

MATLAB® Production Server™

Excel® Client Guide



MATLAB®

R2017b



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*MATLAB® Production Server™ Excel® Client Guide*

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# Integrating with MATLAB Production Server

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## Install the Deployable Archive

The Production Server Compiler app generates a deployable archive containing the compiled MATLAB code used by the add-in. This archive needs to be deployed to a MATLAB Production Server instance before the add-in will work.

To install the deployable archive on a server instance:

- 1 Locate the archive in the `for_redistribution_files_only\server\` folder.

The file name is similar to *archiveName.ctf*.

- 2 Copy the archive file to the `auto_deploy` folder of the server instance.

For more information, see “MATLAB Production Server” documentation.

## Install the Excel Add-In

In this section...

“Install with the Generated Installer” on page 1-3

“Install with the Raw Files” on page 1-4

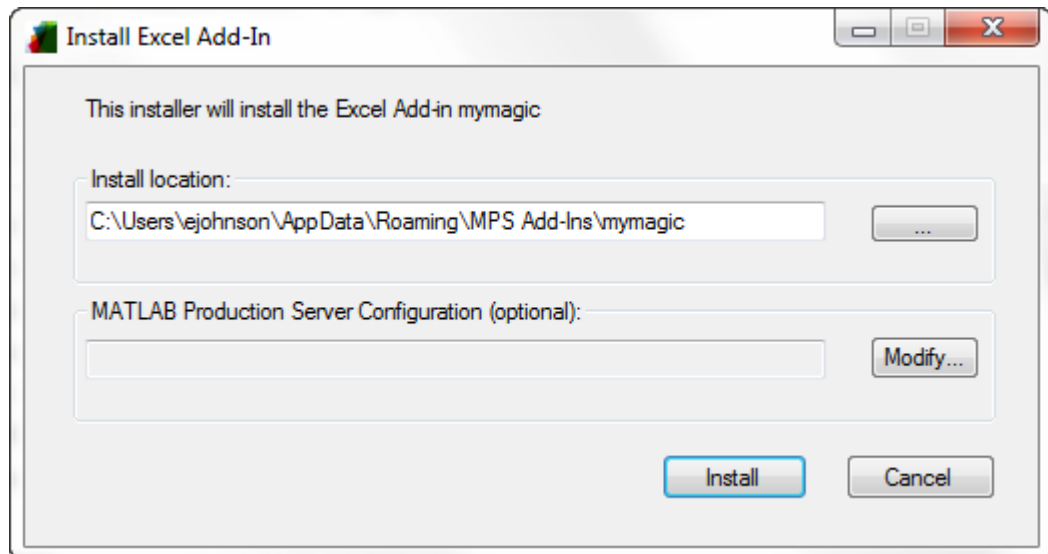
### Install with the Generated Installer

**Note** The client installer installs under user's local profile which does not require administrative privileges.

The Production Server Compiler app generates an installer that you use to install the add-in and configure it to connect to a MATLAB Production Server instance.

To install the add-in:

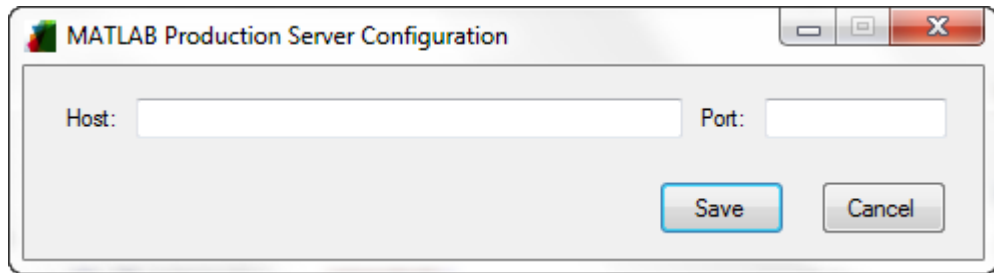
- 1 Locate the installer in the `for_redistribution\client` folder.
- 2 Double click the installer to start it.



- 3 In the **Install location** field, enter the location where the Excel add-in is installed.

