAB Production Server documentation.

MATLAB Production Server Reference Architecture on AWS: Support for R2022b release (December 2022)

You can now deploy MATLAB Production Server R2022b on Amazon® Web Services (AWS®) using the reference architecture on GitHub.

To access the reference architecture, see MATLAB Production Server on Amazon Web Services on GitHub.

For information on deploying MATLAB Production Server using this reference architecture, see MATLAB Production Server Reference Architecture on AWS in the MATLAB Production Server documentation.

Functionality being removed or changed

Python Client: Support for Python 2.7 discontinued
Errors

The Python client library no longer supports Python 2.7. For more information on client system requirements, see Product Requirements and Platform Availability for MATLAB Production Server.

Compatibility Considerations

To ensure continued support for your applications, use a supported version of Python, version 3.8, 3.9, or 3.10.

MATLAB Production Server (PAYG) on Azure: Support for R2020b, R2021a, and R2021b discontinued (September 2022)
Errors

Azure Marketplace no longer supports the R2020b, R2021a, and R2021b releases of MATLAB Production Server.

Compatibility Considerations

For continued support of your applications, use a supported release of MATLAB Production Server (PAYG) on Azure. For a list of currently supported releases, see MATLAB Production Server (PAYG) on Azure Marketplace.

R2022a

Version: 5.0

New Features

Compatibility Considerations

Web Request Handlers: Support for custom URL routes and request payloads

MATLAB Production Server now supports flexible mapping of request URLs to deployed MATLAB functions and can serve static content. Clients can send RESTful requests to the server that contain custom HTTP headers and custom payloads.

To enable the server to access the request headers and payload, and to return custom headers, status codes, and payload in the response, you configure the server and write the deployed MATLAB function to handle them specifically. For details, see Handle Custom Routes and Payloads in HTTP Requests.

RESTful API for Server Metrics: Provide custom metrics

Create custom Prometheus® metrics related to your algorithm or request processing by using the functions `prodserver.metrics.setGauge` (MATLAB Compiler SDK) and `prodserver.metrics.incrementCounter` (MATLAB Compiler SDK) in the deployed MATLAB function. These functions create Prometheus gauge and counter metrics, respectively. The MATLAB Production Server metrics service returns the custom metrics in its output. For details, see Create Custom Prometheus Metrics.

Java Client: mps_client.jar client library hosted in Maven™ repository

The `mps_client.jar` Java® client library is hosted in a Maven™ repository at https://mvnrepository.com/artifact/com.mathworks.prodserver/mps_java_client. To use the JAR file in your Maven project, include the following coordinates in the `pom.xml` file:

```
<!-- https://mvnrepository.com/artifact/com.mathworks.prodserver/mps_java_client -->
<dependency>
    <groupId>com.mathworks.prodserver</groupId>
    <artifactId>mps_java_client</artifactId>
    <version>R2022a</version>
</dependency>
```

Python Client: Support for HTTPS

Using the MATLAB Production Server Python client library, you can now write applications that use HTTPS to execute MATLAB functions deployed to server instances. For details, see Use HTTPS for Client-Server Communication.

HTTPS communication using the Python client API is supported only on Windows and Linux platforms. Mac OS is not supported.

Python Client: Improved performance with large multidimensional arrays

The Python multidimensional array component used by the MATLAB Production Server Python client library shows improved performance in both of the following cases:

- Converting data from Python sequences to the data types defined by the `matlab` module

- Deserializing data from MATLAB into Python

For both cases, the improvement is noticeable when operating on arrays with at least 10 elements. For example, in the following Python code, the first line in bold is about 11 times faster than in the previous release, and the second line in bold is about 12 times faster:

```
import random
import time

from matlab.production_server._internal_mps.matlab_array_builder import create_matlab_array
from matlab.production_server._internal_mps.matlab_response_builder import create_matlab_result

import matlab

exp = 8
rand_array = [random.random() for i in range(10**exp)]

s0 = time.perf_counter()
array_md = matlab.double(rand_array, size=(1, 10**exp))
s1 = time.perf_counter() - s0
print('conversion to matlab.double: {:< 10f} seconds'.format(s1))

matlab_array = create_matlab_array(array_md)

s0 = time.perf_counter()
matlab_result = create_matlab_result(matlab_array.__get_ml_ref__())
s1 = time.perf_counter() - s0
print('execution of create_matlab_result(): {:< 10f} seconds'.format(s1))
```

The approximate execution times for the first line in bold are:

- R2021b: 40 s
- R2022a: 3.7 s

The approximate execution times for the second line in bold are:

- R2021b: 43 s
- R2022a: 3.5 s

The code was timed on a Windows 10, Intel® Xeon® CPU E5-1650 v4 @ 3.60 GHz test system using Python `perf_counter()` statements.

