

# MATLAB<sup>®</sup> Production Server<sup>™</sup> Release Notes



# MATLAB<sup>®</sup>

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## *MATLAB® Production Server™ Release Notes*

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# R2018b

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**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”.

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## 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

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**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

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**Version: 3.0.1**

**Bug Fixes**





# R2017a

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**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

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**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

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**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

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**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

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**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

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**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

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**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

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**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

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**Version: 1.0.1**

**Bug Fixes**



# R2012b

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**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.

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## **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.

## **FLEXlm license management integration**

MATLAB Production Server is licensed using FLEXlm<sup>®</sup> license management software.

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<sup>®</sup> 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.

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- 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.