4 Specify the URL of the deployable archive powering the Excel add-in.

a Click **Modify**.



b In the **Host** field, enter the host name or the full URL of the machine running the MATLAB Production Server instance with the deployable archive.

c In the **Port** field, enter the port number on which the server instance listens for incoming requests.

The default port number is **9910**.

d Click **Save**.

5 Click **Install**.

## Install with the Raw Files

In the `client\for_redistribution_files_only` you will find the following files:

- `projName.dll`— Dynamic library required by the add-in
- `projName.bas` — VBA module file created for the add-in
- `projName.xla` — Excel add-in file

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*Note* If `projName.xla` is not generated, you can still install the add-in using `projName.bas`. See “XLA File Not Generated” on page 1-12 for more information.

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- `serverconfig.dll`- Excel add-in that manages the server configuration

On the machine running the add-in, you must register the following DLLs with the `regAsm /codebase` command:

- `mymagic.dll`
- `serverconfig.dll`



If `mymagic.xla` is generated, install the add-in into Excel. If not, import `mymagic.bas` to the workbook's Visual Basic project.

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**Note** If you do not have administrative privileges on the machine, you can run `regAsm` with the `/regfile` option.

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## Data Marshaling Rules

In this section...
“Default Marshaling Rules” on page 1-6
“Change Rules for Marshaling Data into MATLAB” on page 1-6
“Change Rules for Marshaling Data into Excel” on page 1-7

### Default Marshaling Rules

These types of data do not have natural mappings between MATLAB and Excel:

- Dates: Excel has a special data type for dates, and MATLAB does not.
- Blank cells: MATLAB has no equivalent construct for a blank cell in an Excel spread sheet.

If you do not change the marshaling rules when compiling the add-in, the rules for marshaling Excel data into MATLAB are:

- Excel dates are marshaled into MATLAB doubles.
- Empty cells are marshaled into zeros.

If you do not change the marshaling rules when compiling the add-in, the rules for marshaling MATLAB data into Excel are:

- MATLAB NaNs are marshaled into Visual Basic® #QNANs.
- MATLAB does not return any Excel dates.

### Change Rules for Marshaling Data into MATLAB

You can change how dates and empty cells are marshaled into MATLAB when compiling the add-in:

- Excel dates can be marshaled as MATLAB character arrays.
- Empty cells can be marshaled as MATLAB NaNs.

To change the marshaling rules:

- 1 In the class mapper portion of the **MATLAB Compiler** project window, select the signature of the function you want to modify.
- 2 Select **Data Conversion Properties** from the context menu.
- 3 Select the input argument rules to change.
- 4 Click outside of the dialog box to close it.

## Change Rules for Marshaling Data into Excel

You can change how dates and NaNs are marshaled into Excel when compiling the add-in:

- MATLAB NaNs can be converted into zeros.
- MATLAB numeric values can be converted into Excel dates.

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**Note** To see a date in the expected format, ensure that the Excel cell is formatted to display its contents in a date format.

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To change the marshaling rules:

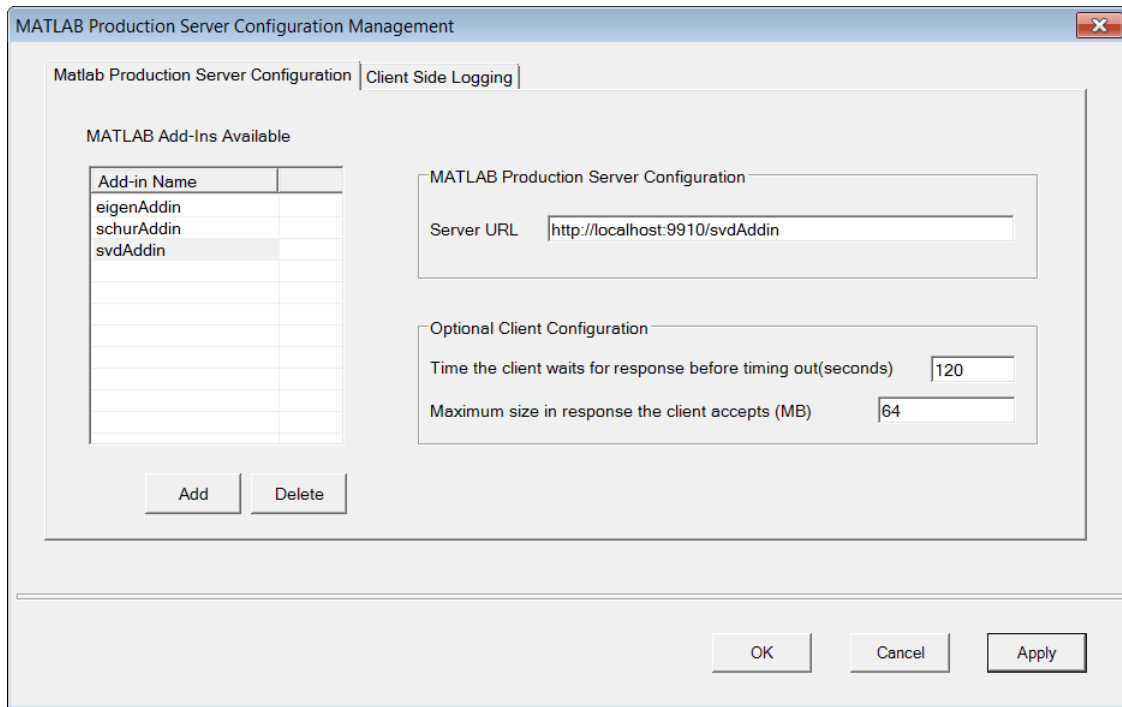
- 1 In the class mapper portion of the **MATLAB Compiler** project window, select the signature of the function you want to modify.
- 2 Select **Data Conversion Properties** from the context menu.
- 3 Select the output argument rules to change.
- 4 Click outside of the dialog to close it.

## Change the Server Configuration

Before you can run an Excel add-in on a MATLAB Production Server instance, you need to configure it.

To configure the server information for an add-in:

- 1 In Excel, select **Add-Ins > Configure MATLAB Production Server**.



- 2 Select the **MATLAB Production Server Configuration** tab.
- 3 Select the add-in to configure. The server URL corresponding to the add-in displays in the **Server URL** field.

If the add-in is not listed, click **Add** under the **MATLAB Add-ins Available** table. Enter the name of the add-in, and click **OK**.

- 4 If the **Server URL** field is empty, enter the URL based on the application protocol you want to use: HTTP or HTTPS. A server certificate needs to be installed in the certificate store of the client or local machine running the Excel add-in when using HTTPS.

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Protocol	URL	Default Port Number
HTTP	http://<HostName>:<PortNumber>/ctfArchiveName	9910
HTTPS	https://<HostName>:<PortNumber>/ctfArchiveName	9920

- 5 Modify the **Optional Client Configuration** options if necessary.
- 6 Click **OK**.