Microservice Integration: Create a microservice Docker image to access MATLAB code

You can create microservice Docker® images on Linux operating systems from the MATLAB command prompt using the `compiler.package.microserviceDockerImage` (MATLAB Compiler SDK) function. This function, along with the `compiler.package.MicroserviceDockerImageOptions` (MATLAB Compiler SDK) function, provides an interface to specify various options associated with creating Docker images. The microservice image provides an HTTP or HTTPS endpoint to access MATLAB code.

Python Client: Support for Python 2.7 will be discontinued

The Python client library will not support Python 2.7 in future releases. For more information on client system requirements, see Product Requirements and Platform Availability for MATLAB Production Server.

Compatibility Considerations

If you want to use Python 2.7 to develop client applications, you can continue using the R2022a version of the Python client library in future releases.

Python Client: Support for Python 3.7 discontinued

Errors

The Python client library no longer supports Python 3.7. For more information on client system requirements, see Product Requirements and Platform Availability for MATLAB Production Server.

Compatibility Considerations

To ensure continued support for your applications, use a supported version of Python, version 2.7, 3.8, or 3.9.

Java Client: Log4j and Logback no longer shipped in the client library

Errors

The Java client library no longer ships the Log4j and Logback logging frameworks.

Compatibility Considerations

To support logging in your applications, install an SLF4J-supported logging framework, then update your Java class path to use the framework. For details, see Logging.

MATLAB Production Server in Kubernetes: Support for R2022a release (April 2022)

You can now deploy MATLAB Production Server R2022a in Kubernetes® using the reference architecture on GitHub. For deployment details, see the MATLAB Production Server in Kubernetes repository on GitHub.

MATLAB Production Server on Azure: Support for R2022a release (June 2022)

You can now deploy MATLAB Production Server R2022a using the reference architecture on GitHub, and the BYOL and PAYG offerings on the Azure marketplace.

MATLAB Production Server Reference Architecture on AWS: Support for R2022a release (June 2022)

You can now deploy MATLAB Production Server R2022a on Amazon Web Services (AWS) using the reference architecture on GitHub.

To access the reference architecture, see MATLAB Production Server on Amazon Web Services on GitHub.

For information on deploying MATLAB Production Server using this reference architecture, see MATLAB Production Server Reference Architecture on AWS in the MATLAB Production Server documentation.

MATLAB Production Server (PAYG) on AWS: Support for R2022a release (October 2022)

You can now deploy MATLAB Production Server R2022a on Amazon Web Services (AWS) using the pay-as-you-go (PAYG) offering on AWS Marketplace.

To access the PAYG offering, see MATLAB Production Server (PAYG) on AWS Marketplace.

For information on deploying MATLAB Production Server using this offering, see MATLAB Production Server (PAYG) on AWS in the MATLAB Production Server documentation.

R2021b

Version: 4.6

New Features

RESTful API for Server Metrics: Retrieve server metrics

Use the GET Metrics API to retrieve server metrics in Prometheus metrics format. The metrics service returns information about requests that client applications send to the server, and the time and memory that the server utilizes to execute the requests. You can use the metrics to monitor the server when working with Kubernetes and microservices. For more information, see Metrics Service.

Japanese Language Localization Support: Parameters, variables, and error messages are available in Japanese

MATLAB Production Server Dashboard is available in Japanese for Japanese localized systems.

Python Client: Support for Python 3.9

The Python client library now supports Python 3.9. For more information on client system requirements, see Product Requirements and Platform Availability for MATLAB Production Server.

MATLAB Production Server (PAYG) on AWS: Deploy MATLAB Production Server on AWS without a license and pay for the MATLAB Production Server workers that you use (August 2021)

Pay as you go for the AWS resources and the MATLAB Production Server workers that your MATLAB Production Server deployment uses. MATLAB Production Server (PAYG) uses a CloudFormation template that enables you to quickly create, configure, and deploy a server environment in AWS. You do not need a MATLAB Production Server license to use this offering. This offering is useful for organizations that want to run proofs-of-concept, require extended paid trials, and experience bursty workloads. To deploy from the AWS marketplace, see MATLAB Production Server (PAYG). For information on how to deploy, see AWS Deployment for MATLAB Production Server (PAYG).