## See Also

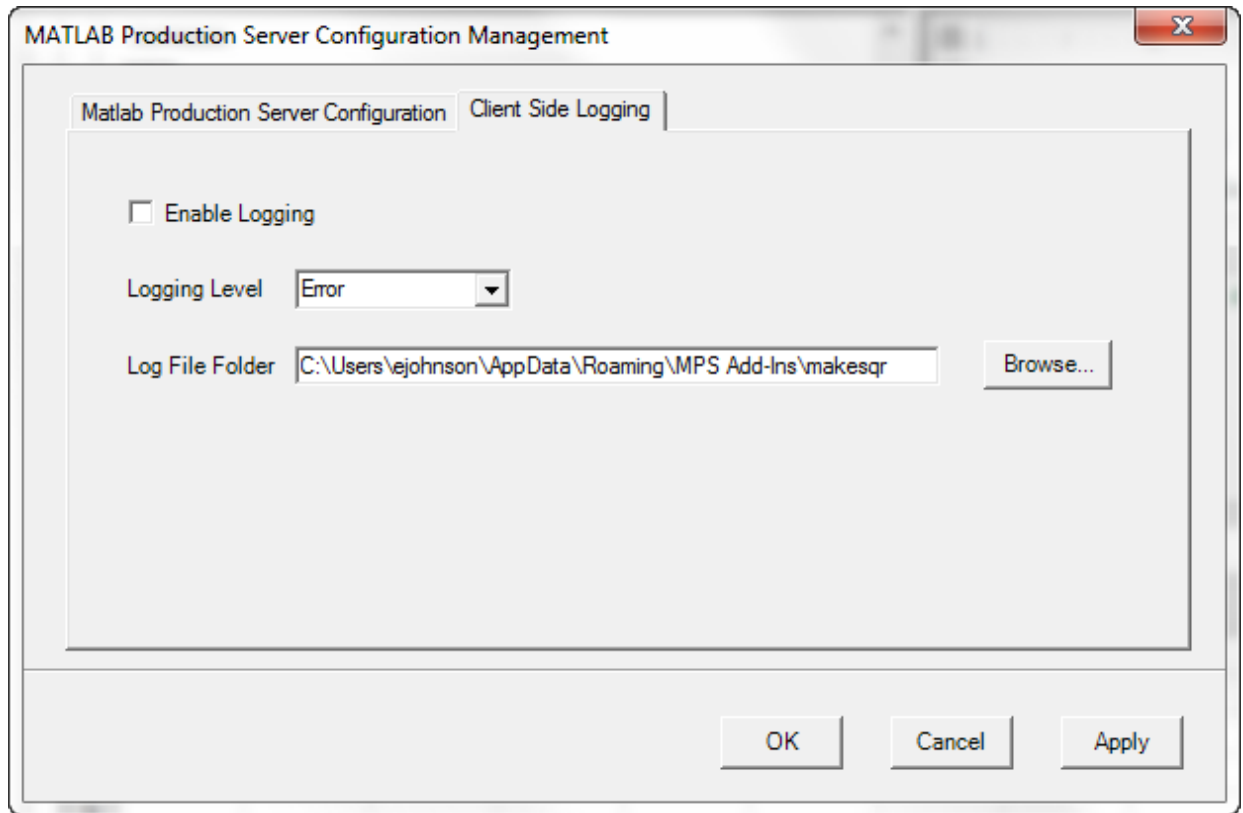
### More About

- “Install the Excel Add-In” on page 1-3

## Enable Client Logging

Client logging writes messages to a persistent log file. The messages are useful for debugging issues with the add-in. Client logging is disabled by default. To activate it:

- 1 In Excel, select **Add-Ins > Configure MATLAB Production Server**.



- 2 Select the **Client Side Logging** tab.
- 3 Check the **Enable Logging** box.
- 4 Select the logging level from the **Logging Level** drop down list.
  - **Error** — Log error messages.
  - **Information** — Log information about server interactions in addition to error messages.

- **Verbose** — Log everything.
- 5 In the **Log File Folder** box, enter the folder into which log files are written.

When client logging is enabled all registered MATLAB Production Server add-ins generate log files. The files follow the naming convention *logFolder\addinName-date.log*.

## XLA File Not Generated

The compiler may not generate the *projName.xla* file for a number of reasons, including that Excel is not configured to trust access to the VBA project object model. When this happens, you can install the add-in by importing the *projName.bas* file into the workbook's Visual Basic project.



## Server Configuration Add-in Not Enabled

If your trust settings in Excel are configured to either disable all add-ins or to require add-ins to be published by a trusted publisher, it is possible that the **Configure MATLAB Production Server** add-in is not available after installation. In most cases, the add-in is installed but disabled.

To check if the add-in is installed in Excel:

- 1 Select **File>Options**.
- 2 Select **Add-Ins**.
- 3 Look for **ServerConfig.Connect** in the list of disabled add-ins.

You can enable the add-in by adjusting the trust settings in Excel.

## Error Using a Variable Number of Outputs

If your add-in throws the error:

Error in myfunc: Object reference not set to an instance of an object

The likely cause is that the MATLAB function used by the add-in returns a variable number of outputs.

Add-ins using code run on a MATLAB Production Server instance do not support MATLAB functions that return a variable number of outputs. You can either rewrite your MATLAB function to return a fixed number of outputs, or you can create an add-in that runs locally to your Excel installation.