MATLAB Production Server Reference Architecture on AWS: New dashboard and support for generic identity providers; mandatory SSL certificate requirement during deployment (November 2021)

- The dashboard has replaced the cloud console for editing the server configuration and uploading applications. The dashboard also allows role-based access control, where administrators can grant a user the privileges to perform tasks on the dashboard based on their role. For information on using the dashboard, see Manage MATLAB Production Server Using the Dashboard. For information on configuring role-based access control, see Dashboard Access Control.
- The MATLAB Production Server reference architecture now supports integration with OAuth 2.0 providers such as Google® Identity and PingFederate®, in addition to the preexisting integration with Azure Active Directory, to restrict user access to applications deployed to the server and for configuring role-based access control for the dashboard. For details, see Application Access Control.
- The MATLAB Production Server deployment procedure requires a preexisting SSL certificate in your AWS account to use during deployment. Providing an SSL certificate is no longer optional.

MATLAB Production Server Reference Architecture, BYOL, and PAYG on Azure: Support for R2021b release (November 2021)

You can now deploy MATLAB Production Server R2021b using the reference architecture on GitHub, and the BYOL and PAYG offerings on the Azure marketplace.

MATLAB Production Server in Kubernetes: Deploy and run MATLAB Production Server in Kubernetes using a Helm chart (February 2022)

You can now deploy MATLAB Production Server in a Kubernetes cluster using a Helm® chart provided by MathWorks®. The chart is a collection of YAML files that define the resources you need to deploy MATLAB Production Server in Kubernetes. For deployment details, see the MATLAB Production Server in Kubernetes repository on GitHub.

R2021a

Version: 4.5

New Features

Compatibility Considerations

Application Access Control: Support for generic identity providers

Still runs

MATLAB Production Server now integrates with OAuth 2.0 providers such as Google and PingFederate, in addition to the preexisting integration with Azure Active Directory, to restrict user access to applications deployed to the server. For more information, see Application Access Control.

Compatibility Considerations

Use `OAuth2` instead of `AzureAD` when specifying the identity provider for the `access-control-provider` property. Specifying `AzureAD` will not be supported in a future release.

The default name for the access control configuration file is `jwt_idp.json` instead of `azure_ad.json`, if the `access-control-provider` property is set to OAuth2. For more information, see `access-control-config`.

Python Client: Support for Python 3.6 discontinued

Errors

The Python client library no longer supports Python 3.6. For more information on client system requirements, see Product Requirements and Platform Availability for MATLAB Production Server.

Compatibility Considerations

To ensure continued support for your applications, use a supported version of Python, version 2.7, 3.7, or 3.8.

MATLAB Client for MATLAB Production Server: Support for HTTPS (November 2020; Version 20.2.1)

You can now write client applications using MATLAB Client for MATLAB Production Server that use HTTPS to execute MATLAB functions deployed to server instances. For more information, see Execute Deployed Functions Using HTTPS.

MATLAB Client for MATLAB Production Server: Support for access control (January 2021; Version 20.2.2)

You can now write client applications using MATLAB Client for MATLAB Production Server that support access control. Client applications can send a bearer token to server instances that require user authorization for executing deployed applications. For more information, see Application Access Control.

MATLAB Production Server on Azure: Support for generic identity providers (July 2021)

MATLAB Production Server (BYOL), MATLAB Production Server (PAYG), and MATLAB Production Server reference architecture on Azure now support integration with OAuth 2.0 providers such as Google Identity and PingFederate, in addition to the preexisting integration with Azure Active Directory, to restrict user access to applications deployed to the server and for configuring role-based

access control for the dashboard. For details, see Dashboard Access Control (reference architecture), Dashboard Access Control (BYOL), and Dashboard Access Control (PAYG).

MATLAB Production Server on Azure: Provide SSL certificate during deployment (July 2021)

The deployment templates for MATLAB Production Server (BYOL), MATLAB Production Server (PAYG), and MATLAB Production Server reference architecture on Azure are no longer preconfigured to use a self-signed SSL certificate. You must provide an SSL certificate during deployment. For details, see SSL Certificate (BYOL) and SSL Certificate (PAYG).

R2020b

Version: 4.4

New Features

Compatibility Considerations

.NET Client RESTful API: Use asynchronous requests and protobuf with the RESTful API

The .NET client API now supports asynchronous request execution and supports protocol buffers (protobuf) for data serialization using the RESTful API for MATLAB function execution. The .NET client library provides helper classes to create protobuf messages and deserialize protobuf responses. For an example, see Asynchronous RESTful Requests Using Protocol Buffers in .NET Client. To download the client libraries, see MATLAB Production Server Client Libraries.

Server profiling: Specify multiple profiling objects and get more granularity when logging server profile information

When you use the `profile` property and the `mps-profile` command, you can now start or stop logging specific information for a server request. For example, you can log only the archive information or only client IP addresses. Previously, when you profiled a server request, the server logged all related information.

You can also specify multiple profiling objects now. For example, you can log information about the requested archives and also the worker pool.

For more information, see `profile` and `mps-profile`.

Compatibility Considerations

Support for `requests` and `worker_pool` objects in the `profile` property and `mps-profile` command will be removed in a future release. Use `server.request` instead of `requests` and `server.worker.pool` instead of `worker_pool`. The `requests` and `worker_pool` object names still work, but return a warning.

Python Client: Support for Python 3.8

The Python client library now supports Python 3.8. For more information on client system requirements, see Product Requirements and Platform Availability for MATLAB Production Server.

R2020a

Version: 4.3

New Features

Bug Fixes

Compatibility Considerations

Java Client RESTful API: Support for protobuf

The Java client API supports protocol buffers (protobuf) for data serialization when you use the RESTful API for MATLAB function execution. The Java client library provides helper classes to create protobuf messages and deserialize protobuf responses. For an example, see Asynchronous RESTful Requests Using Protocol Buffers in the Java Client.

JSON Representation of MATLAB Data Types: Support for string arrays, enumeration classes, and datetime arrays

The RESTful API now supports `string` arrays, `enumeration` classes, and `datetime` arrays as inputs and outputs for MATLAB functions deployed on the server. For more information, see JSON Representation of MATLAB Data Types.

You can also add the descriptions for `string` arrays to the MATLAB function signature JSON file. The MATLAB function signatures file does not support adding descriptions for `enumeration` classes and `datetime` arrays.

Python Client: Support for Python 3.6 and 3.7

The Python client library now supports Python 3.6 and 3.7. For more information on client system requirements, see Product Requirements and Platform Availability for MATLAB Production Server.

main-log-format Property: Specify a text format to log server events

You now have the option to use different text formats for logging server events. Previously, plain text was the only format available. For more information, see `main-log-format`.

enable-graceful-shutdown Property: Gracefully shut down server processes and release checked out licenses

The server now shuts down gracefully and releases any checked out licenses when server processes receive a terminal interrupt signal or a program termination signal. For more information, see `enable-graceful-shutdown`.

server-termination-grace-period Property: Specify time interval to terminate server and worker processes

The `server-termination-grace-period` *`hr:min:sec.fractSec`* property allows you to forcibly terminate all running server and worker processes on receipt of the `mps-stop` command, if they have not already stopped within *hr:min:sec.fractSec*. For more information, see `server-termination-grace-period`.

async-deploy-on-startup Property: Delay deployment of deployable archives

You can delay the deployment of deployable archives until after the server starts. The archives are accessible only after the server finishes deploying them. If you have several archives or large archives

to deploy, then set this property to avoid server timeout on startup. For more information, see `async-deploy-on-startup`.

mps-cache Function: Connect to all persistence services

You have the option to connect to all persistence services on the server by specifying the `--all` option with the `mps-cache` command. Specify either `--all` or `--connection` *`connection_name`*, not both.

JSON Representation of int64 and uint64 Integer Arrays: Preserve precision

`int64` and `uint64` numbers now maintain their range and precision in their JSON representation as they are no longer converted to `double` type. Having no limits on the range and precision of numbers deviates from the JSON specification that requires all numbers to be translated to double precision.

The following example shows the JSON representation of `intmax('int64')` using the `mps.json.encode` function.

R2019b and earlier	R2020a

`{`
`  "mwdata": [9.2233720368547758E+18],`
`  "mwsize": [1, 1],`
`  "mwtype": "int64"`
`}`
	`{`
	`  "mwdata": [9223372036854775807],`
	`  "mwsize": [1, 1],`
	`  "mwtype": "int64"`
	`}`

Compatibility Considerations

Since `int64` and `uint64` numbers are no longer converted to `double` type in their JSON representation, based on your implementation, computations that use these numbers might result in different values.

MATLAB Production Server (PAYG) on Microsoft Azure: Deploy MATLAB Production Server on Azure without a license and pay for the MATLAB Production Server workers that you use

Pay as you go for the Azure resources and the MATLAB Production Server workers that your MATLAB Production Server deployment uses. MATLAB Production Server (PAYG) uses an Azure solution template that enables you to quickly create, configure, and deploy a server environment in Azure. You do not need a MATLAB Production Server license to use this offering. This offering is useful for organizations that want to run proofs-of-concept, require extended paid trials, and experience bursty workloads. For deployment, see MATLAB Production Server (PAYG). For information on how to deploy, see Azure Deployment for MATLAB Production Server (PAYG).

MATLAB Production Server Reference Architecture on AWS: Support for network license manager, Amazon CloudWatch, and Amazon S3

Deploy the network license manager on a separate virtual machine and use the network license manager for MATLAB dashboard to manage your MATLAB Production Server licenses. Previously, you

had to manage licenses using the cloud console. For deployment details, see MATLAB Production Server on Amazon Web Services.

The deployment uses Amazon CloudWatch to store logs and Amazon S3™ to store deployed applications.

MATLAB Production Server Reference Architecture and MATLAB Production Server (BYOL) on Microsoft Azure: Support for network license manager and new dashboard

Deploy the network license manager on a separate virtual machine and use the network license manager for MATLAB dashboard to manage your MATLAB Production Server licenses. Previously, you had to manage licenses using the cloud console. For reference architecture deployment, see MATLAB Production Server on Microsoft Azure. For MATLAB Production Server (BYOL) deployment, see Azure Deployment.

The dashboard has replaced the cloud console for editing the server configuration and uploading applications. The dashboard also allows role-based access control, where administrators can grant a user the privileges to perform tasks on the dashboard based on their role. For information on using the dashboard, see Manage MATLAB Production Server Reference Architecture Using the Dashboard. For information on configuring role-based access control, see Dashboard Access Control.

R2019b

Version: 4.2

New Features

Bug Fixes

Compatibility Considerations

RESTful API for Server Health Check: Get server health status

Use the GET Server Health API to determine if the server is healthy and able to respond to HTTP requests. The server is healthy if it has a valid license or has lost communication with the network license manager but is still within the grace period specified by the `license-grace-period` property. For more information, see Health Check.

Kerberos and Kerberos Delegation: Use Kerberos to authenticate user access and Kerberos Delegation to delegate client credentials

You can configure Kerberos to authenticate user access to a MATLAB Production Server instance and configure Kerberos Delegation to use client credentials to access the next hop web server or a database server that is protected by Kerberos. Configuring Kerberos and Kerberos delegation requires domain administrator privileges. For more information, see Use Kerberos and Kerberos Delegation.

Compatibility Considerations

Authentication using Kerberos and delegation using Kerberos Delegation are supported on Windows Server® operating systems and the Windows Key Distribution Center only.

Windows Service: Configure failure recovery for a server instance running as a Windows service

You can now specify how your system responds if the Windows service for a server instance fails. Configure options, including automatic restart, on the **Recovery** tab in the Service Control Manager in Windows. For more information, see Recovery Options for a Server Instance Running as a Windows Service.

Security: Additional configuration needed for https

If you set the `https` property on the server, you must set the `x509-private-key` and `x509-cert-chain` properties; otherwise, the server fails to start.

Security: Change in default behavior of ssl-tmp-ec-param property

The default behavior of the `ssl-tmp-ec-param` property has changed. If you do not specify the elliptic curve name parameter for the property, then ECDHE ciphers use a default elliptic curve.

Security: Support for SSLv3 discontinued

The `ssl-protocols` property no longer supports SSLv3. It supports TLSv1, TLSv1.1, and TLSv1.2.

Cross-platform Deployment: Compile on one platform and deploy to a server running on any other supported platform

You no longer need to compile your MATLAB functions on the same platform as your server instance. For example, you can author and compile your functions on a Microsoft Windows machine and deploy to a server instance running on Linux.

MATLAB Production Server (BYOL) on Microsoft Azure: Deploy MATLAB Production Server on Azure using the MATLAB Production Server (BYOL) offering in the Azure marketplace

Bring your own MATLAB Production Server license for use on Azure and move on-premise workloads to the Azure cloud infrastructure. MATLAB Production Server (BYOL) uses an Azure solution template that enables you to quickly create, configure, and deploy a server environment in Azure.

R2019a

Version: 4.1

New Features

Bug Fixes

High-Speed Persistent Storage: Support for Azure Redis Cache

You can now use Azure Redis Cache as a remote host for the persistence service in MATLAB Production Server. Specify your Azure Redis Cache remote host name and port number in the `mps_cache_config` file or in the dashboard. For more information, see Use a Data Cache to Persist Data.

In order to use Azure Redis Cache, you will need a Microsoft Azure account.

Production Server Compiler: Test the discovery service using the Production Server Compiler app

You can use the testing interface in the **Production Server Compiler** app to test the discovery service offered by MATLAB Production Server. Check the **Enable Discovery** option in the testing interface to verify whether the discovery service is returning the desired descriptions for MATLAB functions when deployed to the server. You will need to create a function signature file with relevant information while packaging MATLAB functions to view useful information from the discovery service. For more information, see Test Client Data Integration Against MATLAB (MATLAB Compiler SDK).

R2018b

Version: 4.0

New Features

Bug Fixes

High-Speed Persistent Storage: Cache and store data in-between instance calls to the MATLAB Production Server

You can now cache and store data in an in-memory database (Redis server) in between instance calls to the MATLAB Production Server. Data is not saved between calls to the MATLAB Production Server, making it difficult to run applications that require data from previous sessions.

Persistent data storage uses a Redis server to store data between each call to the MATLAB Production Server, enabling applications to use historical data.

For example, to determine when the oil in an internal combustion engine should be changed, you need a mathematical model of oil degradation to determine the engine's lifetime. This computation requires historical data from the engine's sensors. In this case, a client connecting to the MATLAB Production Server via a RESTful interface would need persistent data storage.

You can package and deploy persistence-enabled applications to MATLAB Production Server in the same way as you would those that do not use persistence.

The Redis server ships with MATLAB Production Server.

For more information, see Use a Data Cache to Persist Data.

Azure Active Directory: Specify access control to individual deployed archives for specific user groups

You can now authorize access to individual deployed archives in Azure Active Directory. When the access control feature is enabled on the MATLAB Production Server, Azure Active Directory generates a token for a user group. You sign in to the Azure Active Directory and request the token. Add this token to your request authorization header. MATLAB Production Server reads the authorization header and verifies the token. It then grants or denies access to the individual deployed archives depending on whether you belong to the authorized user group.

For more information, see Access Control.

RESTful API Resource Discovery: Get descriptions for MATLAB functions and their input/output parameters

You can get descriptions for MATLAB functions and their input/output parameters from a JSON file that is generated when you create a deployable archive.

When you deploy a user-defined function in the **Production Server Compiler** app, click **Create File** under **Include MATLAB function signature file** to create the JSON file. For more information, see MATLAB Function Signatures in JSON.

You can populate the `purpose` fields for each variable to provide descriptions for the input/output parameters as shown here.

```
    "addmatrix": {
        "inputs": [
            {
                "name": "a1",
                "type": [],
```

```
            "purpose": "Matrix 1"
        },
        {
            "name": "a2",
            "type": [],
            "purpose": "Matrix 2"
        }
    ],
    "outputs": [
        {
            "name": "a",
            "type": [],
            "purpose": "Output Matrix"
        }
    ],
    "purpose": "  Addition of 2 matrices of the same size\n"
```

The JSON file also extracts the function description for each deployed MATLAB function, and inserts it at the end of each function signature.

For more information, see Discovery Service.

Reference Architecture: Deploy and run MATLAB Production Server on Amazon Web Services (AWS) and Microsoft Azure

You can deploy and run the MATLAB Production Server on AWS and Azure. Use a MathWorks provided AWS CloudFormation template to deploy to AWS and an Azure Resource Manager (ARM) template to deploy to Microsoft Azure. Once deployed, you can manage the server using the MATLAB Production Server Cloud Console—a web-based interface to configure and manage server instances on the cloud. For more information, see MATLAB in the Cloud. For reference architectures deployment details on GitHub, see:

- MATLAB Production Server on AWS
- MATLAB Production Server on Azure

R2018a

Version: 3.1

New Features

Bug Fixes

RESTful API for Service Discovery: Discover MATLAB functions deployed on MATLAB Production Server

You can get information about the archives deployed to MATLAB Production Server and the MATLAB functions contained within those deployed archives using the discovery service API. You can use the API to find out the names of the deployed functions and the number and size and of the inputs and outputs.

For more information, see RESTful API.

Java Client Logging: Log client requests using slf4j supported engines

You can log the correspondence between your Java client and MATLAB Production Server using logging functionality in the Java client. The log captures details such server URLs, the status of HTTP requests, and output data. To enable logging, use the embedded `log4j` engine or any `slf4j` supported logging engine.

For more information, see Java Client Logging.

R2017b

Version: 3.0.1

Bug Fixes

R2017a

Version: 3.0

New Features

Bug Fixes

Server Management Dashboard: Configure and manage multiple server instances using a web-based interface

The dashboard in MATLAB Production Server provides a web-based interface to configure and manage server instances. System administrators can manage multiple server instances without having to execute manual commands or editing the `auto_config` file.

R2016b

Version: 2.4

New Features

Bug Fixes

Asynchronous Execution Using RESTful API and Java Client: Utilize application server resources for compute-intensive jobs

The asynchronous interface of the MATLAB Production Server client provides a nonblocking model of interacting with a MATLAB Production Server instance. It leverages the multiple cores on the server to provide parallelization and thereby increases server throughput. As a result, multiple server requests can be made from client applications simultaneously without having to wait for the server to complete processing a request. The requests are queued and processed in the order in which they are received. For more information, see RESTful API.

Extension of JSON Representation: Represent MATLAB vectors and matrices of type double, logical, and struct using JSON small notation

You can now represent MATLAB vectors and matrices of type `double`, `logical`, and `struct` using JSON small notation. For more information, see JSON Representation of MATLAB Data Types.

R2016a

Version: 2.3

New Features

Bug Fixes

RESTful API and JSON: Develop clients for MATLAB Production Server in any programming language that supports HTTP

The MATLAB Production Server RESTful API enables you to evaluate MATLAB functions on remote servers using JSON representation of MATLAB data types. You can create client programs in any programming language with an HTTP library.

Client code that uses the MATLAB Production Server RESTful API and JSON representation of MATLAB data types can be written in web-based languages such as JavaScript® and embedded in HTML pages. These web pages can then be used to send and retrieve requests from a MATLAB Production Server instance.

For more information, see RESTful API and JSON Representation of MATLAB Data Types.

R2015b

Version: 2.2

New Features

Bug Fixes

HTTPS for C/C++ Client Library: Provide secure communication for C/C ++ client applications

The C/C++ client library utilizes the TLS/SSL standard to provide an HTTPS connection between client applications and the server. HTTPS provides transmission layer encryption as well as configurable options for client and/or server side authentication.

R2015a

Version: 2.1

New Features

Bug Fixes

Server installation as a Windows Service

You can configure a MATLAB Production Server instance to run as a service on Windows. Services can automatically start when a machine is booted.

Development and test framework for MATLAB Production Server for integration with web and enterprise systems

MATLAB Compiler SDK includes everything you need to develop client applications for MATLAB Production Server:

- Client APIs execute MATLAB functions on the server.
- Production Server Compiler app tests the integration between clients and compiles MATLAB functions for deployment to the server.
- Test server tests client code and server configuration together.

R2014b

Version: 2.0

New Features

Bug Fixes

C/C++ and Python client libraries for integrating into a broader range of enterprise environments

Client applications can be developed in two additional languages that are broadly used in the larger software community.

R2014a

Version: 1.2

New Features

Bug Fixes

Dynamic invocation API that improves integration with databases and third-party applications

Clients can call MATLAB functions without creating an interface that needs to be recompiled if a function signature changes. The API constructs the function call at runtime.

HTTPS for secure communication with client applications

MATLAB Production Server and the client libraries utilize the TLS/SSL standard to provide an HTTPS connection between client applications and the server. HTTPS provides transmission layer encryption as well as configurable options for client and/or server side authentication.

Program access control based upon client SSL certificates

Access to the MATLAB programs running on MATLAB Production Server can be optionally configured to be restricted based upon information within a client-side SSL certificate.

R2013b

Version: 1.1

New Features

Bug Fixes

HTTPS for secure communication with client applications

MATLAB Production Server and the client libraries utilize the TLS/SSL standard to provide an HTTPS connection between client applications and the server. HTTPS provides transmission layer encryption as well as configurable options for client and/or server side authentication.

Program access control based upon client SSL certificates

Access to the MATLAB programs running on MATLAB Production Server can be optionally configured to be restricted based upon information within a client-side SSL certificate.

R2013a

Version: 1.0.1

Bug Fixes

R2012b

Version: 1.0

New Features

Compatibility Considerations

Production deployment of MATLAB programs without recoding or creating custom infrastructure

MATLAB Production Server runs MATLAB programs as part of your production IT systems, enabling you to incorporate numerical analytics in enterprise applications.

Use MATLAB Compiler™ to package your MATLAB programs, and deploy them on MATLAB Production Server for use by Web, database, and enterprise applications.

For an overview of MATLAB Production Server functionality and features, see the Product Description in the documentation.

Scalable performance and management of packaged MATLAB programs

MATLAB Production Server runs on multiprocessor and multicore servers, providing low-latency processing of many concurrent requests.

You can deploy the product on additional computer servers to increase the number of concurrent requests the system can handle and to provide redundancy. The `auto_deploy` folder on the server is a repository that can be shared across multiple servers for centrally managing your packaged MATLAB programs.

For an overview of the server component of the product, see the Server Overview in the documentation.

For detailed information about server processing, workflow, and related tasks, see the documentation.

Lightweight client library for calling numerical processing programs from enterprise applications

Web, database, and enterprise applications connect to MATLAB programs running on MATLAB Production Server using a lightweight client library. Versions of the client libraries are provided for integration with both Microsoft .NET Framework and Java environments and allow the use of native data types when accessing MATLAB programs.

For an overview of the client component of the product, see the MATLAB Production Server Client Overview.

Isolation of MATLAB processes from other system elements

The client library isolates the numerical processing associated with running MATLAB programs from your Web, database, and enterprise application servers. This separation allows you to optimize the performance of your system, as well as enable you to update MATLAB programs without affecting your other applications.

For an overview of the client component of the product, see the MATLAB Production Server Client Overview.

Common infrastructure across Microsoft .NET Framework and Java development environments

MATLAB Production Server client libraries are the only component of the product that is environment-specific. MATLAB programs running on a MATLAB Production Server instance can be accessed by various applications developed or supported by Microsoft .NET Framework or Java.

For detailed information about each client implementation, see Java Client and .NET Client in the documentation.

Network license manager integration

MATLAB Production Server is licensed using a network license manager.

For complete information about licensing, see License Management for MATLAB Production Server.

Linux MAN pages

MAN page help, which documents the server commands, is available from the Linux command line.

Client API documentation

API documentation for Java clients and .NET clients is available at *$MPS_INSTALL*`/client`.

MATLAB files must complete execution prior to exiting MATLAB Production Server

The MATLAB file being deployed must finish executing before an instance of MATLAB Production Server can exit.

Unsupported MATLAB data types for client and server marshaling

The following MATLAB data types are not supported by the Java and .NET Client as inputs or outputs for Version 1.0 R2011b+ Beta 2:

- MATLAB function handles
- Complex (imaginary) data
- Sparse arrays

I18N Compliance Restrictions

The following are restrictions on I18N compliance for MATLAB Production Server as of this release:

- MATLAB functions residing in a folder named with non-ASCII characters (such as Japanese characters) cannot be deployed.
- MATLAB Production Server cannot be installed into a folder named with non-ASCII characters (such as Japanese characters).

- The MATLAB Compiler Runtime (MCR) is not cross-locale compatible. If a MATLAB Production Server client sends a locale-specific character to a server running an MCR in a different locale, data may be corrupted.

Apple Macintosh Limitations

The following limitations apply to Apple Macintosh for this release of MATLAB Production Server:

- On Apple Macintosh, MATLAB Production Server does not support running a display. Any MATLAB files containing graphics will encounter errors if run on MATLAB Production Server. To work around this limitation, add `--no-display` to your server's `main_config` configuration file.
- Specifying a worker pool memory limit (using `--worker-memory-trigger` or `--worker-memory-target`) is not supported on Macintosh OS X. To work around this limitation, remove these options from your server's `main_config` configuration file.